# WORKABOUT PRO
### (Model Numbers 7527C-G2 & 7527S-G2)
# Hand-Held Computer With Windows CE 5.0
# User Manual

**June 15, 2007     Part No. 8100140.A**

*ISO 9001 Certified*
*Quality Management System*

PSION TEKLOGIX

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# INTRODUCTION

<div style="text-align: right;">**1**</div>

# 1.1  About This Manual

This manual describes how to configure, operate and maintain the Psion Teklogix WORKABOUT PRO hand-held computer.

*Chapter 1: Introduction*
> provides a basic overview of the WORKABOUT PRO hand-held.

*Chapter 2: Basic Checkout*
> describes the steps required to get the WORKABOUT PRO ready for operation, including setting up your RA2041 802.11b/g radio. This chapter also describes how to use the phone dialer.

*Chapter 3: Getting To Know Your WORKABOUT PRO*
> describes the WORKABOUT PRO features and outlines how to charge and maintain the battery. This chapter also provides a description of the keyboard, how to navigate in Microsoft Windows CE 5.0, and so on.

*Chapter 4: Working With Windows CE 5.0*
> describes the Microsoft Windows CE 5.0 desktop and how to use it. This chapter also outlines the basics of moving around a Windows CE 5.0 window, selecting and opening icons, files, folders and working with a Windows dialog box.

*Chapter 5: Configuration*
> describes the Windows CE 5.0 Control Panel and how to use it to configure the WORKABOUT PRO, along with the scanners attached to the hand-held, and so on.

*Chapter 6: Peripheral Devices & Accessories*
> describes the peripherals and accessories available for your WORKABOUT PRO hand-held.

*Chapter 7: Specifications*
> lists radio, hand-held computer and battery specifications.

*Appendix A: Port Pinouts*
> describes the WORKABOUT PRO pinouts

*Appendix B: Wireless Wide Area Network (WWAN)*
> describes WWAN configuration information (GPRS radio model no. RA3030).

*Appendix C: Summit Client Utility (SCU) For Model RA2041*
> provides detailed descriptions of the SCU tabs.

## 1.2 Text Conventions

*Note:* *Notes highlight additional helpful information.*

*Important:* **These statements provide particularly important instructions or additional information that is critical to the operation of the equipment.**

*Warning:* **These statements provide critical information that may prevent physical injury, equipment damage or data loss.**

## 1.3 WORKABOUT PRO Features

*Important:* **For all safety, regulatory and warranty information, refer to the 'WORKABOUT PRO Hand-Held Computer Regulatory & Warranty Guide', PN 8000126.**

The WORKABOUT PRO is a ruggedized hand-held personal computer, running the Microsoft Windows CE 5.0 operating system. It is intended for use in commercial and light industrial applications with a focus on real time wireless data transactions. All possible bar code input methodologies are supported by one of a variety of scanners available. Optimization for specific operational environments is supported with a wide range of peripheral options and carrying accessories.

*Note:* *For complete hand-held computer specifications, refer to "WORKABOUT PRO Specifications" on page 239.*

### Model Variants
• WORKABOUT PRO C – Model 7527C-G2
• WORKABOUT PRO S – Model 7527S-G2

### Platform
• PXA270 @ 520 MHz, 32 bit RISC CPU
• 128 MB flash, 128 MB RAM

### Operating System
• Microsoft® Windows® CE 5.0

## Multi-Media Chipset

- NVIDIAGoForce 4000 Multi-Media Processor

## Real-Time Clock

- CPU independent RTC capable of maintaining the system date and time for at least 3 months with a fully charged backup battery

## User Interface

- Color Touch Screen Display 3.6 in.(9.144 cm) diagonal
  - Full VGA 480x640 resolution
  - Transflective, portrait mode TFT
  - Adjustable Backlight
- Touchscreen
  - Passive stylus or finger operation
  - Signature capture
- Keyboards
  - Full Alpha-Numeric (C model)
  - Numeric (S model)
  - Ergonomically enhanced for ambidextrous, one-hand operation
  - Backlit, high durability hard-capped keys

## Wireless Communication

Optional expansion modules for:

- 802.11b/g (via Compact Flash) operating in the 2.4GHz band:
  - Supports IEEE 802.11b data rates of 1,2,5.5 and 11Mbps using Direct Sequence Spread Spectrum (DSSS).
  - Supports IEEE 802.11g data rates of 6,9,12,24,36,48 and 54Mbps,using Orthagonal Frequency Division Multiplexing (OFDM) base band modulation
- GSM/GPRS EDGE (via expansion interface)
  - Quad-Band – 850/900/1800/1900
  - Voice and Data
  - GPRS Class B, Multi-Slot Class 12

- EGPRS Class B,Multi-Slot Class 12
  - Integrated Bluetooth class II, ver 1.2
    - Working Range:16.4 ft.to 32.81 ft. (5m to 10m)

*Note:* *802.11b/g, GSM, and Bluetooth are available simultaneously.*

### 1.3.1  The WORKABOUT PRO C Hand-Held



Figure 1.1  WORKABOUT PRO C With 52-Key Keyboard

## 1.3.2 The WORKABOUT PRO S Hand-Held



Figure 1.2 WORKABOUT PRO S With 25-Key Keyboard

# BASIC CHECKOUT

# 2

# 2.1 Preparing The WORKABOUT PRO For Operation

## 2.1.1 The Main Battery

*Warning:* ***Before charging the battery, it is critical that you review the battery safety guidelines in the "WORKABOUT PRO Hand-Held Computer Warranty & Regulatory Guide", PN 8000126.***

The WORKABOUT PRO C and WORKABOUT PRO S can be powered with one of the following lithium-ion battery packs:

- High-Capacity – Model No. WA3006, and
- Super High-Capacity – Model No. WA3010

### 2.1.1.1 Charging The Main Battery

*Important:* ***Before opening the battery cover on your WORKABOUT PRO, press [FN/BLUE] [ENTER] to turn off the hand-held. When the battery cover is removed, a power-off switch is automatically activated and the unit power is switched off; if the battery cover is opened while the hand-held is still powered on, the unit may reboot.***

Battery packs shipped from the factory are charged to approximately 40% and must be fully charged prior to use. Batteries can be charged using a variety of chargers and docking stations along with a WORKABOUT PRO internal charger. When using the internal charger, a suitable power source is required. All chargers and docking stations are described in *Chapter 6: Peripheral Devices & Accessories* beginning on page 205.

*Note:* *If you are powering up a new unit, a warning message may appear on the screen indicating that the backup battery capacity is low. To recharge the internal battery, you must fully charge the WORKABOUT PRO with the main battery installed in the unit.*

## 2.1.2 The Backup Battery

To preserve data stored in your WORKABOUT PRO while you swap the main battery, the unit is equipped with a backup battery—a replaceable, rechargeable Lithium-Ion backup battery that can be ordered through Psion Teklogix. The backup battery will supply 5 minutes of continuous power while you install a charged, main battery.

The backup battery is trickle charged from the main battery. Provided that the main battery contains power, the backup battery will maintain a charge whether the WORKABOUT PRO is switched on or off, in a docking station or in a cradle. Even when the main battery reaches its *Suspend Threshold* (refer to "Suspend Threshold" on page 100) and the hand-held shuts down, the backup battery will continue to draw a trickle charge from the main battery to protect the data stored in the unit until a charged main battery is installed.

*Note:* *The backup battery takes approximately 3 to 4 hours to fully charge from a fully discharged (flat) state, generally the same amount of time it takes to fully charge the main battery. While you can continue to use the WORKABOUT PRO, replacing the main battery while the backup battery is not fully charged is not recommended because you risk losing the data stored on the unit.*

# 2.2 Turning The WORKABOUT PRO On And Off

## 2.2.1 Installing The Battery And Switching The Unit On

*Important:* **Press [FN/BLUE] [ENTER] to turn off the hand-held before opening the battery cover on your WORKABOUT PRO. When the battery cover is removed, a power-off switch is automatically activated switching the unit off; if the battery cover is opened while the hand-held is still powered on, the unit may reboot.**

- To unlock the battery cover, turn the left-hand battery fastener to the left, and turn the right-hand battery fastener to the right.
- Remove the battery cover.
- Ensure that the ON/OFF switch in the battery compartment is set to ON before inserting the battery.

- Snap the *charged* battery into the unit. Replace the battery cover, and lock the fasteners in place.

*Note:* *If you are using a docking station or an external power supply, you can insert an uncharged battery and switch it on.*

To switch on the WORKABOUT PRO:
- Press and hold down the [ENTER] key for at least one second.
- When the LED flashes green, release the [ENTER] button.

The desktop screen is displayed.

*Note:* *If the unit was already in use—the unit may be off (suspend state)—pressing [ENTER] 'wakes' the unit from this state. The screen in which you were working prior to the suspend state is displayed. describes how you can assign other 'wakeup' keys or enable a two-key 'power on' sequence.*

## 2.2.2  Switching The Unit Off (Suspend)

- Press the [FN/BLUE] key, and then press [ENTER].

# 2.3  Calibrating The Touchscreen

*Note:* *Keep in mind that the touchscreen function can be turned off (see "Touch" on page 104).*

The WORKABOUT PRO touchscreen is factory-calibrated and ready-to-go; however, over time the touchscreen operating parameters may change, and it may need to be recalibrated for correct operation. Refer to "Calibrating The Touchscreen" on page 41 for details.

# 2.4  Configuring The Summit RA2041 802.11b/g

Psion Teklogix supports an 802.11b/g Compact Flash (CF) wireless LAN radio card, model number RA2041. It is a Direct Sequence Spread Spectrum radio.

If you're unit is equipped with an *RA2041 CF radio*, follow the steps under "Summit Client Utility (SCU) For Model RA2041" to set up this type of radio for communication with a wireless LAN.

## 2.4.1  Summit Client Utility (SCU) For Model RA2041

This section describes the *Summit Client Utility (SCU)*. The *SCU* provides the utilities you will need to configure the Summit 802.11b/g Compact Flash radio module, model number RA2041 so that it can communicate through a wireless LAN effectively and securely.

## 2.4.2  Assigning The IP Address

Before launching the *SCU*, you need to configure how the IP address will be obtained. If your network is not using a DHCP server, you will need to assign an IP address.

1.  Tap on **Start>Settings>Network and Dial-up Connections.** (If the *Start Menu* isn't displayed in the taskbar, press [FN/BLUE] [0] to display it**.)**

    If you're using the keyboard, press [FN/BLUE] [0] to display the *Start Menu*. Use the [DOWN] arrow key to highlight *Settings*. Press the [RIGHT] arrow key to display the sub-menu. Highlight *Network,* and press [ENTER].

2.  Choose the **Summit WLAN Adapter** icon to open the *802.11b/g Wireless LAN Settings* window. In Figure 2.1, this icon is labelled **SDCCF10G1**.
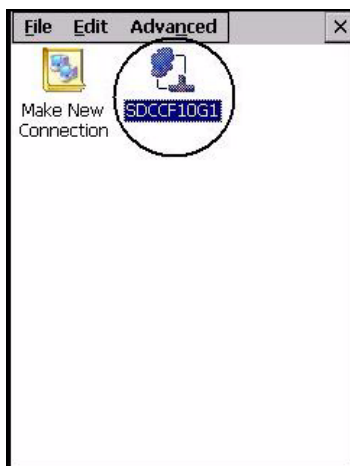


Figure 2.1 Summit WLAN Adapter Icon

The *Summit WLAN Adapter Settings* menu is displayed (In this screen shown as the *SDCCF10G1* menu).

3. Tap on the **IP Information** tab.
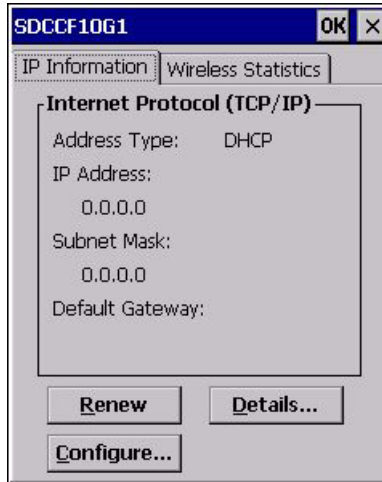


Figure 2.2 IP Information Tab

*Note: Choosing the Renew button forces the WORKABOUT PRO to renew or find a new IP address. This is useful if, for example, you are out of communication range for a longer period of time and your WORKABOUT PRO is dropped from the network.*

4. To define a static IP address, tap on the **Configure** button. The *Summit WLAN Adapter Settings* menu provides two options:

   • Tap on **Obtain an IP address via DHCP** to have an address assigned automatically, or

   • If you want to use a particular IP address, tap on **Specify an IP address**, and type the preferred address as well as the *IP, Subnet Mask* and *Default Gateway* addresses in the appropriate fields. Tap **OK** to save your information.
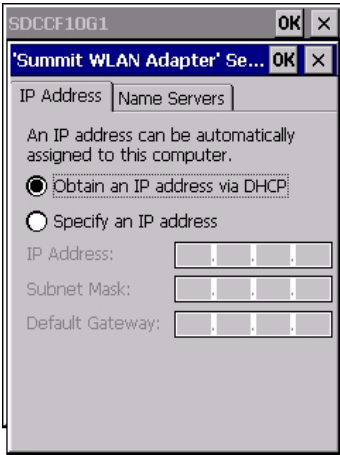
### 2.4.3 Name Servers Tab

*Note: If DHCP is enabled, name server addresses are assigned automatically.*

- In the *SDCCF10G1* window, display the **IP Information** tab.
- In the *Summit WLAN Adapter Settings>IP Information* tab, tap on the **Configure** button.
- Display the **Name Servers** tab.
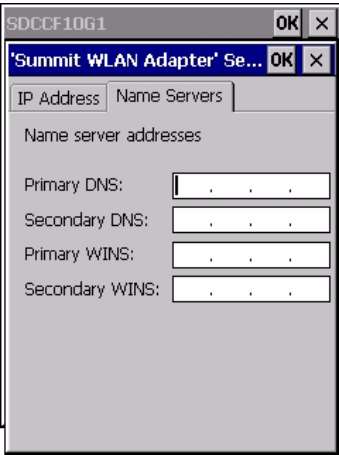
The DNS and WINS fields in the **Name Servers** tab allow you to specify additional WINS and DNS resolvers. The format for these fields is ###.###.###.###.

## 2.4.4  Using The SCU To Connect To The WLAN

This section provides a quick set of steps to create a profile (referred to as a "config"). Detailed information about each of the SCU tabs—*Main*, *Config*, *Status*, *Diags* and *Global Settings*—is provided in *Appendix C: Summit Client Utility (SCU) For Model RA2041*. To launch the *SCU* so that your WORKABOUT PRO can connect to a wireless LAN:

- Tap on **Start>Programs>Summit**, and then tap on the **SCU** icon.

*Figure 2.3 SCU Main Tab*

- Tap on the **Config** tab.
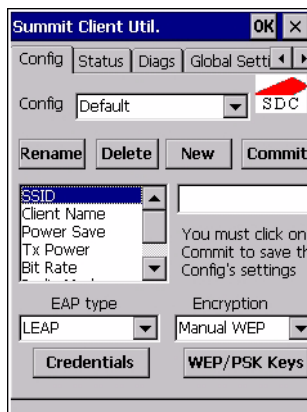
*Figure 2.4 SCU Config Tab*

- Tap on the **New** button to define a new *config*.
- Type a name for your configuration using any alpha-numeric combination to uniquely identify this *config*.
- Tap on **OK** to return to the *Config* tab.
- Tap on **Commit** to save the *config* name.
- When a pop-up message indicates that your configuration will be saved, tap on **OK**.

## 2.4.4.1  SSID

To configure the *SSID* for the network to which you want to associate:

- Type an **SSID** in the text box to the right of *SSID*. This field is limited to 32 characters.
- Tap on **Commit** and then, in the pop-up message, tap on **OK** to save your SSID setting.

⚠️ *Important:*  **To learn more about the other options available in the radio attributes list, refer to Appendix C, page C-2**

## 2.4.4.2  EAP Type

- Tap on the **EAP type** drop-down menu, and choose the appropriate type of authentication—*LEAP*, *EAP-FAST*, *PEAP-MSCHAP*, and *PEAP-GTC*.
- Next, tap on the **Credentials** button, and type credentials for IEEE 802.1X EAP types.

⚠️ *Important:*  **Refer to** *Appendix C: Summit Client Utility (SCU) For Model RA2041***, page C-4 for details about security settings. Additional EAP details are described in "EAP Credentials" on page C-6.**

## 2.4.4.3  Encryption

- Tap on the **Encryption** drop-down menu, and choose the appropriate type of encryption—*Manual WEP*, *Auto WEP*, *WPA PSK*, *WPA TKIP*, *WAP2PSK*, *WAP2 AES*, and *CCKM TKIP*.

If you choose *Manual WEP*, *WPA PSK* or *WPA PSK*:

- Tap on the **WEP/PSK** Keys button. For *Manual WEP*, choose up to four static WEP keys. For *PSK*, type an ASCII passphrase or hex PSK.

- Configure any other settings that are supplied by the network administrator for the *SSID* to which you will associate.
- Make certain that you tap on **Commit** *following each change*.

Once you've completed the configuration:

- Tap the **Main** tab. Tap on the **Active Config** button – your new *config* will be listed in the drop-down menu.

When you tap on the *config* you created, the RA2041 radio module attempts to connect to the network using the following steps:

- Associate to the SSID.

- Authenticate to the network.

- If EAP authentication is being used, derive dynamic encryption keys.

- If DHCP is being used by the network, obtain an IP address.

If the RA2041 is not connecting properly:

- Tap on the **Status** tab.

The *Status* dialog box lists the IP and MAC addresses, and indicates the current state of the radio, the signal strength, channel and so on.

You can also use the *Status* screen for DHCP renewal and ICMP Echo Requests (Pings).

*Important:* **For details about the Status dialog box, refer to Appendix C, page C-9.**

# 2.5 Checking The Scanner

If your WORKABOUT PRO is equipped with an internal scanner, you can test it to ensure that it is operating properly. Point the scanner window at a bar code that your scanner was designed to decode—for example, a 1D UPC bar code or 2D bar code. Press the SCAN key or pistol trigger, and check for a valid decode on the hand-held's screen.

Performance is improved if you disable all unneeded bar codes in the *Bar Codes* screen. Review "Scanner Settings" on page 134 for details about bar codes.

# 2.6   Data Transfer Between The PC & The Hand-Held

Data transfer options vary slightly depending on the type of operating system installed in your PC. Microsoft® ActiveSync® is PC connectivity software that can be used to connect your hand-held to PCs running this software. ActiveSync works only with the Windows XP SP2 operating system or earlier.

If the Microsoft® Vista® operating system is installed in your PC, ActiveSync is not required to transfer data between your WORKABOUT PRO and your PC.

By connecting the WORKABOUT PRO to a PC with a cable, you can:

- View WORKABOUT PRO files from Windows Explorer.
- Drag and drop files between the WORKABOUT PRO and the PC in the same way that you would between PC drives.
- Back up WORKABOUT PRO files to the PC, then restore them from the PC to the hand-held again, if needed, and so on.

## 2.6.1   Using Microsoft® ActiveSync®

To install ActiveSync, follow the step-by-step instructions provided with the program's setup wizard. Refer to the following website for details:

http://www.microsoft.com/windowsmobile/activesync/activesync45.mspx

## 2.6.2   Using Microsoft® Vista®

If you have Windows Vista, your WORKABOUT PRO data transfers do not require ActiveSync. To transfer data between your PC and your hand-held:

- Tap on **Start>Computer** to display the drives. Your WORKABOUT PRO will be visible here.
- Open drives, files and folders as you would on your PC.

# 2.7   Voice – Using The Phone Dialer

If the WWAN modem is installed and enabled, the Phone icon and the GSM signal strength icon will appear automatically on the taskbar.

- Double click on the phone icon to access the voice dialer.

You can also follow the steps below to access the phone dialer:

- To access the dialer, tap on S**tart>Settings>Control Panel**.
- Tap on the **Wireless WAN icon**, and then tap on the **Voice** tab.

The *Voice tab* displays a phone dialer used to dial phone numbers. The *Voice menu* provides commands which allow you to manage your phone contacts, view your phone history, and so on.
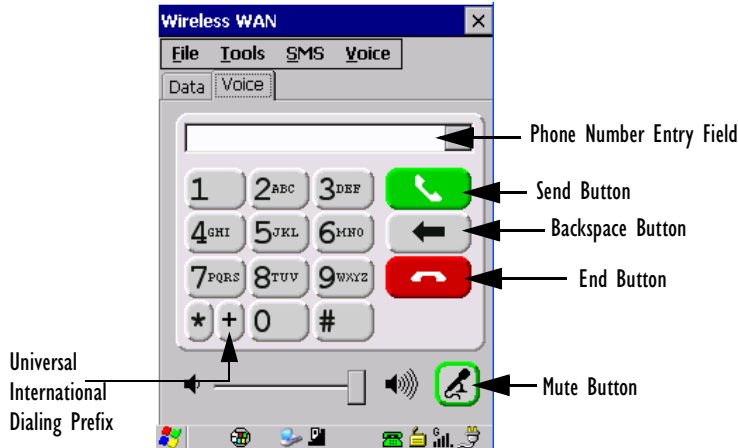


## 2.7.1  Dialing A Number

To make a phone call, all you need is the recipient's phone number.

- Type the recipient's phone number in the phone number entry field.
  - **Send** button – tap to dial the number you typed.
  - **Backspace** button – tap to erase characters in the phone number entry field.
  - **End** button – tap to disconnect the phone call.
  - **Mute** button – During a phone call, tap to mute sound transmission. Tap again to restore sound.
  - + button – When making an international call, the + sign can be used as a universal substitute for any international dialing prefix and is guaranteed to work worldwide. The entry sequence must be as follows:

    **+ *country code* followed by *phone number*.**

    **Example:** A standard phone number: ***011 36 30 275 28466***
    using the + substitution is typed as follows: ***+36 30 275 28466***
    The + symbol replaces the universal dialing prefix *011*.

## 2.7.2  Voice Menu

This menu allows you to manage calls, view your call history, and if required, assign a call forwarding service to your hand-held.



### Call Lists
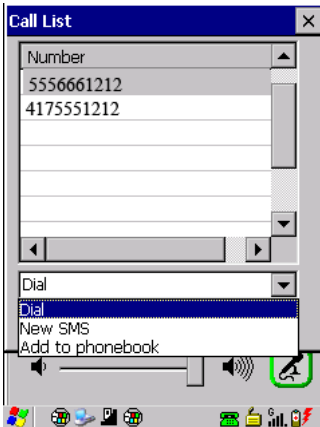


The *Call List* command manages your call history, listing calls you've *Dialed*, *Received* and *Missed*. When you choose one of these commands, a dialog box lists the phone number(s).

A drop-down menu provides a list of commands you can execute on a phone number in the *Call List*. You can choose to:

> • *Dial* the number,

- Send a *New SMS*, or
- *Add to phonebook* to add the highlighted phone number to your phone-book. (Refer to "Phonebook" on page 25 for details additional details about the Phonebook.)
- In the *Call List*, highlight the phone number with which you want to work.
- Choose a command in the drop-down menu.
- Tap on the **Execute** button to carry out the command.

## Services
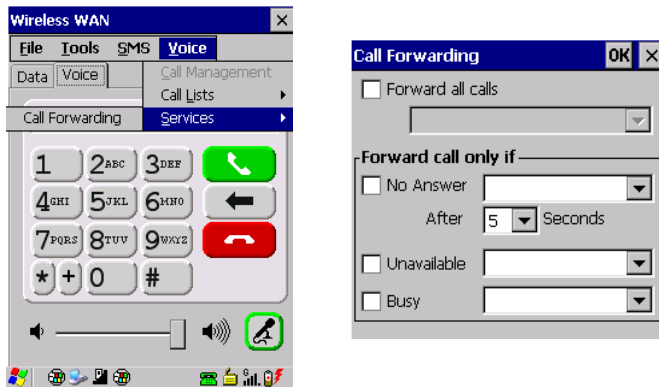


The *Service* menu offers a *Call Forwarding* option for your hand-held. If you choose this option, it may take a number of seconds for your unit to read the network settings.

To forward *all* calls:

- Tap in the checkbox next to **Forward all calls**, and then **type the phone number** to which all incoming phone calls will be routed.

To specify when a call will be forwarded, that is:

- Forward the call *only* when it is not answered after a specified number of seconds,
- Forward the call when you have identified yourself as 'unavailable', or
- Forward the call when your unit is busy:
- Tap in the appropriate checkbox, and enter the phone number to which the call will be routed.

## Call Management

The *Call Management* option only becomes available in the *Voice* menu when at least one phone call is either *On hold* or *Active*. When you choose this command, the currently active phone call(s) is listed in a dialog box.

Using the drop-down menu, you can choose to:

- *Hang Up All Calls* - This option only appears when more than one call is listed.
- *Hang Up* - This option disconnects only the call you've highlighted in the list.
- *Hold* - This option places the call you've highlighted on hold.
- *Retrieve* - This option is only available when a call is on *hold*, and choosing it retrieves the call you have highlighted from hold.
- In the *Call Management* list, highlight the phone number to which you'd like to apply a command.
- Choose a command from the drop-down menu, and tap on **Execute** to carry out the command on the highlighted phone number.

If you have two *active* calls on your hand-held, one *On Hold* and one *Active*, you can set up a **conference call** between yourself and the other callers. To set up a conference call:

- Highlight the phone number that is currently *On Hold*, and choose **Retrieve**. Tap on **Execute**.

Both calls will be listed as *Active* in the *Call Management* list. All calls are now

conferenced so that you as well as your callers can speak to one another.

## 2.7.3  File Menu – Phonebook Management

Tapping on the *File* menu provides access to your *Phonebook*.

### Phonebook

The *Phonebook* allows you to store frequently used phone numbers. When no numbers have been added to your phonebook, the only command available to you is *New Entry*.
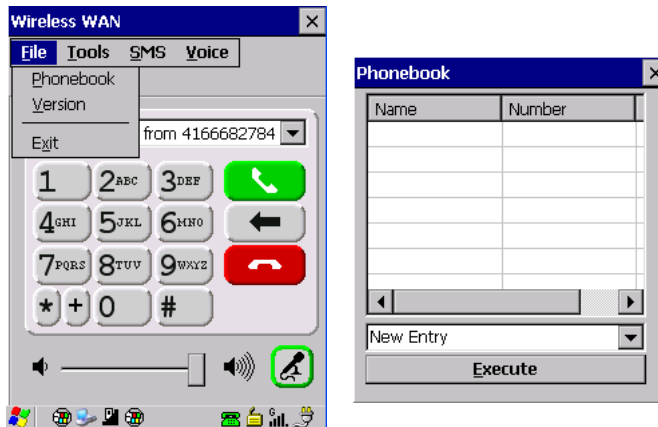


To add a new phone number to your phonebook:

- Choose **New Entry** in the drop-down menu, and tap on **Execute**.



- Type the **name** corresponding to the phone number you want to add.
- Press **Tab** and type the **phone number** you want to store.

- Tap in the checkbox next to *Store in SIM* to save the phone number there, *or* leave this checkbox blank if you prefer not to store the number on the SIM card.
- Tap on the **Execute** button to save the phone number in your *Phonebook.*

*Phonebook* entries are saved even after you exit Wireless WAN.

Once you've added a phone number to the *Phonebook*, a list of new commands is available in the drop-down menu.
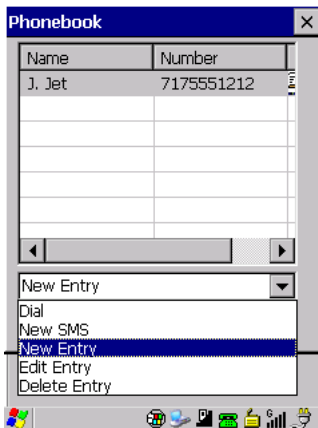


You can choose one of the following:

- *New Entry* to add another phone number
- *New SMS* (Short Message Service) to send a new SMS,
- *Edit Entry* to change an existing name and/or phone number, *or*
- *Delete Entry* to erase an existing phone entry.
- In the *Phonebook*, highlight the entry with which you want to work.
- Choose a command from the drop-down menu, and tap on **Execute** to carry out the command.

# 2.8  Resetting The Hand-Held

## 2.8.1  Performing A Warm Reset

To execute a warm reset:

- Press and hold down the [FN/BLUE] key and the [ENTER] key simultaneously for a minimum of six seconds.

A warm reset closes open applications; any unsaved data are lost. Installed programs and saved data are preserved.

*Note:* *You do not need to reset your WORKABOUT PRO after configuring the radio.*

## 2.8.2  Performing A Cold Reset

### 2.8.2.1  Cold Resetting To The BooSt Menu

- Press and hold down the centre [SCAN] bar and then press the [FN/BLUE] and [ENTER] keys simultaneously for a minimum of six seconds.

After a cold reset, the BooSt menu appears, listing possible BooSt commands.

- To load the Windows CE 5.0 operating system, type **1**.

### 2.8.2.2  Cold Resetting To The Windows 5.0 OS

To perform a cold reset and launch the Windows 5.0 operating system (bypassing the BooSt menu):

- Press and hold down the [FN/BLUE] [FN/ORANGE] and [ENTER] keys simultaneously for a minimum of six seconds.

# 3 GETTING TO KNOW YOUR WORKABOUT PRO

# 3.1   Features Of The WORKABOUT PRO

Speaker

LED
(Light Emitting Diode)

Microphone Port

Figure 3.1 Front Of WORKABOUT PRO

Battery Cover

Back Cover

Stylus
(pointing tool)

End-Cap

Figure 3.2 Back Of WORKABOUT PRO

DC IN Socket

Tether Port
Beeper Port

Low Insertion
Force Port (LIF)

Figure 3.3 Ports

# 3.2  The Battery

The hand-held operates with a Lithium-Ion battery pack. Preparing the unit for operation requires that a battery pack be charged and installed in the WORKABOUT PRO.

Three levels of battery packs are available for the WORKABOUT PRO:

- High-Capacity – Model No. WA3006, and
- Super High-Capacity – Model No. WA3010

## 3.2.1  Battery Safety

*Important:*  **Before attempting to install, use or charge the battery pack, it is <u>critical</u> that you review and follow the important safety guidelines in the quick reference guide entitled 'WORKABOUT PRO Hand-Held Computer Regulatory & Warranty Guide', PN 8000126.**

## 3.2.2  Removing The Battery Pack

*Important:*  **Always switch the unit off before opening the battery cover to remove the battery. When the cover is removed, a power-off switch is automatically activated and the unit power is switched off; if the battery cover is opened while the hand-held is still powered on, the unit may reboot. Any active sessions may be lost.**

**Keep in mind also that while the battery is being replaced, the WORKABOUT PRO backup battery will save the current data for up to 5 minutes.**

Refer to "Installing The Battery And Switching The Unit On" on page 12.

### 3.2.2.1  Battery Swap Time

Assuming the default power saving parameters and battery reserve level have not been altered, battery swap time is approximately 5 minutes—you will not lose data if the battery is replaced within this time frame.

To protect data, the safest place to store data is on a SD/MMC memory card or externally to the device on a USB memory stick or on a PC. You can also save data in the "Flash Disk" partition of the file system.

The *Suspend Threshold* adjustment in the *Power Properties* tab allows you to determine the battery capacity at which the hand-held will be shut down. If left at the default value, *Maximum Operating Time*, the unit will run until the battery is completely empty; the RAM is only backed up for a short period of time. If you choose *Maximum Backup Time*, the hand-held shuts off with more energy left in the battery so RAM can be backed up for a longer period of time.

Refer to "Suspend Threshold" on page 100 for details about reserving battery power for data backup purposes.

## 3.2.3  Charging The Battery

Batteries shipped from the factory are charged to approximately 40% of capacity. They must be fully charged prior to use.

Keep in mind also that, along with the main battery, the WORKABOUT PRO is equipped with an internal, backup battery that preserves data stored on the unit while the main battery is swapped.

*Important:* *The backup battery is trickle charged from the main battery. To maximize battery life, avoid excessive discharging and recharging of the backup battery by keeping the main battery fully charged.*

*IF YOU ARE POWERING UP A NEW UNIT, a warning message may appear on the screen indicating that the backup battery capacity is low. To recharge the backup battery, you must fully charge the WORKABOUT PRO with the main battery installed in the unit.*

### 3.2.3.1  Chargers And Docking Stations

*Important:* *FOR DETAILED INFORMATION about chargers and docking stations, refer to "Peripheral Devices & Accessories" on page 205.*

Lithium Ion battery packs must be charged before use. These batteries can be charged with a variety of chargers and docking stations. These include:

• AC wall adaptor (Model # PS1050-G1) – operates as an AC power source and when plugged in, also charges the battery installed in the unit.

• Desktop Docking Station (Model # WA4003-G2)—operates as both a charger and a docking station. Operating as a charger, both the battery installed in the hand-held and a spare battery can be charged simultaneously.

- Quad Docking Station — (Model # WA4204-G2 for WORKABOUT PRO C & Model # WA4304-G2 for WORKABOUT PRO S) can charge the battery of up to four WORKABOUT PROs inserted in the docking station.
- Single Battery Charger (Model # WA3001-G1)—charges a single battery.
- Quad Battery Charger (Model # WA3004-G1)—charges up to four spare High or Super-High Capacity WORKABOUT PRO battery packs.

It can take up to 5 hours to charge a battery. The WORKABOUT PRO intelligent charging system protects the battery from over-charging by terminating the charge process when the battery is at maximum capacity.

*Note: Refer to "Monitoring The Battery And Maximizing Run Time" on page 47 for additional information about the battery.*

*Important: **To avoid damaging the battery, chargers will not begin the charge process until the battery temperature is between 0° C to 45 °C (32° F to 113° F).***

# 3.3  Switching The Hand-Held On And Off

## Switching On The WORKABOUT PRO

*Note: Whenever the battery cover is removed, an auto-shutoff switch is activated. The battery cover must be installed before the unit can be switched on.*

- Press the [FN/BLUE] key and then, press and hold down the [ENTER] key for at least one second.
- When the LED flashes green, release the [ENTER] button.

If the unit does not power up, the power ON/OFF switch located in the battery compartment may be set to OFF. In this case, you'll need to remove the battery cover and battery and slide the ON/OFF switch to ON.

The startup screen is displayed.

*Note: If the WORKABOUT PRO is in suspend state, pressing [ENTER] 'wakes' the unit from this state. The screen in which you were working before the computer entered suspend state is displayed."Wakeup" on page 102 describes how you can assign other 'wakeup' keys.*

## Switching Off The WORKABOUT PRO (Suspend)

⚠️     *Important:*    ***Keep in mind that turning off the WORKABOUT PRO does <u>not</u>
result in a complete reboot; rather, the unit enters a power-saving,
"suspend" state. When the unit is turned on from suspend state,
operation resumes within a few seconds.***

To switch off the WORKABOUT PRO:

- •    Press the [FN/BLUE] key, and then press the [ENTER] key.

# 3.4 The Keyboard

The WORKABOUT PRO is available in two models, each with it's own keyboard
layout. The WORKABOUT PRO C model is equipped with a 52-key, alphanumeric
keyboard; the WORKABOUT PRO S model is equipped with a 25-key numeric
keyboard.

Most of the keys on these keyboards operate much like a desktop computer. Where a
key or key function is not consistent with the PC keyboard, the differences are
noted.

The [FN/BLUE] and [FN/ORANGE] modifier keys provide access to additional
keys and system functions. These functions are colour coded in *orange* and *blue*
print above the keyboard keys.

## 3.4.1 Modifier Keys

The [SHIFT], [CTRL], [ALT], [FN/BLUE] and [FN/ORANGE] keys are *modifier*
keys. Pressing a modifier key changes the function of the next key pressed. For
example, on a WORKABOUT PRO C, 52-key keyboard, a square bracket is printed
in *orange* print above the [4] key. Pressing the [FN/ORANGE] key followed by the
[4] key displays a square bracket rather than the number 4.

The [SHIFT], [CTRL] and [ALT] keys operate much like a desktop keyboard except
that they are not chorded (two keys held down simultaneously). The modifier key
must be pressed first followed by the key whose function you want modified.

### 3.4.1.1    Activating Modifier Keys

When a modifier key is pressed once, it is displayed in lowercase letters in the taskbar at the bottom of the hand-held screen. For example, if the [CTRL] key is pressed, ᴄᴛʀʟ ᴋᴇʏ is displayed at the bottom of the unit screen. Once the next key is pressed, the modifier key becomes inactive and disappears from the taskbar.

Keep in mind, however, that the 'One Shot' function allows you to determine how many key presses will lock a modifier key 'on' – one press or two. Refer to "Keyboard One Shot Modes" on page 89 for details.

### 3.4.1.2    Locking Modifier Keys

When a modifier key is pressed twice, it is 'locked' on. A 'locked' modifier key is displayed in uppercase letters in the taskbar. For example, pressing the [CTRL] key twice locks it on—it is displayed as ᴄᴛʀʟ ᴋᴇʏ in the taskbar at the bottom of the computer screen.

The locked modifier key will remain active until it is pressed a third time to unlock or turn it off. Once a modifier key is unlocked, the uppercase representation at the bottom of the screen is no longer displayed.

## 3.4.2   The Keys

### The [SHIFT] Key

The [SHIFT] key is used to display uppercase alpha characters and provide access to the symbols above the numeric keys.

### The Arrow Keys

The Arrow keys move the cursor around the screen in the direction of the arrow: up, down, left and right. The cursor is the flashing box or underline character that indicates where the next character you type will appear.

### The [SPACE] Key

Pressing this key inserts a blank space between characters. In a Windows dialog box, pressing the [SPACE] key enables or disables a checkbox. On WORKABOUT PRO S models, this key is accessed by key combination – [FN/ORANGE] [0] (zero).

### The [BKSP/DEL] Key

The [BKSP] key (sometimes referred to as destructive backspace) moves the cursor one character to the left, erasing the incorrectly entered key stroke.

The [DEL] key ([FN/BLUE] [BKSP]) erases the character at the cursor position.

### The [CTRL] And [ALT] Key

The [CTRL] and [ALT] keys modify the function of the next key pressed and are application dependent.

### The [TAB] Key

Typically, the [TAB] key moves the cursor to the next field to the right or downward.

### The [ESC] Key

Generally, this key is used as a keyboard shortcut to close the current menu, dialog box or activity and return to the previous one.

### The [SCAN] Keys

All units are equipped with three yellow [SCAN] keys – one on the left side and one on the right side of the unit along with a curved, yellow scan bar just below the WORKABOUT PRO display. For units that ***do not have*** internal scanners, this key can be re-mapped to another function.

## 3.4.3  Function Keys And Macro Keys

In addition to the standard keyboard functions, the WORKABOUT PRO supports Function keys and Macro keys. All Function and Macro keys can be custom defined for each application.

### 3.4.3.1    Function Keys

The WORKABOUT PRO keyboard is equipped with a total of 14 function keys. Function keys [F1] to [F4] are located across the top of the keyboard next to the [TAB], [ALT], [CTRL] and [ESC] keys and are directly accessible – a key combination is not required. Ten additional function keys are colour coded in *blue* print on the unit body; these keys are accessed by executing a key combination, [FN/BLUE] followed by the appropriate numeric key.

For example, to access function key [F7]:

- Press the [FN/BLUE] key followed by the [7] key – the numeric key to which function key [F7] is mapped.

- To access function key [F8], press [FN/BLUE] [8], and so on.

### 3.4.3.2    Macro Keys (WORKABOUT PRO C Only)

*Important:*    ***Refer to "Keyboard Macro Keys" on page 90 for details about creating macros.***

WORKABOUT PRO hand-helds are equipped with a series of macro keys that can be programmed to replace frequently used keystrokes, along with the function of executable keys like the [ENTER] key, the [BKSP] key, any function key and arrow key, and so on.

Alphanumeric (52-keys) keyboards have three macro keys: [M1] to [M3]. These keys are colour coded in *orange* print above alpha keys [O], [P] and [Q].

To access a macro key:

- Press the [FN/ORANGE] key followed by the appropriate alpha key from [O] to [Q].

  To access macro key [M1], press [FN/ORANGE] [O].

  To access macro key [M2], press [FN/ORANGE] [P], and so on.

## 3.4.4  52-Key Keyboard – Accessing Alpha Keys

The alpha and numeric keys on WORKABOUT PRO C units are directly accessible from the keyboard – no key combination is required.

## 3.4.5  25-Key Keyboard – Accessing Alphanumeric Keys

On 25-key WORKABOUT PROs, while numeric keys are directly accessible, all alpha characters are printed on the unit plastic in orange typeface above the numeric keys. An indicator in the left corner of the taskbar displays the currently selected character. To access an alpha character, first press the [ORANGE] key and then press the numeric key above which the alpha character you want to type is printed.

### Choosing A Single Alpha Character

The examples below illustrate how to access, A, B and C, all of which are printed in *orange* characters above the numeric key [2].

*Important:*    ***The letters you choose appear in the taskbar, providing a visual indicator of which letter will be displayed on the screen.***

To choose the letter *a*:

- Press the [FN/ORANGE] key, and press the numeric key [2].

*Note:* *To choose the second, third or fourth alpha character assigned to a numeric key, you may want to lock the [FN/ORANGE] key 'on'. By default, the [FN/ORANGE] key is locked 'on' when pressed once. However, depending on how your unit is set up in the 'One Shots' tab, you may find that you need to press the [FN/ORANGE] key twice to lock it 'on'. Refer to "Keyboard One Shot Modes" on page 89 for details.*

To choose the **second** letter in the sequence—in this example, the letter *b*:

- Lock the [FN/ORANGE] key 'on'. 'ORG KEY is displayed in upper-case characters in the taskbar to indicate that this key is locked 'on'.
- Press numeric key [2] **twice** to display the letter *b*.

To choose the **third** letter in the sequence—in this example, the letter *c*:

- Lock the [FN/ORANGE] key 'on'.
- Press numeric key [2] **three times** to display the letter *c*.

*Note:* *Keep in mind that there is a timeout if you pause for one second between key presses when selecting the second, third or fourth letters on a key. For example, suppose you want to type the letter 'c'–you'd need to press the [2] key three times. With the [FN/ORANGE] key locked 'on', if you press [2] twice and then pause between key presses for 1 second, the letter 'b' will be selected automatically.*

## Creating Uppercase Letters

To display a capital letter:

- Press the [FN/ORANGE] key and then the [SHIFT] key before typing the alpha character.

*Note:* *If you want to use uppercase characters at all times, press [FN/BLUE] [SHIFT]. An icon of an uppercase 'A' is displayed in the taskbar indicating that all letters will be displayed as uppercase characters.*

## Choosing Multiple Alpha Characters

- Lock the [FN/ORANGE] key 'on'.

Each time you press a numeric key from [2] through [9], an alpha character will be displayed on the screen. Remember that you can refer to the softkey bar for a visual indication of which alpha key will be displayed on the screen.

⚠️ ***Important:*** ***Once you have finished typing alpha characters, remember to turn off or unlock the [FN/ORANGE] key.***

## 3.4.6  The Keypad Backlight

The intensity of the keypad backlight and the conditions under which this backlight is activated can be configured using the *Keyboard* icon in the Windows CE 5.0 *Control Panel*. The behaviour of the keypad backlight is tailored in the *Keyboard Properties* dialog box. Refer to "Keyboard Backlight" on page 88 for details about this option.

📖 *Note:* *Keep in mind that this option may be restricted to supervisory use only.*

# 3.5  The Display

WORKABOUT PROs are equipped with display backlighting to improve character visibility in low light conditions. The backlight switches on when a key is pressed or the screen is tapped.

## 3.5.1  Adjusting The Display Backlight

The *Display Properties* dialog box in the *Control Panel* allows you to determine the behaviour of the display backlight and its intensity. Refer to "Display Backlight" on page 85 for details about the Display Properties dialog box.

## 3.5.2  Calibrating The Touchscreen

If your WORKABOUT PRO touchscreen has never been calibrated, or if you find that the stylus pointer is not accurate when you tap on an item, use the *Stylus Properties* dialog box in the *Control Panel* to recalibrate the screen.

- In the *Control Panel*, choose the **Stylus** icon to display the *Stylus Properties* window.
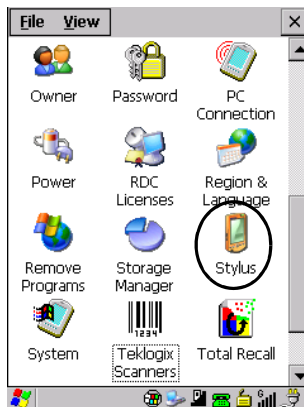


Figure 3.4 Stylus Icon

- Select the **Calibration** tab, and then choose the **Recalibrate** button.



Figure 3.5 Calibration Screen

- Follow the directions on the calibration screen to calibrate the screen.

# 3.6  WORKABOUT PRO Indicators

The WORKABOUT PRO uses an LED (Light Emitting Diode), onscreen messages and audio tones to indicate the various conditions of the hand-held, the batteries, the scans and so on.

## 3.6.1  LED

A single, two-coloured LED is located on the upper-right side of the keyboard, just above the [ENTER] key. When you press [ENTER], the LED flashes green to indicate that the unit has been powered up. The LED table following outlines the behaviour of the LED while the unit is docked in a charger.

Keep in mind that the application running on the WORKABOUT PRO can dictate how the LED operates. Review the documentation provided with your application to determine LED behaviour.

If the unit is attached to an external power supply, the hand-held LED reflects the battery charge status.

| LED Behaviour | Charge Status |
|---|---|
| Solid Green | Charge complete. |
| Fast Blinking Green | Charge in progress. Battery charged to less than 80% capacity. |
| Slow Blinking Green | Battery charged to greater than 80% of capacity. |
| Solid Red | Temperature outside charge range (0° C to 50° C). |
| Blinking Red | Battery is not charging. Battery fault. |

## 3.6.2  Audio Indicators

The audio speaker provides a variety of sounds when a key is pressed, a keyboard character is rejected, scan input is accepted or rejected, an operator's entry does not match in a match field or the battery is low. To specify how you want your WORKABOUT PRO to respond under various conditions, refer to "Volume And Sound Properties" on page 96.

The volume keys are located above [UP ARROW] and [DOWN ARROW]. The *increase* volume key is labelled with a plus symbol and the *decrease* volume key is labelled with a minus symbol .

### 3.6.2.1    Adjusting WORKABOUT PRO Speaker Volume

- Lock the [FN/BLUE] key 'on' and then, press [UP ARROW]—the *increase volume* key or [DOWN ARROW]—the *decrease volume* key until the volume meets your requirements.
- Remember to press the [FN/BLUE] key again to turn it 'off".

## 3.6.3  Onscreen Indicators

The taskbar at the bottom of the screen displays a variety of system status indicators.
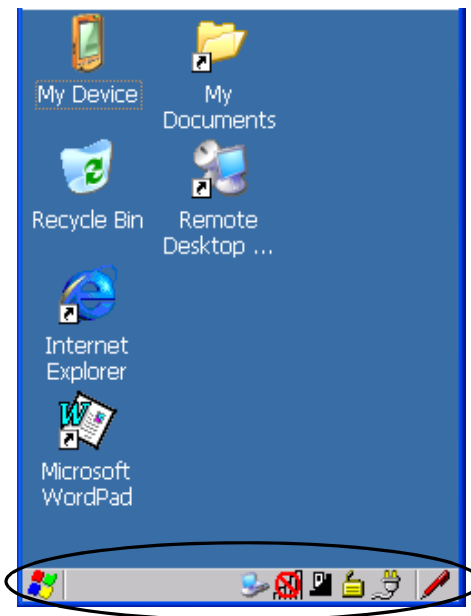


Figure 3.6 Taskbar

The taskbar changes dynamically, and only those icons that are applicable are displayed. For example, if a radio is not installed in your WORKABOUT PRO, the radio signal icon is not displayed in the taskbar.

### Windows® Start Button

If you are using the touchscreen, you can either tap the Windows icon at the bottom left of the screen, or press [FN/BLUE] [.] (period) to display the *Start Menu*, and then tap on the desired application.

 ## Modifier Key Indicators

[SHIFT], [CTRL], [ALT], [FN/BLUE] and [FN/ORANGE] are modifier keys that when pressed, are displayed in the taskbar to indicate that they are active. If a modifier key is locked 'on', it is displayed in *uppercase* characters. For example, if the [FN/BLUE] key is locked on, it is displayed as BLUE KEY in the taskbar. A locked modifier key remains active until it is pressed again to unlock or turn it off.

If a modifier key has been pressed but is *not* locked on, it is displayed in the taskbar in *lowercase* characters – for example, blue key. It will remain active only until the next key is pressed at which point, the modifier key is turned off.

*Note:* *The locking function of the modifier keys can be set up so that pressing one of these keys **once** will lock the key 'on'. They can also be set up so that they must be pressed **twice** to be locked 'on'. Refer to "Keyboard One Shot Modes" on page 89 for details.*

 ## Battery Gauge

The battery shaped icon displayed in the taskbar provides a visual indication of the remaining battery power. The icon acts as a meter that is either full, at three-quarter level, half, quarter level or empty.

When the battery level is low—approximately 15 minutes from empty—a warning window pops up. When the battery power is completely depleted, a final warning window indicates that the WORKABOUT PRO will be powered down.

If the WORKABOUT PRO is using external AC power, an AC icon is displayed in the taskbar.



| Full | 75% | 50% | 25% | Empty | AC Connection |

 ## Battery Charge

The battery charge icon is displayed in the taskbar when the hand-held battery is being charged.

### 802.11 Radio Signal Quality

Increasing radio signal quality is represented by longer, filled bars within this icon.

Good
Reception

Weak
Reception

No Radio
Link

### Docking Device

When a hand-held is inserted in a docking station or charger, an associated icon appears in the taskbar.

### *Bluetooth* Radio

This icon displayed in the taskbar represents the installed *Bluetooth* radio.

### Security Level

Security levels can be set to limit user access. In addition, applications can be restricted to prevent inadvertent changes.

### Wireless WAN

These icons provide access to and information about the WORKABOUT PRO GSM/GPRS wide area networking status. Refer to Appendix B: "Wireless WAN" for details about each of these taskbar icons.

### Dialer Icon

The dialer (phone) icon is displayed when the Voice option is available (a SIM card and GPRS radio are installed). You can access the phone dialer by double-tapping on this icon. When you have an active call, the dialer icon flashes yellow and then green.

# 3.7 Monitoring The Battery And Maximizing Run Time

*Note:* *When the main battery is at 50% capacity, a 'low battery' warning is displayed. When the battery is at approximately 10% capacity, a 'very low main battery' notification appears.*

As Lithium Ion batteries age, their capacity decreases gradually, and they are generally considered depleted after approximately 2 years of use (less than 60% of original capacity remaining). Keep in mind however that heavy usage or operating the unit at temperature extremes will shorten the battery life.

Lithium Ion batteries do not require conditioning cycles and the WORKABOUT PRO battery system (including chargers) requires no user interaction to maintain peak performance.

To maximize the run time of your batteries, consider the following:

- The display backlight is the largest drain on the battery. Try to keep its brightness as low as possible.
- The hand-held is 'event' driven—that is, when the unit is not in use, it reverts to *sleep* mode (even when it appears to be running), saving battery power. Events include a key press, touchscreen taps and scan triggers. Power consumption is reduced if you avoid unnecessary events, and allow the unit to *sleep* as much as possible.
- The battery is a 'smart battery' with built-in intelligence. Tapping on the *Power* icon in the *Control Panel* displays a dialog box that provides detailed information about the battery status of the main and backup batteries installed in your unit.
- When the hand-held is switched off, it goes into a low-power, suspend state but continues to draw a small amount of power from the battery. This should not be an issue unless the unit is left in suspend state for more than a week—for long-term storage, the battery should be removed from the unit.

## 3.7.1 Storing Batteries

Long term battery storage is not recommended. If storage is necessary:

- Always try to use a 'first-in first-out' approach to minimize storage time.
- Lithium Ion batteries age much faster at elevated temperatures. Store batteries at temperatures between 0° C and 20° C.
- Always charge batteries to at least 40 to 60% before storing them. Batteries can be damaged by an over-discharge phenomenon that occurs when an

empty battery is stored for a long period of time such that the cell voltage drops below a lower limit.

- To minimize storage degradation, recharge stored batteries to 40 to 60% every 4 or 6 months to prevent over-discharge damage.

- A 'never used' Li-Ion battery that has been stored for 3 years may have limited or no useful life remaining once put into service. Think of batteries as perishable goods.

# 3.8  Uploading Data In A Docking Station

*Important:* ***Review the documentation provided with the user application installed in your WORKABOUT PRO before performing data uploads.***

The desktop docking station and quad docking station are typically used to upload transaction data to a server computer when a radio link is not available.

*Note:* *Refer to "Desktop Docking Station" on page 216 for more details.*

The desktop docking station can complete batch uploads to a Client USB connected PC or server. An optional 10/100baseT Ethernet module is also available.

Unlike the desktop docking station, the quad docking station supports only TCP/IP connections to a PC or server through a 10/100baseT Ethernet connection.

When a WORKABOUT PRO is properly inserted in a docking station, a *dock* icon is displayed in the navigation bar at the top of the screen. The unit also detects the presence of the Ethernet network.

# 3.9  Bluetooth Radio

*Note:* *Integrated* Bluetooth *class II radios are standard on WORKABOUT PRO C and S units. Keep in mind also that* Bluetooth *is available simultaneously with WAN and 802.11g on a single unit.*

The WORKABOUT PRO is equipped with an on-board *Bluetooth* radio. This type of radio enables short range data communication between devices. The *Bluetooth* also provides the capability to use a *Bluetooth*-enabled cellular phone as a data modem, exchanging information with other *Bluetooth* devices and providing network access. Refer to "Bluetooth Setup" on page 109 for setup details.

You can also pair your hand-set with a *Bluetooth* headset.

### 3.9.1  Pairing A Bluetooth Headset Or Other Bluetooth Device

*Note:* *If the* Bluetooth *radio is not already enabled, tap on the Power icon in the Control Panel, tap on the Devices tab and enable the* Bluetooth *radio.*

To pair a headset:

- Follow the headset manufacturer's instructions to place the headset you want to place in pairing mode.
- In the *Control Panel*, tap on the **Bluetooth** icon choose the **Devices** tab and Scan for devices in your area. (Note that if you're pairing the device for the first time, the device scan occurs automatically; you do not need to tap on the *Scan* button to perform a scan.)

When the scan is complete, a list of devices is listed.

- Double-click on **headset** you want to pair with. If you prefer, you can highlight **headset** and tap on the **Services** button.

A dialog box appears requesting that you enter a PIN number.

- Type your **pin number** and tap on **OK**.

A Services dialog box appears listing *headset*.

- Press and hold the stylus on **headset**. In the pop-up menu, choose **Active**.

Your headset is now paired. A COM/BSP port name will now appear beside the service for this device. An asterisk will appear under the *Active* list in the Service screen.

## 3.10  Inserting The SD/MMC Card And SIM Card

There are two slots available in the battery compartment – the lower slot is provided for a SD/MMC (Secure Digital/Multi-Media Card) and the upper slot is for a SIM (Subscriber Identity Module) card.

SD/MMC cards provide additional non-volatile memory to your hand-held. SIM cards allow access to the hand-held *Voice* option, access the Internet, and so on.

### 3.10.1  Inserting The Card

- Switch off the WORKABOUT PRO.
- Remove the battery cover and the battery.

A hinged door at the top of the battery compartment protects the connectors. It is hinged on the left side.

- Pull the hinged SD door down as the arrow icon on the door indicates.

- Orient the SD/MMC or SIM card according to the legend stamped into the battery well plastic.
- For SD/MMC cards, slide the card into the lower slot, pushing it inward until it latches into place.
- For a SIM card, slide the card into the upper slot, pushing it inward until it latches into place.
- Swing the hinged door back into place, and snap it shut.

To remove the card:

- Gently press it inward slightly until the detent unlatches, and the card is expelled from the slot.

# 3.11  General Maintenance

## 3.11.1  Caring For The Touchscreen

The top of the touchscreen is a thin, flexible polyester plastic sheet with a conductive coating on the inside. The polyester can be permanently damaged by harsh chemicals and is susceptible to abrasions and scratches. Using sharp objects on the touchscreen can scratch or cut the plastic, or crack the internal conductive coating.

The chemicals listed below must not come into contact with the touchscreen:

- sodium hydroxide,
- concentrated caustic solutions,
- benzyl alcohol, and
- concentrated acids.

If the touchscreen is used in harsh environments, consider applying a disposable screen protector (WA6110). These covers reduce the clarity of the display slightly but will dramatically extend the useful life of the touchscreen. When they become scratched and abraded, they are easily removed and replaced.

## 3.11.2  Cleaning The WORKABOUT PRO

⚠️ *Important:    **Do not immerse the unit in water. Dampen a soft cloth with mild detergent to wipe the unit clean.***

- Use ***only*** mild detergent or soapy water to clean the hand-held unit.

- Avoid abrasive cleaners, solvents or strong chemicals for cleaning. The plastic case is susceptible to harsh chemicals. The plastic is partially soluble in oils, mineral spirits and gasoline. The plastic slowly decomposes in strong alkaline solutions.

- To clean ink marks from the keypad and touchscreen, use isopropyl alcohol.

# WORKING WITH WINDOWS CE 5.0

**4**

# 4.1  Navigating In Windows CE 5.0

*Note:*    *In order to access many of the menus discussed in this chapter, the security level must be set to 'Supervisor' (see "Security Settings" on page 63).*

Graphic user interfaces like Windows CE 5.0 for portable devices and desktop Windows (2000, XP, etc.) utilize 'point and click' navigation. An equivalent keyboard shortcut is also available for every 'point and click' action.

Windows CE 5.0 supports the same 'point and click' user interface and keyboard shortcuts as desktop Windows with one difference—the 'point and click' action is accomplished using a touchscreen rather than a mouse. Actions can be performed using any combination of keyboard shortcuts or touchscreen tapping.

## 4.1.1  Navigating Using A Touchscreen And Stylus

*Note:*    *If the touchscreen is not registering your screen taps accurately, the touchscreen may need recalibration. Refer to "Calibrating The Touchscreen" on page 41.*

Each WORKABOUT PRO is equipped with a *stylus*—a pointing tool that looks like a pen—stored in a slot at the top of the unit. The stylus is used to select objects on the touchscreen.

*Note:*    *To prevent damage to the touchscreen, use only the stylus (pen) supplied with your WORKABOUT PRO.*

To choose an icon, open a file, launch an applet or open a folder:

- Double-tap the stylus on the appropriate icon.

## 4.1.2  Navigating Using The Keyboard

If your WORKABOUT PRO touchscreen has been disabled, you can use the keyboard to choose icons, navigate dialog boxes, display the desktop, and so on. If your unit has already been fully configured and your application is launched at startup, you'll have little need for keyboard navigation, but you can refer to Table 4.1 on page 56 for a description of the navigation keys.

| Operation | Key or Key Combination |
|---|---|
| Switch between active applications | [ALT] [TAB] |
| Open task manager | [ALT] [ESC] |
| Move the cursor | Arrow keys |
| Open file, folder or icon | [ENTER] |
| Exit & Save | [ENTER] |
| Close/Exit & Do Not Save | [ESC] |
| Navigate Dialog Boxes | [TAB]<br>To move cursor up [SHIFT] [TAB]<br>To display the contents of the next 'tab' in<br>a dialog box [CTRL] [TAB] |
| Select Radio Button/Press Button | [SPACE] |
| Go to Start Menu | [FN/BLUE][0] |

Table 4.1  Keyboard Navigation

Keep in mind that unlike a desktop computer, the WORKABOUT PRO does not support key chording (pressing two keys at the same time). You must press one key followed by the next in sequence. Refer to "Working With Files, Folders And Programs" for additional details about keyboard navigation.

# 4.2  Working With Files, Folders And Programs
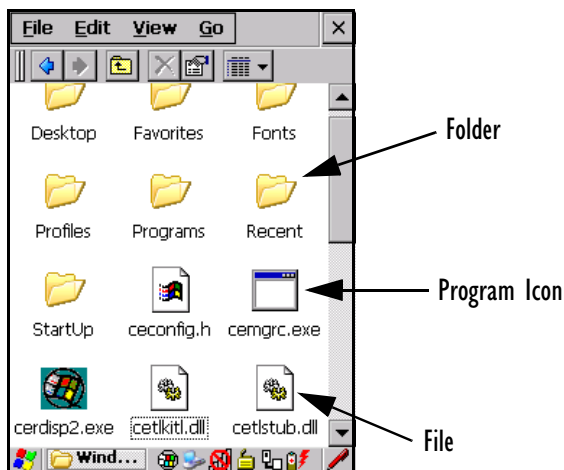


Figure 4.1 Working With Windows Icons

- Double-tap on the appropriate icon—either a folder icon, a program icon or a file icon—to open or launch your selection.

If you're using the keyboard:

- Use the arrow keys to highlight the icon you want to open or launch.
- Press [ENTER].

# 4.3  The Startup Desktop

When the WORKABOUT PRO boots up, the startup desktop (shell) is displayed. Any applications stored in the Startup folder start up immediately.

*Note:     The startup folder is located in \Windows\StartUp and*
*\Flash Disk\StartUp.*
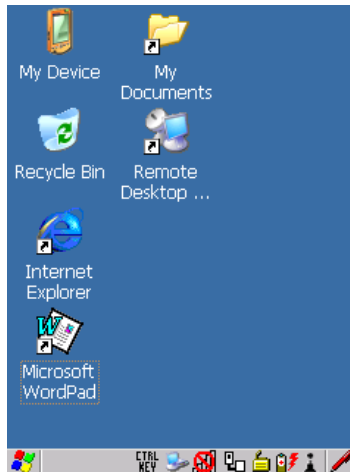


Figure 4.2 The WORKABOUT PRO Startup Desktop

To access desktop icons:

- Double-tap on the icon to open a window or, in the case of an application icon, launch an application.

On the keyboard:

- Use the arrow keys to highlight the icon, and press [ENTER] to launch the highlighted icon.

*Note:     If the arrow keys do not highlight the desktop icons, the desktop may not*
*be selected. Press [FN/BLUE] [.] (period) to display the Start Menu, and*

> *select Desktop. Now the desktop will be "in focus" and the arrow keys*
> *will highlight the icons.*

## 4.3.1   The Desktop Icons

The icons displayed in the startup desktop operate in much the same way as those
displayed on any standard PC desktop that is running Windows.

### My Device

Choosing this icon displays the contents of your WORKABOUT PRO computer. If
you're not sure how to access the files, folders and programs displayed, refer to
"Working With Files, Folders And Programs" on page 56.

### Recycle Bin

This option temporarily stores items that were deleted, allowing you to either
permanently delete or restore these items.

### Internet Explorer

Choosing this icon launches Internet Explorer—a standard Windows CE 5.0
version. Keep in mind that your supervisor will need to set up access using the
*Internet Options* and the *Network and Dial-up Connections* icons in the *Control
Panel*.

### Remote Desktop Connection

This option allows your WORKABOUT PRO to communicate with a remote desktop
PC. "Remote Connect" on page 79 provides a website with step-by-step instructions.

# 4.3.2 The Taskbar
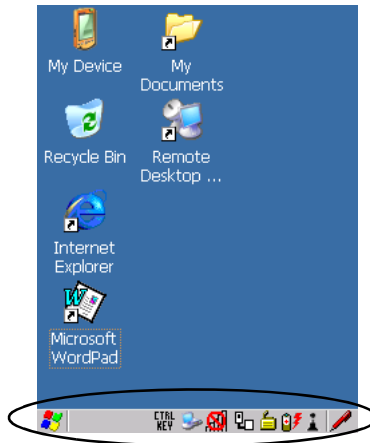


## Figure 4.3 The Taskbar

The WORKABOUT PRO is equipped with a taskbar at the bottom of the screen. It displays icons through which you can view the battery capacity and radio signal quality of your unit. If the hand-held is attached to a charger, cradle, docking station or PDM, an associated icon is displayed. In addition, the taskbar displays the application(s) currently running on your unit and the security level assigned to your WORKABOUT PRO.

The taskbar also displays active modifier keys: [SHIFT], [ALT], [CTRL], [FN/BLUE] and [FN/ORANGE]. Keys that have been locked "on" are displayed in *uppercase* letters. For example, if you have set the [CTRL] key Lock to "on" in the Keyboard menu and you press the key, it is displayed as CTRL KEY in the taskbar. (For detailed information on modifier keys and keyboard options, see "The Keyboard" on page 36).

## 4.3.2.1 Using The Taskbar

A *tooltip* is displayed as each taskbar icon is highlighted. The tooltip provides the status of each icon.

If you're using the touchscreen:

- Tap and hold the stylus on an icon to display the icon's tooltip. Double-tap the icon to open the *Control Panel* dialog box associated with the icon. For example, double-tap the battery icon to display a dialog box listing the current battery capacity information.

On the keyboard:

- Press [FN/BLUE] [.] (period) to display the *Start Menu*.
- Choose **Shortcuts** from the *Start Menu*, and then press the [RIGHT] arrow key to display the sub-menu.
- Choose **System Tray** in the sub-menu.
- Use the arrow keys to highlight the icon in the taskbar about which you'd like more information.
- Press [ENTER] to display the appropriate dialog box.

## 4.3.2.2   Customizing The Taskbar

To customize the taskbar so that it displays only those icons you require:

- In the *Start Menu*, choose **Settings**>**Taskbar**.

If you're using the keyboard:

- Press [FN/BLUE] [0] (zero) to display the *Start Menu*.
- Highlight the **Settings** option, highlight **Taskbar** in the sub-menu, and press [ENTER].

The *Taskbar and Start Menu* dialog box is displayed.



### Taskbar General Tab

- Tap the stylus on the items you want to activate or deactivate. The check mark indicates active items.

If you're using the keyboard:

- Highlight the options you want to activate, and press the [SPACE] key to select them. A check mark indicates active items.

## Taskbar Advanced Tab

- • Tap on the **Clear** button to empty the *Documents* folder.
- • To display *Control Panel* applets in menu form rather than in a window, tap in the checkbox next to *Expand Control Panel*.

## Taskbar Security Tab

If you check *Disable hot keys*, the *Application from Start menu* field becomes enabled. Use this field to enter the name of the application you want to run when the user presses the *Menu* hot key – [FN/BLUE] [0].

If you have disabled hot keys, hidden the *Start Menu* and have no application configured, the *Menu* hot key brings up the *Security* dialog box to allow authorized users to access the terminal configuration. Keep in mind that this dialog box is also displayed if an invalid application is entered in the *Application from Start Menu* field.

# 4.4  The Start Menu

*Note:* *Some of the Start Menu items may be disabled based on the current WORKABOUT PRO security settings.*

The *Start Menu* lists the operations you can access and work with. It is available from the startup desktop or from within any application.

To display the menu:

- Press [FN/BLUE] [.] (period).

*Note:* *Tap on the item in the menu with which you want to work.*



Figure 4.4  Start Menu

If you're using the keyboard:

- Use the arrow keys to highlight a menu item, and press [ENTER], *or*

If the menu item has an underlined character:

- Type the underlined alpha character. For example, to display the *Security* dialog box, type the letter '**s**'.

## 4.4.1  The Desktop

Choosing *Desktop* in the *Start Menu* displays the WORKABOUT PRO desktop.
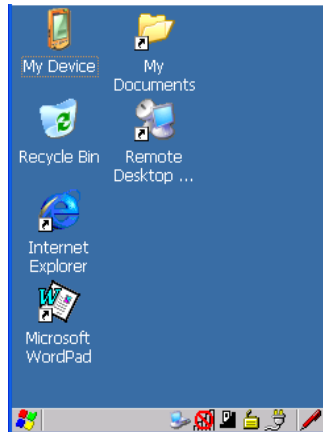


Figure 4.5 WORKABOUT PRO Desktop

## 4.4.2  Security Settings

Choosing the *Security* option from the *Start Menu* displays a dialog box in which you can define the access level for the WORKABOUT PRO: Supervisor or User.



Figure 4.6 Security Levels

### Assigning The Supervisor Security Level

The security level is represented by an icon in the shape of a lock in the taskbar. The security levels define the options accessible to the operator in the *Start Menu* and the *taskbar*. By default, the security level is set to *User*, restricting access to only the most basic *Start Menu* items.

To allow access to all the *Start Menu* and *taskbar* options:

- In the *Security Level* dialog box, tap on the radio button next to Supervisor.
- In the *Password* field, type the Supervisor level password. The default password is 123456.
- Tap on **OK**. You can now access all menu items in the *Start Menu* along with the icons in the taskbar.

## Changing A Password

*Note: Keep in mind that this is the same password as that assigned through the Password control panel applet. Refer to "Control Panel Icons" on page 80.*

To assign a password:

- Choose a **security level**, and enter the **existing password** in the *Password* field.
- Tap on the **Set Password** button.

A dialog box labelled *Password Properties* is displayed.

- Type the new password in the *Password:* text box (all keyboard characters are valid).
- In the *Confirm Password:* text box, retype the new password.

## Configuring Security

Choosing the *Configure* button displays the *Configure Security* dialog box.
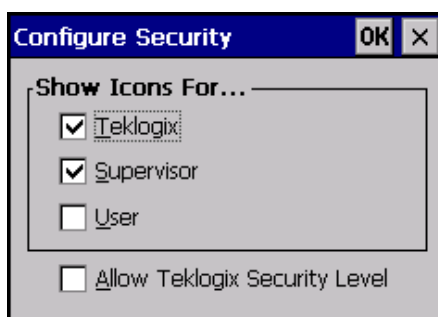


### Figure 4.7 Configuring Security

This dialog box allows you to determine which security levels will have an associated icon displayed in the taskbar. By default, a security icon is not displayed for user-level security.

*Note:* *It is recommended that you enable 'Allow Teklogix Security Level' so that authorized Psion Teklogix service personnel can access your unit should it require maintenance.*

## 4.4.3  Programs

• Choose **Programs** to display a sub-menu of options.



Figure 4.8 Program Sub-Menu

### ActiveSync®

This option allows you to connect to another device using ActiveSync.

### Demo

This folder contains the *Demo Imager*, *Demo Scanner*, and *Demo Signature* applications. *Demo Imager* is used for simple image-capturing purposes and for displaying bar code data and bar code statistics on the same screen with image data and information. *Demo Scanner* can be used to test how the hand-held reads and writes RFID tags. *Demo Signature* allows you to capture a signature written on the screen with your stylus and save it to a file. *Demo Sound* allows you to record and playback. The 'Sample Rate' and the 'Bits Per Sample' are the rates at which the sound will be recorded. Sounds recorded at the higher sample rate or bits per sample will be higher quality but will require more file space to store. Lower sample rates and bits per sample or both the file result in a smaller file but the quality suffers. The record and play buttons operate in the same way they do on any recording device. the 'X' icon deletes the sound and the 'diskette' icon allows you to save your sound.

### Summit

This folder provides access to the Summit Client Utility (SCU), a utility that allows you to configure your Summit 802.11b/g radio, model number RA2041.

### Command Prompt

*Command Prompt* is used to access the DOS command prompt. At the prompt, you can type DOS commands such as *dir* to display all the directories in the drive.

### Internet Explorer

The WORKABOUT PRO is equipped with Microsoft Internet Explorer for Windows CE 5.0. You can access the *Internet Options* icon through the *Start Menu* under *Settings, Control Panel* or by double-tapping on the desktop *Internet Explorer* icon.

### Remote Connect

Remote Connect is a WORKABOUT PRO application used to connect to a Windows Terminal Server so that you can run a "session" on the Server machine using the WORKABOUT PRO (Windows CE 5.0 device). "Remote Connect" on page 79 provides a website with details about this option.

### Windows Explorer

The Windows Explorer installed on your WORKABOUT PRO is consistent with all Windows CE 5.0 devices. You can access this option from the *Start Menu* under *Programs, Windows Explorer.*

# 4.4.4 Shortcuts



Figure 4.9 Shortcuts Sub-Menu

## System Tray

If your touchscreen is not enabled, you can use the *System Tray* option to access the icons in the taskbar at the bottom of the screen. The taskbar displays indicators such as a radio signal icon and the security level. These indicators are attached to dialog boxes that provide additional information.

- Choose **Shortcuts>System Tray**.

Using the icons in the taskbar, you can either display the *Control Panel* dialog box associated with an icon, or you can view a tooltip. A *tooltip* provides the status of each icon.

- Tap and hold the stylus on an icon to display the icon's tooltip. Double-tap on the icon to open the *Control Panel* dialog box associated with the icon.

On the keyboard:

- Press [FN/BLUE] [0] to display the *Start Menu*.
- Choose **Shortcuts** from the *Start Menu*, and then press the [RIGHT] arrow key to display the sub-menu.
- Choose **System Tray** in the sub-menu.
- Use the arrow keys to highlight the icon in the taskbar about which you'd like more information. As each icon is highlighted, a tooltip is displayed.
- To display the associated *Control Panel* dialog box, press [ENTER].

## Cycle Tasks

When *Cycle Tasks* is selected (and the Task Manager is not open), you can cycle through active applications.

To cycle through your active applications:

- Choose **Shortcuts>Cycle Tasks**, *or*

    Press [ALT] [TAB].

## Task Manager

The *Task Manager* allows you to switch to another task or to end an active task. To display the task manager window:

- Tap on **Shortcuts>Task Manager**, *or*

    Press [ALT] [ESC].
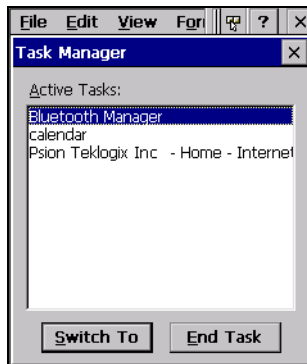


Figure 4.10 Task Manager

# 4.4.5  Settings

The **Settings** sub-menu includes the following settings: *Control Panel*, *Network and Dial-up Connections* and *Taskbar and Start Menu*.
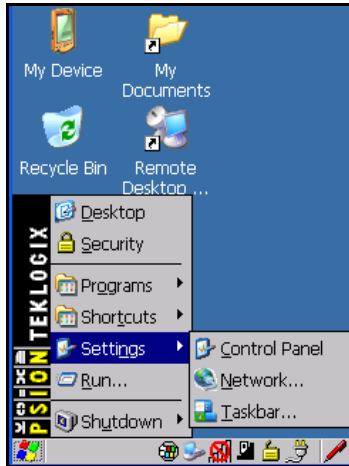


Figure 4.11 Settings Sub-Menu

## Control Panel

The *Control Panel* contains applets used to configure hardware, the operating system and the shell. If your WORKABOUT PRO is running with the Psion Teklogix TekTerm application or another application, additional configuration applets may appear in the *Control Panel*.

## Network And Dial-Up Connections

The *Network and Dial-up Connections* window allows you to configure the WORKABOUT PRO radio or execute an existing configuration. Refer to "Configuring The Summit RA2041 802.11b/g" on page 13 for radio setup details.

## Taskbar And Start Menu

The *Taskbar and Start Menu* option displays a dialog box in which you can customize the taskbar, choosing which options will be displayed. Refer to "Customizing The Taskbar" on page 60 for additional details about this option.

## 4.4.6  Run

Choosing the *Run* option from the *Start Menu* displays a dialog box in which you can enter the name of the program, folder or document you want to open or launch.
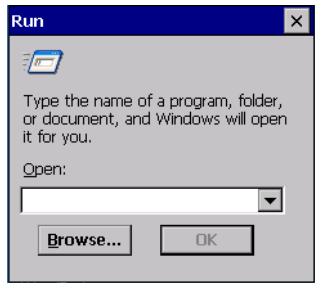


Figure 4.12 Run Dialog Box

## 4.4.7  Shutdown

The *Shutdown* menu includes these options: *Suspend, Warm Reset* and *Cold Reset*.
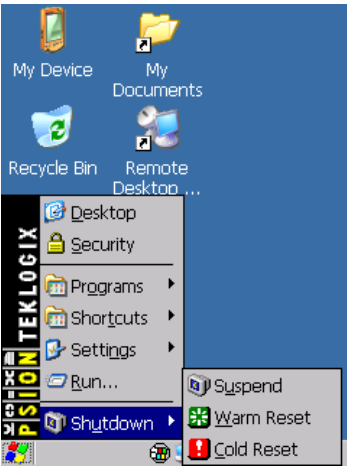


Figure 4.13 Shutdown Sub-Menu

*Note:  This menu varies slightly depending on the security level chosen. When the WORKABOUT PRO is set to **User level**, the Shutdown option is replaced by **Suspend**. A sub-menu is not available.*

### Suspend

The *Suspend* option suspends the WORKABOUT PRO immediately. This is equivalent to turning the hand-held off.

### Warm Reset

The *Warm Reset* option resets the WORKABOUT PRO, leaving all saved files and (registry) settings intact. Any unsaved data is lost.

### Cold Reset

The *Cold Reset* option resets the WORKABOUT PRO (see page 26). Any files not stored in permanent memory are lost; however, the registry settings are saved.

## 4.5  Using A Dialog Box

A dialog box (like the samples in Figure 4.14) appears when you need to make selections and enter further information. You can move between dialog items by tapping on them with your stylus, or by pressing the arrow keys and the [TAB] key ([SHIFT] [TAB] moves the cursor backwards).
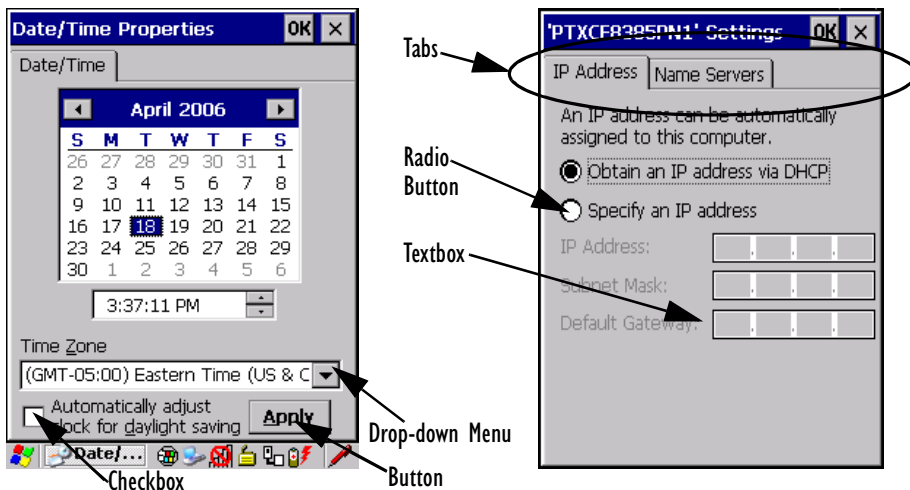


Figure 4.14 Dialog Boxes

*Note: You can use the stylus to tap on an element in a dialog box to select or deselect it, display drop-down menus, save your selections, and so on.*

Dialog boxes contain one or more of the following elements:

**Tab**: A tab separates different elements of a dialog box. Press the [TAB] key until a tab in the dialog box is highlighted. To display adjoining tabs, press the [RIGHT] or [LEFT] arrow key. To display the information in the next tab from anywhere in the window, press [CTRL] [TAB].

**Textbox:** A textbox requires that you type information. Press the [TAB] key to highlight the textbox and then type the appropriate information.

**Drop-down:** This type of menu is identified by up and down arrows next to the drop-down menu to indicate that additional options are available. Press the [TAB] key to highlight the menu, and use the arrow keys on your keyboard to cycle through the options.

**Checkbox:** This box allows you to select or deselect an option. To select or deselect a checkbox, press the [TAB] key to highlight the checkbox, and press the [SPACE] key to select or deselect it.

**Radio buttons:** These buttons allow you to choose from a number of options. For example, in the sample screen in Figure 4.14 on page 71 you can choose to *Obtain an IP address via DHCP* or *Specify an IP address*. Press the [TAB] key to highlight a radio button option, and then select a radio button by pressing the arrow keys to highlight the appropriate option.

**Buttons:** This type of button allows you to *Save*, *Delete* and so on the options you've chosen in a dialog box. Use the [TAB] key to highlight the button you want to use. Press the [ENTER] key to activate it.

**Saving Your Choices:** Once you've made all your changes, press the [ENTER] key to save your changes and exit the window.

*Note:* *A dialog box item that is displayed in grey text indicates that it is not currently available.*

# 5

# CONFIGURATION

# 5.1  Remote Connect

*Remote Connect* is a WORKABOUT PRO application used to connect to a Windows Terminal Server so that you can run a "session" on the Server machine, using the WORKABOUT PRO (Windows CE 5.0 device).

Refer to the following website for step-by-step information about setting up this connection:

http://www.microsoft.com/WindowsXP/pro/using/howto/gomobile/remotedesktop/default.asp

or contact Psion Teklogix support services. (Refer to *WORKABOUT PRO Hand-Held Computer Regulatory & Warranty Guide*, *PN 8000126*, or locate the office closest to you at *www.psionteklogix.com*).

# 5.2  The TekTerm Application

TekTerm is a powerful emulation application ideally suited for real time data transaction applications associated with mainframes and servers. The WORKABOUT PRO includes unique features that support TekTerm—a Psion Teklogix application that has the ability to maintain multiple simultaneous sessions with a variety of host computers. For detailed information, please refer to the *TekTerm Software User Manual, PN 8000073*.

# 5.3  The Control Panel

The Windows CE 5.0 *Control Panel* provides a group of icons through which you can set a variety of system-wide properties, such as mouse sensitivity, network configuration and the desktop color scheme.

*Note:    If you are uncertain how to move around a dialog box and make selections, review "Using A Dialog Box" on page 71.*

When the WORKABOUT PRO boots up, the startup desktop (shell) is displayed, and any applications stored in the Startup folder start up immediately.

To access the *Control Panel*:

- Tap on **Start>Settings>Control Panel**.

If you're using the keyboard:

- Press [FN/BLUE] [.] to display the Start Menu.
- Highlight **Settings** in *Start Menu*, and press the [RIGHT] arrow key to highlight the *Control Panel*.

• Press the [ENTER] key.

The *Control Panel* folder contains icons used in the setup of your WORKABOUT PRO.
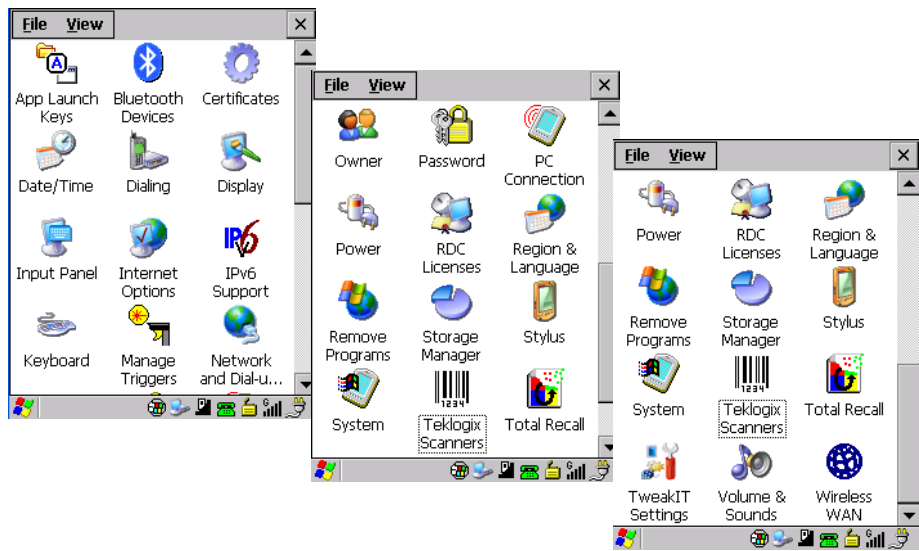


Figure 5.1 Control Panel

# 5.4  Control Panel Icons

The *Control Panel* provides a group of icons that allow you to customize and adjust settings on your WORKABOUT PRO.

### App Launch Keys

By mapping keys to applications using this program, you can then launch those applications from a single key-press.

### *Bluetooth* Devices

Provides the tools to manage device pairing and configuration.

## Certificates

A public key is transmitted as part of a certificate. The certificate assigned through this icon is used to ensure that the submitted public key is, in fact, the public key that belongs to the submitter. The client checks that the certificate has been digitally signed by a certification authority that the client explicitly trusts. "Certificate Assignment" on page 108 directs you to the appropriate setup information.

## Date/Time

Allows you to set the current Month, Date, Time and Time Zone on your unit.

## Dialing

Specifies dialing settings, including area code, country code, dial type and the code to disable call waiting. You can store multiple patterns—for example, 'Work', 'Home', and so on using this dialog box.

## Display

Changes the appearance (window colour scheme) on the unit desktop.

## Input Panel

Provides the framework for a Soft Input Panel (SIP) should you need to design your own SIP, or change some soft keyboard options.

## Internet Options

Provides options to configure your Internet browser. You can determine items such as the default and search page that the browser applies when connecting to the Internet, the cache size, the Internet connection options, and the security level that is applied when browsing.

## IPv6 Support

Refers to a new Internet Protocol specification (version 6) that has been published to use 128-bit IP addresses (replacing version 4).

### Keyboard

Toggles character repeat on and off and specifies delay and rate for repeated characters. It also allows you to adjust the keyboard backlight threshold and intensity.

### Manage Triggers

Allows multiple-scanner trigger management, including the ability to configure each of the trigger buttons. You can configure the trigger ID for each trigger button for both single- and double-click, and the double-click time.

### Network And Dial-up Connections

Displays a network window from which the WORKABOUT PRO 802.11g radio can be configured and an existing configuration can be executed. Refer to "Configuring The Summit RA2041 802.11b/g" on page 13 for details.

### Owner

Provides fields in which you can specify owner information. A *Notes* tab allows additional information to be entered and displayed when the unit is powered up. *Network ID* tab information is used to access network resources. (This information should be provided by your System Administrator.)

### Password

Allows you to assign a password to restrict access to elements of the unit. Once assigned, password access cannot be circumvented so it is important that you write down your password and keep it in a safe place. Refer to "Security Settings" on page 63 for details.

### PC Connection

Enables direct connections to a desktop computer. Selecting the *Change Connection* button allows you to change the type of direct connect to your PC.

### Power

Displays battery pack power status. (Alternately, battery status can be accessed through the taskbar.) Additional tabs allow you to determine suspend states, specify a suspend threshold and, when seated in either the

Combo Dock or Quad Dock, determine whether or not a battery that requires it can be recalibrated. This dialog box also allows you to activate card slots and built-in devices. (Refer to "Devices" on page 102 for details.)

## RDC Licenses

The Terminal Services license server stores all license tokens that have been installed for a group of terminal servers and tracks licenses issued. The *Remote Desktop Licenses* (RDC) application displays license 'tokens' for devices that connect to a Terminal Server.

## Region & Language

Allows you to specify the local language that is to be displayed on the hand-held screen along with the format of numbers, currency, time and date for your region.

## Remove Programs

Lists the programs that can be removed from your unit. To remove a program, select it and then click on the **Remove** button.

## Storage Manager

Allows the user to view information about the storage devices that are present, such as SD-MMC flash cards. For details, see page 128.

## Stylus

Adjusts how Windows CE 5.0 recognizes your double-tap (as slow or rapid successive taps). In the *Calibration* tab, you can recalibrate your touch-screen by tapping on the **Recalibrate** button and following the directions on the screen.

## System

Displays system and memory properties. In the *Memory* tab, you can allocate memory between storage memory and program memory.

## Teklogix Scanners

Provides scanner parameters and the bar code symbologies that the WORK-ABOUT PRO scanner will successfully read.

### Total Recall

Provides access to a backup and restore utility to maintain applications and settings over cold reboots.

### TweakIT Settings

Allows you to change Advanced System Settings (interface, network, and servers), User System Settings (display font size), and provides the Registry Editor.

### Volume & Sounds

Allows you to adjust the volume of the sound emitted to indicate events like warnings, key clicks and screen taps.

### Wireless WAN

Provides access to technology like GSM/GPRS, which allows wide area networking capability such as internet browsing via GSM/GPRS. It also provides access to the Phone API. For detailed information, see Appendix B: "Wireless WAN".

# 5.5  Basic Setup

## 5.5.1  Display Properties

• In the *Control Panel*, choose the **Display** icon.
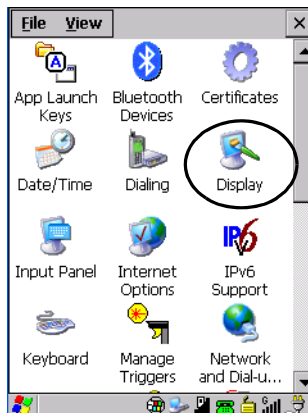


Figure 5.2 Choosing The Display Icon

## 5.5.1.1    Display Backlight

The backlight is activated for a configurable amount of time when the WORKABOUT PRO is in use (key press, scanner trigger or data received from the host). The *Display Properties* dialog box in the *Control Panel* allows you to specify the intensity of the backlight along with how long the display will maintain the specified intensity.

*Note:    Keep in mind that this option may be restricted to supervisory use only.*

• In the *Display Properties* dialog box, open the **Backlight** tab.
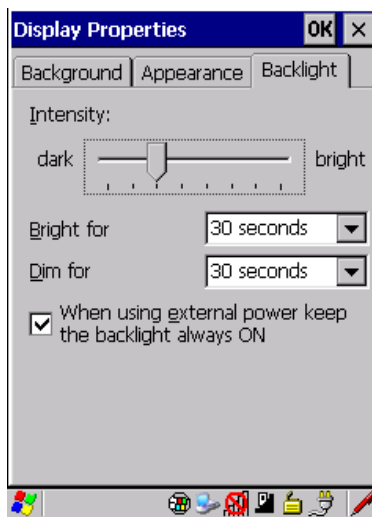


*Notes:    Backlight changes take effect immediately. You do not need to reset the unit.*

*To maximize battery run time, keep the display backlight brightness and active durations as low as possible.*

### Intensity

This parameter is used to adjust the light intensity of the WORKABOUT PRO backlight. Sliding the bar to the left lowers the light intensity, and sliding it to the right raises the intensity.

### Bright For

The value chosen from this drop-down menu determines the duration of time that the backlight stays on at the configured intensity after the last user action (keypress, scan trigger).

### Dim For

The value chosen from this drop-down menu determines the duration of time that the backlight stays on at half the configured intensity (dimmed backlight) after expiration of the *Bright For* delay and as long as no user action takes place (such as a keypress or scan trigger). At the expiration of the *Dim For* duration, the display backlight shuts off.

### External Power Checkbox

When you select the checkbox next to *When using external power keep the backlight always ON*, the backlight remains **ON** at the configured intensity when the WORKABOUT PRO is operating with external power (not battery power). If the WORKABOUT PRO is drawing power from its battery, this option is ignored and the other parameters defined in *Display Properties* dialog box are used.

## 5.5.1.2    Display Appearance

- In the *Display Properties* dialog box, open the **Appearance** tab.
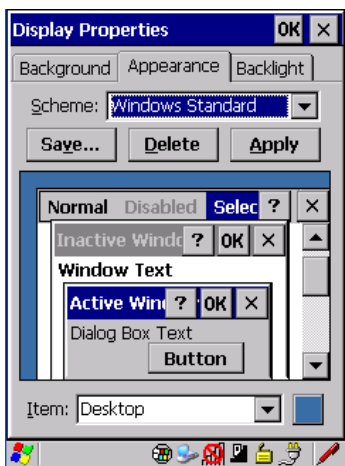


This dialog box allows you to customize the display colour scheme.

# 5.5.2  Keyboard Properties

This icon displays the *Keyboard Properties* dialog box in which you can adjust the repeat rate of the keys, the intensity of the keyboard backlight and the behaviour of the [FN/BLUE] and [ORANGE] modifier keys. This dialog box also allows you to define macro keys and Unicode characters.

•   In the *Control Panel*, choose the **Keyboard** icon.
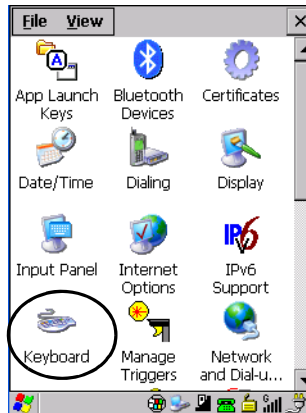
*Figure 5.3 Choosing The Keyboard Icon*

## 5.5.2.1    Key Repeat

*Note:    These settings apply when a key is held down continuously.*

•   In the *Keyboard Properties* dialog box, open the **Repeat** tab.
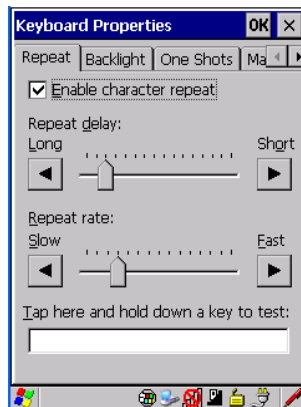
### Repeat Delay

The value assigned for this parameter determines the delay in milliseconds between repeat characters. Sliding the *Repeat Delay* bar to the left increases the delay between key repeats, and sliding the bar to the right shortens the repeat delay time.

### Repeat Rate

The value assigned for the *Repeat Rate* parameter determines how quickly the key you press repeats and is measured in characters per second (cps). Sliding the bar to the left slows the repeat rate, and sliding the bar to the right increases the repeat rate.

*Note: Use the field at the bottom of this dialog box to test the repeat delay and rate settings you've chosen.*

## 5.5.2.2   Keyboard Backlight

• In the *Keyboard Properties* dialog box, open the **Backlight** tab.
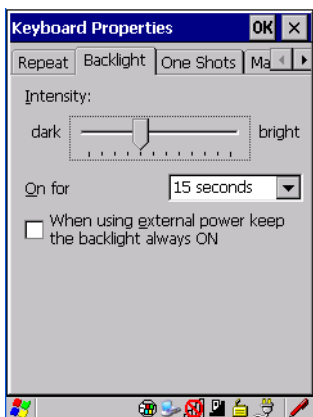


### Intensity

This parameter is used to adjust the light intensity of the WORKABOUT PRO keyboard backlight. Sliding the bar to the left darkens the keyboard backlight intensity, and sliding it to the right lightens the intensity.

### ON For

The value chosen from this dropdown menu determines the duration of time that the keyboard backlight stays on when a unit is not in use.

*Note: Tapping in the checkbox next to 'When using external power, keep the*

*backlight always ON' forces the keypad backlight to remain on when the unit is operating with external power.*

## 5.5.2.3   Keyboard One Shot Modes

• In the Keyboard Properties dialog box, open the One Shots tab.
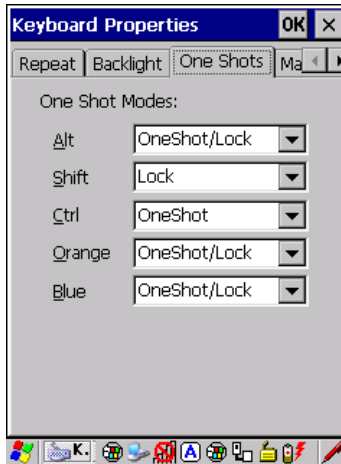


The options in this tab allow you to determine how modifier keys on your WORKABOUT PRO behave. For each modifier key—[ALT], [SHIFT], [CTRL], [FN/ORANGE] and [FN/BLUE]—you have the following options in the drop-down menu: Lock, OneShot, and OneShot/Lock.

*Note:    Keep in mind that checking the taskbar lets you know whether or not these keys are locked on. For example, if the [FN/ORANGE] key is locked 'on', the taskbar at the bottom of the screen displays it in **uppercase** characters,* ORANGE KEY. *If this key is displayed in **lowercase** characters in the taskbar, you'll know that the* orange key *is **not** locked. It will become inactive following a key press.*

*Important:    Once you've assigned a One Shot mode to a modifier key, you need to tap on the OK button at the top of the tab to activate your selection.*

### Lock

If you choose *Lock* from the drop-down menu, pressing a modifier key *once* locks it 'on' until you press the modifier key a second time to unlock or turn it off.

### OneShot

If you choose *OneShot*, the modifier key remains active only until the next key is pressed.

### OneShot/Lock

*OneShot/Lock* allows you to combine these functions. When you choose this option and you *press the modifier key once*, it remains active only until the next key is pressed.

If you *press the modifier key twice*, it is locked 'on', remaining active until the modifier key is pressed a third time to turn it 'off'.

## 5.5.2.4    Keyboard Macro Keys

•    In the *Keyboard Properties* dialog box, open the **Macros** tab.
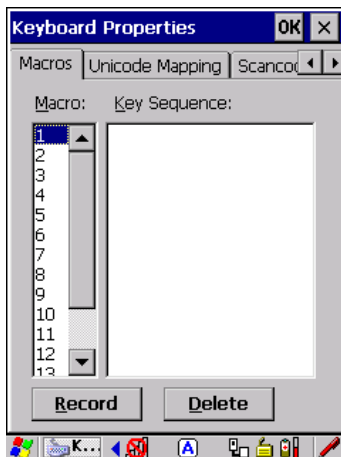


A macro has 200 programmable characters (or "positions"). The macro keys can be programmed to replace frequently used keystrokes, along with the function of executable keys including [ENTER], [BKSP] and [DEL] ([FN/BLUE]-[BKSP]), function keys and arrow keys.

### Recording And Saving A Macro

You can program up to 12 macro keys on a *58-key* WORKABOUT PRO. On a *36-key* WORKABOUT PRO, you can program a maximum of 6 macro keys.

•    In the *Macro* menu highlight a macro key number, for example macro 1, to assign a macro to macro key [M1]. Choose the **Record** button.

A message screen is displayed instructing you to *Enter Key Strokes to Record*

- Type the macro sequence you want to assign to the Macro key. You can type text and numbers, and you can program the function of special keys into a macro.
- When you've finished recording your macro sequence, press the key sequence: [CTRL] [ALT] [ENTER], or choose the **Stop Recording** button.

A new screen called 'Verify Macro' displays the macro sequence you created. The *Save* button is highlighted.

- Press [ENTER] to save your macro, or highlight **CANCEL** and press [ENTER] to discard it.

## Executing A Macro

To execute a macro:

- Press the macro key to which you've assigned the macro. For example, if you created a macro for *macro key 1*, press [M1] to execute the macro.

## Deleting A Macro

To delete a macro:

- In the *Macros* tab, highlight the **macro number** you want to delete.
- Choose the **Delete** button.

## 5.5.2.5    Unicode Mapping

• In the *Keyboard Properties* dialog box, open the **Unicode Mapping** tab.

The *Unicode Mapping* tab is used to map combinations of virtual key values and [CTRL] and [SHIFT] states to Unicode™ values. This tab shows the configured Unicode character along with the Unicode value. For example, the sample screen above shows "a (U+0061)" indicating that the character "a" is represented by the Unicode value "0061", and so on. Keep in mind that Unicode configurations are represented as hexadecimal rather than decimal values.

All user-defined Unicode mappings are listed in the *Unicode Mapping* tab in order of virtual key value, and then by order of the shift state. If a Unicode mapping is not listed, the Unicode mapping is mapped to the default Unicode value.

### Adding And Changing Unicode Values

*Important:    Changes to Unicode mappings are not saved until you exit the Keyboard Properties dialog box.*

• Choose the **Add/Change** button.
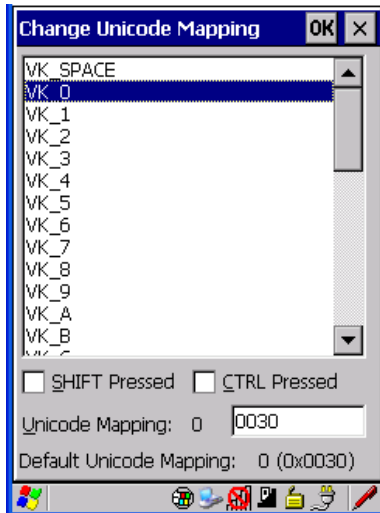


*Figure 5.4 Adding And Change Unicode Values*

• Highlight a value in the Unicode mapping list. In the sample screen above, a value will be assigned to virtual key 0 (VK 0).

• Position the cursor in the *Unicode Mapping* field, and type a **Unicode value** for the highlighted key.

*Note: To add a shifted state, [SHIFT] and/or [CTRL], press [TAB] to position the cursor in the checkbox next to 'SHIFT Pressed' and/or 'CTRL Pressed'. Press [SPACE] to select the shift state you want to assign.*

### Removing Unicode Values

• In the *Unicode Mapping* tab, highlight the item you want to delete, and choose the **Remove** button.

## 5.5.2.6  Scancode Remapping

A scancode is a number that is associated with a physical key on a keyboard. Every key has a unique scancode that is mapped to a virtual key, a function or a macro. *Scancode Remapping* allows you to change the functionality of any key on the keyboard. A key can be remapped to send a virtual key (e.g. VK_F represents the 'F' key; VK_RETURN represents the [ENTER] key, etc.), perform a function (e.g. turn the scanner on, change volume/contrast, etc.) or run a macro.

There are three different tables of scancode mappings: the *Normal* table, the Blue table and the Orange table. The Normal table defines unmodified key presses; the *Blue* table defines key presses that occur when the [FN/BLUE] modifier is on; the *Orange* table defines key presses that occur when the [FN/ORANGE] modifier is on. The default mappings of these scancodes can be overwritten for each of these three tables using the *Scancode Remapping* tab accessed from the *Keyboard Properties* dialog box.



The first column in the *Scancode Remapping* tab displays the scancodes in hexadecimal. If the scancode is remapped to a virtual key, that virtual key is displayed in the next column labelled 'V-Key'. A virtual key that is 'Shifted' or 'Unshifted' is displayed in the third column labelled 'Function'.

If the scancode is remapped to a function or a macro, the first and second columns remain blank while the third column contains the function name or macro key number (e.g., Macro 2).

## Adding A Remap

To add a new remapping:

- Choose the **Add** button at the bottom of the dialog box.

The *Remap Scancode* dialog box is displayed.
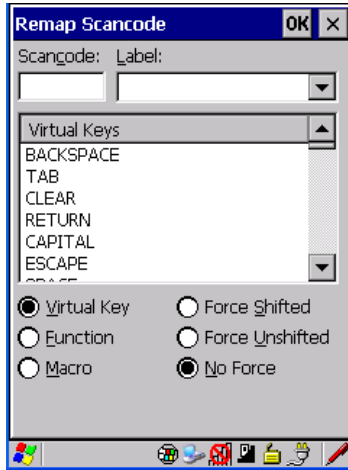
- Type the scan code in hexadecimal in the field labelled *Scancode*

*Note: The Label field displays the default function of the scancode you are remapping.*

## Virtual Key, Function And Macro

The radio buttons at the bottom of the dialog box allow you to define to what the scan code will be remapped: Virtual Key, Function or Macro.

When *Virtual Key* is selected, you can choose to force [SHIFT] to be *on* or *off* when the virtual key is sent. If *No Force* is selected, the shift state is dependent on whether the shift state is on or off at the time the virtual key is sent.

When *Function* is selected, a list of valid functions appears in the dialog box.

When *Macro* is selected, the macro keys available on your unit are listed in the dialog box.

- Choose **Virtual Key**, **Function** or **Macro.**
- Choose a function from the *Function* list in the dialog box, and tap on **OK**.

## Editing A Scancode Remap

To edit a scancode:

- In the *Scancode Remapping* tab, tap the stylus on the remap you want to edit.
- Tap on the **Edit** button, and make the appropriate changes.

- Tap on **OK** to save your changes.

## Removing A Remap

To delete a remap:

- In the Scancode Remapping tab, highlight the scancode you want to delete, and tap on the **Remove** button.
- Tap on **OK**.

# 5.5.3  Volume And Sound Properties

- In the *Control Panel*, choose the **Volume & Sounds** icon.
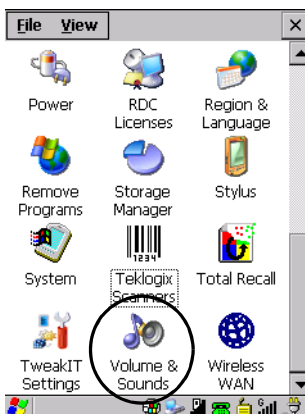


Figure 5.5 Choosing The Volume Icon

## 5.5.3.1 Volume Adjustments
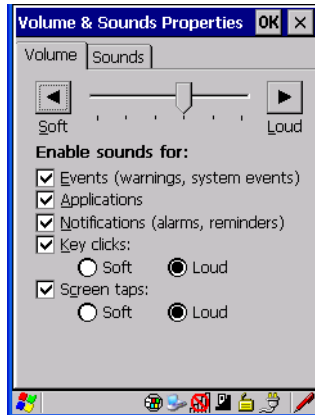


*   Slide the volume button to the left to lower the beeper volume or to the right to increase the beeper volume.
*   Under the heading *Enable sounds for*, enable the conditions under which you want the WORKABOUT PRO to emit a beep.

## 5.5.3.2 Sound Adjustments
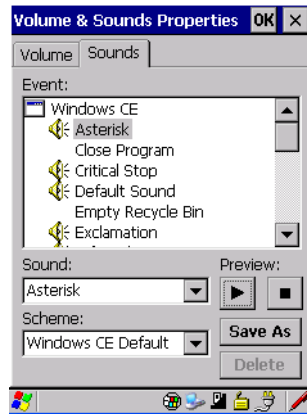


This dialogue box allows you to assign sounds to identify a particular actions. For example, you can choose the sound your hand-held will emit when you close a program and choose another sound for a failed scan, etc.

## 5.5.4  Power Management Properties

This icon displays a Power Properties dialog box that indicates the unit's battery capacity and allows you to manage battery use.

- • In the *Control Panel*, choose the **Power** icon.
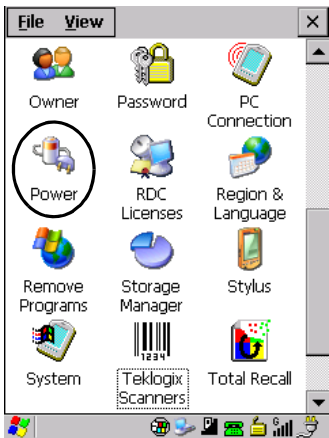


## 5.5.4.1  Battery Capacity

- • In the *Power Properties* dialog box, open the **Battery** tab to view battery details.
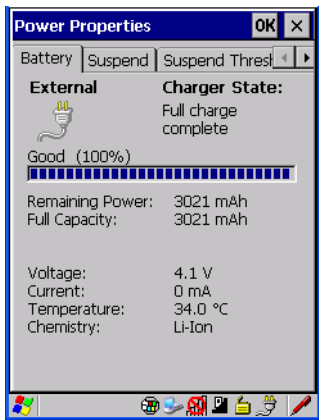
## 5.5.4.2    Power Saving Suspend

- In the *Power Properties* dialog box, open the **Suspend** tab.
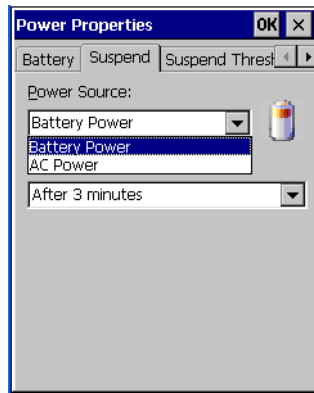


### Power Source

This dialog box allows you to specify the suspend time for either *AC Power* or *Battery Power.*

### Suspend Timeout

*Important:    Psion Teklogix recommends setting the Suspend value to 10 min-utes. To further reduce power consumption, carefully consider the duration of time that the display backlight is 'on' (see "Display Backlight" on page 85).*

When the WORKABOUT PRO is idle—not receiving any user input (a key touch, a scan, and so on) or system activity (serial data, an activity initiated by an application, and so on)—the hand-held uses the value assigned in the *Suspend Timeout* field to determine when the unit will go to sleep (appear to be off).

When the time in the *Suspend Timeout* field elapses without any activity, the unit enters *suspend* state. In suspend state, the WORKABOUT PRO CPU enters a *sleep* state, and the radio is shut off. The state of the device (RAM contents) is preserved. Pressing [ENTER] wakes the system from suspend state. When the WORKABOUT PRO is in suspend state, the network connection will not be broken immediately. If the connection is dropped, you must re-establish the network connection.

## 5.5.4.3    Suspend Threshold
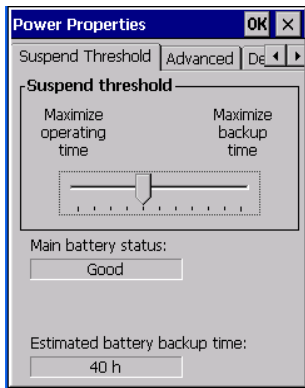


The *Suspend Threshold* adjustment tells the system when to shut down when the battery drains. If left at the default value, *Maximum Operating Time*, the hand-held will run until the battery is completely empty; the RAM is only backed up for a short period of time. If you choose *Maximum Backup Time*, the hand-held shuts off with more energy left in the battery so RAM can be backed up for a longer period of time.

*Important:    Selecting* **Maximum backup time** *will reserve approximately 20% of the battery capacity for memory backup. Once the battery is drained, the system RAM memory is lost and the unit must cold boot.*

*In most real-time transaction environments this is not a problem (it only takes a few seconds to cold boot). Batch transaction environments, where data is not saved to a non-volatile memory (such as an SD FLASH card), may need to pay particular attention to this parameter. Psion Teklogix does not recommend the storage of any valuable data in system RAM.*

*The WORKABOUT PRO Windows CE 5.0 environment does not store any critical data in RAM (such as the registry or file system).*

*If the user's application does not save data to RAM, Psion Teklogix recommends keeping the* **Suspend Threshold** *setting as low as possible to maximize battery run time.*

## 5.5.4.4    Advanced
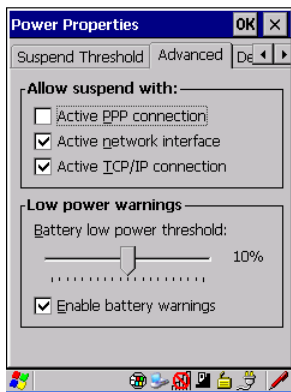


### Allow Suspend With:

This tab allows you to specify whether or not your unit will enter *Suspend* state while it is operating with an active PPP connection, network interface or active TCP/IP connection.

### Low Power Warnings

The sliding scale at the bottom of this tab allows you to specify the remaining battery capacity at which a warning message is displayed on the WORKABOUT PRO screen, from 0% to 20%.

## 5.5.4.5 Devices

This tab controls power to individual CF and SDIO slots, and built-in devices.
Enable or disable the checkboxes as needed, then tap on **OK** to save your changes.
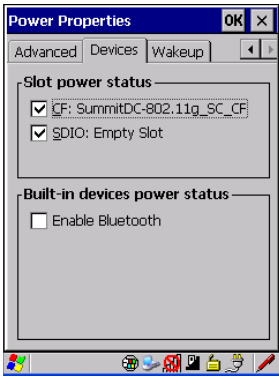
## 5.5.4.6 Wakeup

This option allows you to define which key(s) can be pressed to wake the hand-held from a suspend state.

If the *Two key wakeup* option is checked, the operator will need to press two keys – [FN/BLUE][ENTER] – to switch the hand-held on.
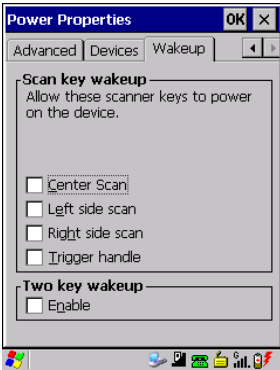
## 5.5.5   Stylus Properties

*Note:   Touchscreen calibration may not be enabled on your unit. If your screen appears to require recalibration, contact your supervisor.*

• In the *Control Panel*, choose the **Stylus** icon.
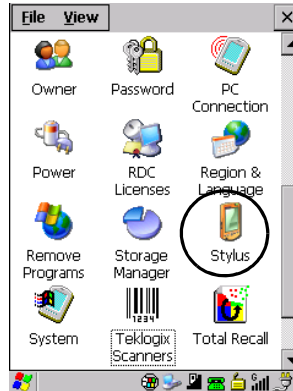
### 5.5.5.1   Double-Tap

• In the *Double-Tap* tab, follow the directions to tailor the sensitivity of the stylus when you tap on the touchscreen.

### 5.5.5.2   Calibration

Touchscreens rarely require recalibration. However, if your touchscreen has never been calibrated or if you find that the stylus pointer is not accurate when you tap on an item, follow the directions below.

• Choose the **Calibration** tab, and then tap on the *Recalibrate* button.



• Follow the directions in the *Calibration* tab to recalibrate the screen.

## 5.5.5.3    Touch

This tab allows you to disable the touchscreen.

• Choose the **Touch** tab. Tap the checkbox next to *Disable the touch panel*.

## 5.5.6  Manage Triggers

This option allows you to configure how bar code scanners and other devices such as RFID readers are triggered. You can configure the trigger ID for each trigger button for both single- and double-click, and the double-click time.

• In the *Control Panel*, choose the **Manage Triggers** icon.
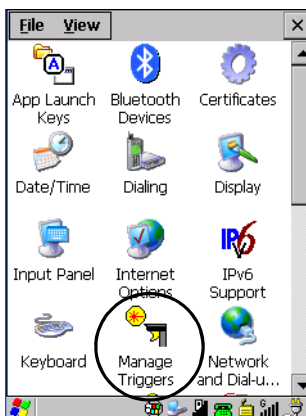


Figure 5.6 Manage Triggers Icon

- In the *Manage Triggers* screen you'll see a list of trigger mappings.
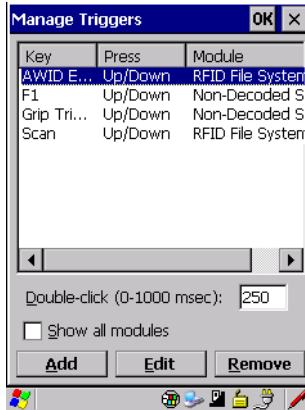


## 5.5.6.1 Trigger Mappings

A trigger mapping is an association between a particular key on the keyboard and a driver or application, the module(s)– sometimes referred to as "trigger consumer(s)"–of the trigger source. Along with keyboard keys, trigger sources can also be grip triggers, external hardware triggers or software-based. When the specified key is pressed, the trigger consumer (for example, a decoded scanner) is sent a message.

⚠️ *Important:* *It is not possible to have two or more identical mappings—for example [F1] cannot be mapped to the Non-Decoded Scanner twice—even if the trigger type is different.*

*A keyboard key that is used as a trigger source will no longer generate key data or perform its normal function. For example, if the space button is used as a trigger source, it will not be able to send space characters to applications.*

### Double-Click

When a key is pressed and released, then pressed again within the configured time (between **0** to **1000** milliseconds), a double-click occurs. See also "Trigger-Press Type" on page 107.

### Show All Modules

By default, the trigger mapping list only shows active mappings. Mappings for drivers or applications that are not currently active are not normally displayed. By checking this checkbox, all mappings, both active and inactive, are displayed.

### Add

Tapping this button brings up the *Add* mapping dialog (see page 106), so that you can add new trigger mappings.

### Edit

Tapping this button brings up the *Edit* mapping dialog (see page 106), so that you can edit existing trigger mappings.

### Remove

Tapping this button removes an existing mapping.

### OK

The *OK* button in the top right of the *Manage Triggers* screen saves all changes made. If the cancel button **X** is tapped instead, or the **[ESC]** key is pressed, all changes made will be discarded.

## 5.5.6.2   Add And Edit Trigger Mapping

These dialogs allow the user to add and edit trigger mappings.

## Trigger Key

This dropdown list allows you to specify the source of the trigger events, such as the Grip Trigger, Left Scan, etc., for the *trigger module* selected.

*Notes:* *It is possible to map the same source to different modules (trigger consumers)—for example, to both the Imager and Non-Decoded Scanner. If so, both devices/operations will occur simultaneously. This is not recommended in most cases, especially with devices such as Imagers or RFID Readers.*

*It is also possible to map different sources to the same module (trigger consumer)—for example, two different trigger keys can be mapped to the RFID File System.*

## Add Key

Only existing trigger sources are shown in the *Source* combo-box. To add a new source to this list, tap on the **Add Key** button. A dialog will pop up and allow you to select the keyboard key to use as a trigger source.



## Trigger-Press Type

You can enable either an **Up/Down** or **Double Click** response to a trigger press. Normally, when a trigger (keyboard key, etc.) is pressed and released, a "trigger down" event is sent to the "owner"—that is, the application receiving the trigger press information—followed by a "trigger up". If *Double Click* is chosen in this

menu, when the trigger is pressed, released, and then pressed again, a "double-click" event will have occurred. If a mapping with the type *Up/down* has also been configured for the same source, it will only receive the first set of trigger events.

## Module Trigger

This identifies the driver or application receiving the trigger presses.

## Show All Modules

By default, inactive owners are not shown. By checking this checkbox, all owners, both active and inactive, are displayed.

# 5.5.7  Certificate Assignment

•    In the *Control Panel*, choose the **Certificate** icon.
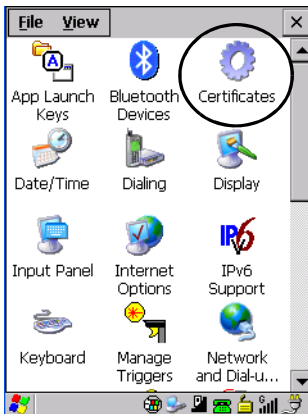


Figure 5.7 Certificates Icon

This option is used in conjunction with 802.1x authentication to enhance WORKABOUT PRO security.
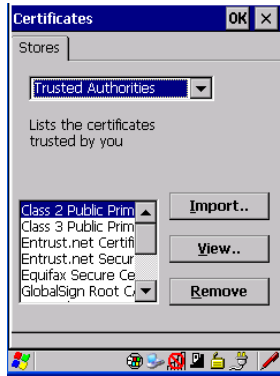


For a detailed description about *Certificate* setup for both the server and client-side devices (WORKABOUT PROs), refer to the following website:

http://www.microsoft.com/windowsserver2003/techinfo/overview/security.mspx

*Note:* *When importing certificates, the WORKABOUT PRO only recognizes .cer files.*

# 5.6 *Bluetooth* Setup

*Bluetooth* is a global standard for wireless connectivity for digital devices and is intended for Personal Area Networks (PAN). The technology is based on a short-range radio link that operates in the ISM band at 2.4 GHz. When two *Bluetooth*-equipped devices come within a 5 meter range of each other, they can establish a connection. Because *Bluetooth* utilizes a radio-based link, it does not require a line-of-sight connection in order to communicate.

*Note:* *The* Bluetooth *radio uses an internal antenna.*

The *Bluetooth* radio is disabled by default. Before you begin the setup process:

- In the *Control Panel*, tap on the **Power** icon.
- Tap on the **Devices** tab, and tap in the checkbox next to **Enable *Bluetooth***. Tap on OK.

When the radio is enabled, a *Bluetooth* icon appears the taskbar at the bottom of the screen. It is ready for setup.

• In the *Control Panel*, choose the **Bluetooth Device Properties** icon to display the *Bluetooth Manager* screen.
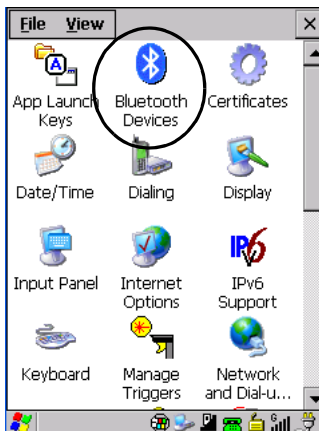


Figure 5.8 *Bluetooth* Icon

The *Bluetooth* Manager dialog box displays the other *Bluetooth* devices with which you can communicate.

## 5.6.1 The Devices Tab



If you intend to pair devices (a headset, for example), power on and bring the devices within 5 m (16.4 ft.) of the hand-held before proceeding with the discovery process described below.

# 5.6.1.1    Pairing A Device

To pair devices:

- Follow the manufacturer's instructions to place the device you want to pair in pairing mode

- Choose the **Devices** tab and **Scan** for devices in your area.

- When the scan is complete, highlight the device you want to pair with and either double-click or press the **Services** button.

- If a PIN dialog box appears, type your PIN and tap on OK.

After entering the device PIN number, the Services dialog appears with a list of services available on that device.

- To select a service, double-click on the service you want, or highlight the service and press the space bar.

- In the dropdown list of options available, choose **Active** to pair the device.

A COM/BSP port name will appear next to the service for this device. Your device is now paired.

## Scan

- Click on the **Scan** button to list available devices.
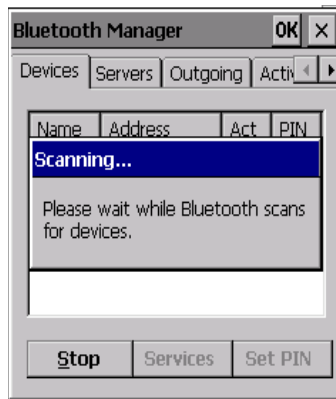
Figure 5.9 Available *Bluetooth* Devices

Wait for the WORKABOUT PRO to complete its scan (approximately 20 seconds). When scanning starts, the *Scan* button will change to *Stop*—if necessary, you can tap on this button to stop the process. Once scanning is complete, all discovered devices will be displayed in the list box, with *Name, Address, Active* status, and *PIN* information.

> *Note: During the scanning process, addresses are located first, followed by names. Only the names of devices that are within the* Bluetooth *radio coverage range will be retrieved.*

The *Active* column indicates whether any service is activated for that device. When a service is activated, the device is displayed in the list even when it is not detected during the scan.

The *PIN* column indicates whether you have a PIN (password) set for the device.

At this point you can either query for services or set the PIN for each device. Once you highlight a device in the list box, both the Services and Set PIN buttons become available.

## Services

A discovered device may display several service profiles that it can use to communicate, and you will want to activate the type you need. Supported profiles that can be activated include: DUN (Dial-Up Networking service), Printer (serial service), Headset service and LANPPP (LANAccessUsingPPP service). ASync (ActiveSync) is another available profile.

- To start the service scan, highlight a device in the Devices tab list, and then click on the **Services** button or double-click on the device entry.

> *Note: If the remote device is out of reach or turned off, it can take a considerable amount of time for the Services dialog box to appear—it may appear to be frozen.*

Once the device's service profiles are displayed in the Services list box:

- Highlight the service to be activated.
- Press [SPACE] or right-click to display the Activation menu.

The Activation menu contains four options: Activate, Authenticate, Outgoing, and Encrypt.

Once the service is successfully activated, the assigned port (if applicable) will appear in the *Port* column of the *Services* list box. You can choose to use *BSP* or *COM* as the port name. BSP is the latest Microsoft *Bluetooth* stack standard, but older applications assume serial ports are COM. When using *COM* as the port name, the *Bluetooth* manager will try to find and use a free port between COM7 and COM9. When using *BSP* as the port name, BSP2 to BSP9 are available for use. The port is available as soon as it is activated.

*Note:* *The CH column shows the RFCOMM channel of the service **if** the service is RFCOMM-based. This information is not generally needed except for debugging purposes.*

To add a service to the *Outgoing* port, an active service must first be deactivated. Then you can choose the 'Outgoing' option from the Activation menu (highlight a service, right-click or press the [SPACE] bar to display the Activation menu).

The *Authentication* and *Encryption* options can be changed only before activation. To change these after activation, deactivate the service first, then change the options.

Once a service is activated, all the information regarding the service, including the RFCOMM channel number, is saved in the registry. (Some remote devices may change their RFCOMM channel numbers when they reboot, so your saved setting may not work when the remote device is rebooted. In that case, you must deactivate the service and reactivate it to detect the current RFCOMM channel.)

## Set PIN

PINs can be set for each device by pressing the *Set PIN* button in the *Devices* tab, or you can skip this step and try to connect to the device first.

*Important:* ***The remote device must have authentication enabled, otherwise the PIN authentication will fail.***

• Highlight a device, click on the **Set Pin** button, and type the **PIN**.

You will receive a message, either that the PIN has been successfully validated or that it has been rejected.

If the PIN has been validated, an asterisk (*) appears in the PIN column in the *Devices* list box, indicating that this device has a PIN set. Once a PIN is entered, it is saved in the registry.

To remove the PIN:

• Choose **Set PIN,** and press **[**ENTER**]**.

If the WORKABOUT PRO attempts to connect to a remote device that has Authentication enabled and does not have a required PIN set, an *Authentication Request* dialog box appears.

• Enter the **PIN**, and tap on **OK** to connect the devices.

## 5.6.2  The Servers Tab



The *Bluetooth* connection is initiated from your WORKABOUT PRO to the remote device. Therefore the WORKABOUT PRO is called the 'client' and the remote is called the 'server'. The *Servers* tab displays the server profiles that can be activated in your WORKABOUT PRO. There is currently one server profile available: Serial.

• Tap on the checkbox to activate the server, and it will display the associated port name beside the server name.

Once you activate a server profile, it is recommended that the WORKABOUT PRO be rebooted before you try to bond from a server.

*Note:  You do not need to reboot if you are deactivating a server.*

## 5.6.3 Outgoing Tab
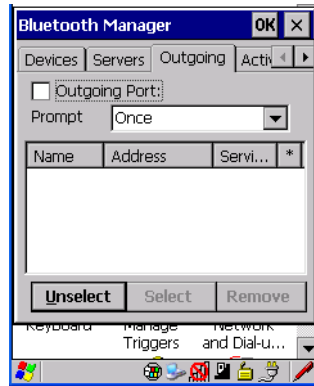


*Outgoing Port* acts as a serial port that can be used to connect to a list of *Bluetooth* devices (one at a time), but you have the freedom to ***switch on-the-fly***.

The *Outgoing Port* checkbox allows you to create the Outgoing port. When the port is created, the *Outgoing* tab lists the port name.

The Outgoing list dialog box displays a list of services marked as 'Outgoing'. The * column indicates the currently selected service. You can tap on *Unselect* to reset the current selection, or you can tap on **Select** to make a selection. The *Remove* button deletes the service from the outgoing list.

The Prompt menu determines the behaviour of the pop-up Selection menu. Choosing *Everytime* causes the Selection menu to be displayed each time an outgoing port is created. If you choose *Once*, the menu is displayed only when a partner service is not selected.

To display the *Selection* menu at any time:

• Press [CTRL] [ALT] [F1], and switch the partner *Bluetooth* device.

If a connection to a partner device already exists, the connection is dropped and another connection to the newly selected device is created instantly without disrupting the application that has opened the outgoing port.

*Note: To add a service to the **Outgoing** port, an active service must first be deactivated. Then you can choose the 'Outgoing' option from the Activation menu (highlight a service, right-click or press the [SPACE] bar to display the Activation menu).*

## 5.6.4  Active Conn. Tab
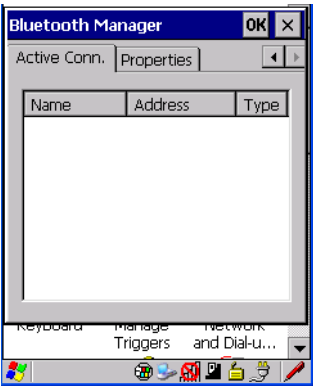


The *Active Conn***.** tab lists the *Name*, *Address*, and *Type* of the currently active connections. The table is periodically updated, but it can take a few seconds before it reflects the actual list of connections. The *Type* column of the table shows 'ACL' or 'SCO'. The Connection list table shows the connections for scanning as well as the service connections.

*Note:*   *You can change the device-name and description of your radio by clicking on the System icon in Control Panel, which will open the System Properties dialog box. Click on the Device Name tab to access the menu and change your settings. Then click on OK.*

*Although the name will have changed in the Properties menu in* Bluetooth *Controls, the radio only reads it on boot-up. For the changes to take effect, you must cold reset the WORKABOUT PRO (for cold reset instructions, see "Resetting The Hand-Held" on page 26).*

## 5.6.5  The Properties Tab
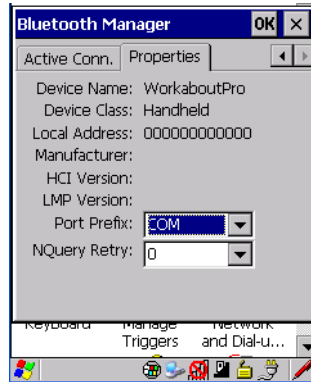


The **Properties** tab displays information about your WORKABOUT PRO, and provides some port options.

The *Device Name* field shows the device name of your WORKABOUT PRO. This name can be changed (see the *Note* on the previous page for details).

*Device Class* shows the Class of Device (e.g. desktop, hand-held), which is always set to *Handheld*.

*Local* Bluetooth *Address* shows the address of your WORKABOUT PRO radio.

*Port Prefix* is used to set the port name to either *BSP* or *COM*. When the name is set to *BSP*, BSP2 to BSP9 are available for activated services (including the server). When *COM* is chosen, COM7 to COM9 are available.

*NQuery Retry* (Name Query Retry) governs the number of times the hand-held will attempt to query the names of other *Bluetooth* devices if the first attempt fails. (When the WORKABOUT PRO scans for other devices, it sometimes fails to scan names.)

*Note: Keep in mind that setting this parameter to a higher value will lengthen the scan time.*

## 5.6.6  The *Bluetooth* GPRS WAN Connection

The following steps describe how to set up an internet data connection using a GSM cellular telephone with *Bluetooth*. The WORKABOUT PRO communicates via *Bluetooth* to the cell phone, which then accesses a WAN (Wide Area Network) and transfers data using GPRS.

1. To set up the internet parameters, choose the **Network And Dial-up Connections** icon from the *Control Panel.*
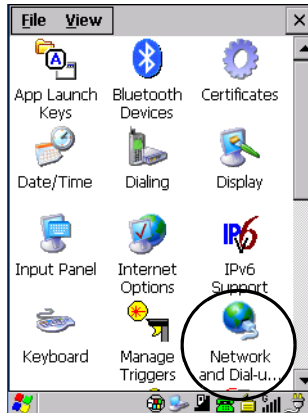


Figure 5.10 Network And Dial-up Connection Icon

2. Choose the **Make New Connection** icon.
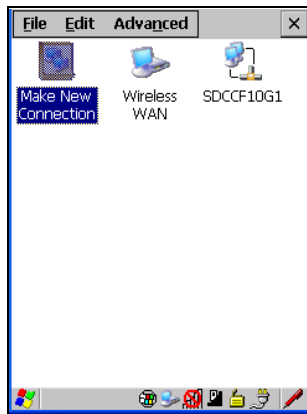


Figure 5.11 Creating A GPRS Connection

3. In the *Make New Connection* dialog box, choose **Dial-Up Connection**. Enter a name for your GPRS network connection.
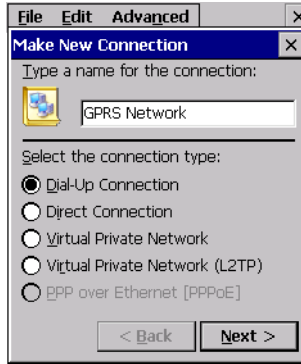


4. Choose the **Next** button to display the *Modem* dialog box.
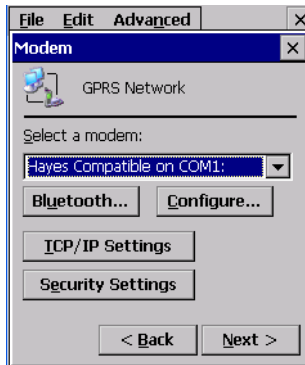


5. In the drop-down menu labelled *Select a modem*, choose the name of the modem with which you want to connect, and then choose the **Configure** button to display the *Device Properties* dialog box.

The WORKABOUT PRO communicates via *Bluetooth* to your *Bluetooth*-equipped cellular telephone and retrieves the parameters for the *Device Properties* dialog box. The WORKABOUT PRO then disconnects.
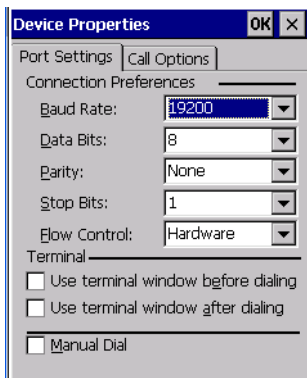
6. Under the *Call Options* tab, turn off **Cancel the call if not connected within,** and press [ENTER] to save your changes.
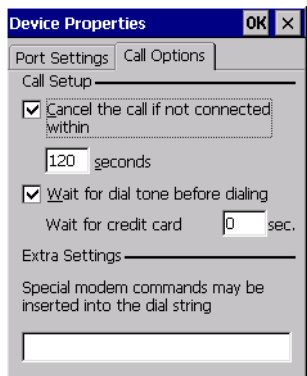
7. In the *Modem* dialog box, choose the **Next** button to display the *Phone Number* dialog box.
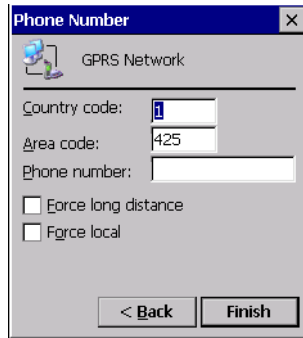


The phone number you enter is network carrier dependent. Once you've specified all the necessary information, choose the **Finish** button.

8. In the *Control Panel*, choose the **Dialing** icon.
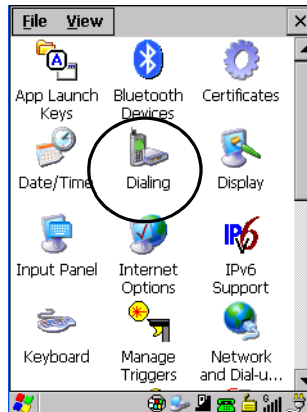


9. The values in the *Dialing Properties* dialog box need to be edited according to your network carrier specifications.

Once you've edited this dialog box to reflect your network carrier requirements, press [ENTER] to save your changes.

10. At this point, you'll need to return to the *Control Panel,* and choose the **Network and Dial-up Connections** icon.

11. In the network connection window, the new network configuration, in this case *GPRS Network* is displayed. Tap on the **new** icon.
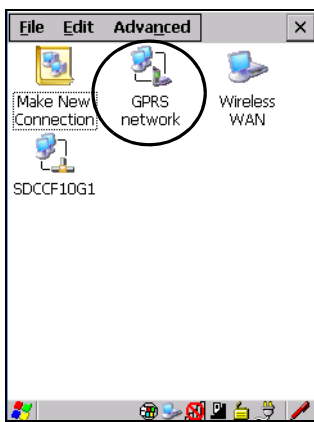
When you tap on your new connection, an onscreen message indicates the status of your connection: connected, disconnected, error messages, and so on.

# 5.7  Total Recall

*Total Recall* is a Psion Teklogix utility developed to back up/restore applications and settings. Keep in mind that to protect your data from erasure during a 'clean start', the Total Recall profile must be stored on a SD/MMC card or externally to the device on a USB memory stick or on a PC.

*Note: In Windows CE 5.0, the registry and installed programs are stored in the Flash file system and are not lost on reset. However, in special cases where Psion Teklogix personnel find it necessary to perform a **clean** start, this will reset not only the registry settings to factory defaults, but will also erase any files or applications stored or installed on the built-in Flash file system, including any Total Recall profiles. This is why any data that needs to be protected must be stored on a SD/MMC card or externally to the device on a USB memory stick or on a PC.*

- In the *Control Panel*, choose the **Total Recall** icon
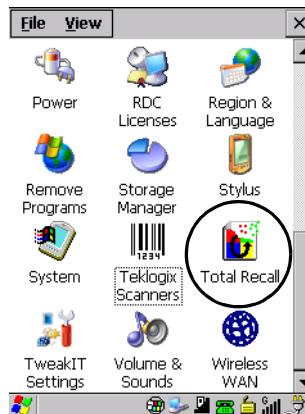
Figure 5.12 Total Recall Icon

## 5.7.1   Creating A Backup Profile
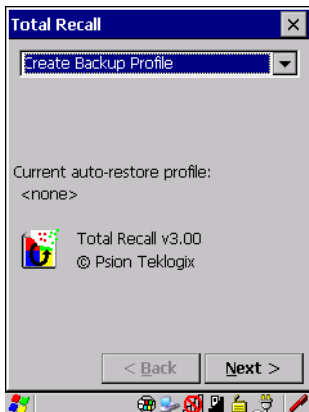


In the drop-down menu, you can choose from four options: Create Backup Profile,
View Selected Profile, Restore Selected Profile and Delete Selected Profile. Keep in
mind however that until a profile is created, the only available option is *Create
Backup Profile*.

•  Choose the **Next** button to begin the process.

### Profile Information
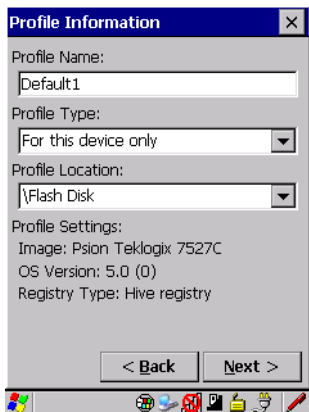


This dialog box lists the possible storage destinations for the profile file.

•  To begin, type a name for the profile in the field labelled *Profile Name.*

- Next, choose the *Profile Type* you want to create:
    - *For this device only* – creates a backup that is manually restored by the operator.
    - *AutoRestore for this device only* – creates a profile that automatically restores itself following a cold start.
    - *AutoRestore for this and other devices* – creates a profile that automatically restores after resuming from a cold start, but it will not contain the touchscreen calibration coordinates or the Wireless radio settings.
- Finally, choose a *Profile Location* – The location for the profile is either *\Flash Disk* or *\SD-MMC Card*.
- Tap on the **Next** button to display the next dialog box *Add Files*.

## Add Files



Figure 5.13 Adding Files

By default, *All Files* is selected so that all installed or copied files, database entries, and the Registry will be saved. You can, however, limit the backup to databases, and/or the registry only. By tapping the checkbox next to these items, you can add or remove a check mark to enable or disable the option.

The *Select Files* option allows you to select predefined file types.

- Remove the check mark next to *All Files*. You'll notice the checkbox next to *Select Files* changes ⊞, indicating that additional options are available.

• Choose this icon ⊞ next to *Select Files* to view your options.
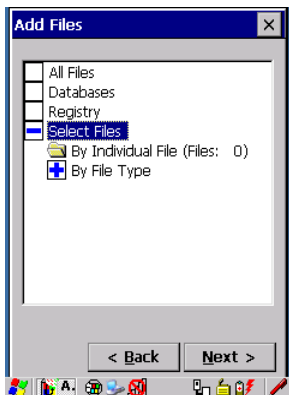
Choosing *By Individual File* displays a pop-up menu where you can tailor the list of files you want to back up.
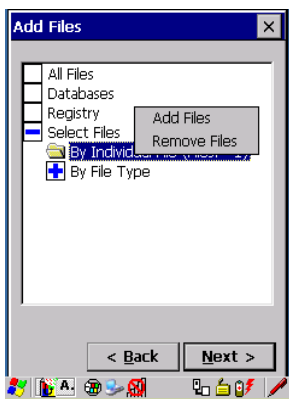
To *add a file* to your backup list:

• Choose **Add Files**. Browse to and choose the files you want to add to your list.

To *remove a file* from your backup list:

• Choose **Remove Files**—a dialog box is displayed listing the files that will be backed up.

• Highlight the item you want to remove from the list, and tap on the **Remove** button.

Choosing *By File Type* allows you to select the file types that you want backed up.
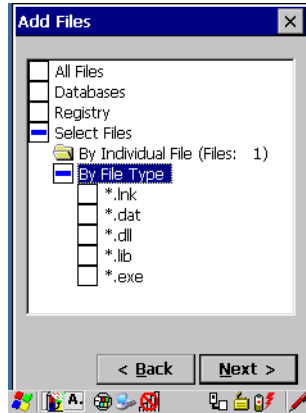
## View Selections

Depending on what you have selected for inclusion in your profile, you can view a list of the selected files, databases and/or registry.
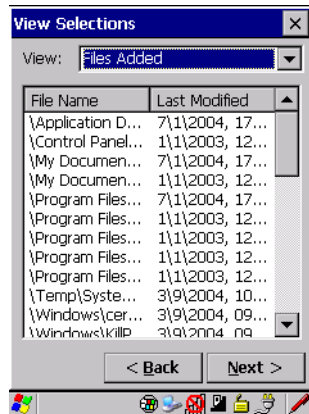
• Choose the **Next** button to perform the operation.

### Perform The Operation
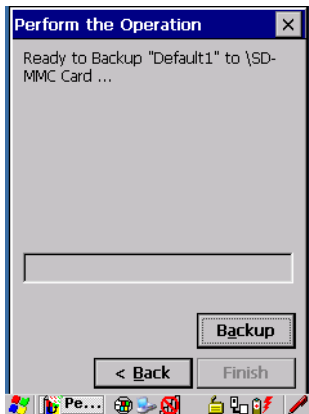


• Choose the **Backup** button to start the process, and create a profile.

## 5.7.2  Restoring A Profile

To manually restore a profile:

• Choose **Restore Selected Profile** from the drop-down menu, and choose the **Profile Name** displayed in the drop-down menu.

*Note: You can also manually restore an auto restore profile located in flash or a storage device.*

# 5.8  The Storage Manager

The Storage Manager allows the user to view information about the storage devices that are present in the WORKABOUT PRO, such as SD-MMC flash cards and Compact Flash cards.

## 5.8.1  Formatting A Memory Card

Formatting a memory card bulk-erases it. Once a card is erased, partitions may be created in it, similarly to those on a hard drive. Memory-card devices are normally 'mounted' (made available to the system) automatically when they are inserted. They must be dismounted before they can be formatted.

To format an entire memory card:

1. Choose **Start> Settings>Control Panel**.

2. In *Control Panel*, double-click on the **Storage Manager** icon. The Storage Manager menu opens:
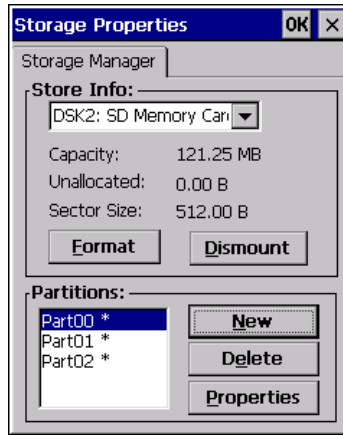


3. Choose the memory card from the drop-down list.

4. Press the **Dismount** button to dismount the memory card. All partitions on the card will be dismounted.

5. Press the **Format** button to format the memory card.

*Warning:*     *All partitions and information on the card will be erased during the formatting process.*

## 5.8.2 Creating Partitions

Once the card is formatted, new partitions can be created in it. The default is to create one partition that occupies the whole card, but a card can be divided into more than one partition if desired. Each partition appears as a separate folder in Windows Explorer.

To create new partitions:

1. Tap the **New** button next to the *Partitions* list box. The *Create New Partition* dialog box appears:
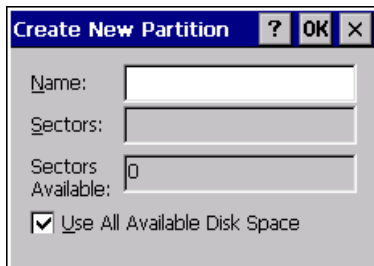
2. Type a name for the partition.

3. If more than one partition is desired, uncheck the *Use All Available Disk Space* checkbox, then specify the desired number of sectors to be used by the partition:

*Note: The sector size of the card is given on the left-hand side of the Storage Properties dialog.*

4. Tap **OK**. The new partition appears in the Partitions list:
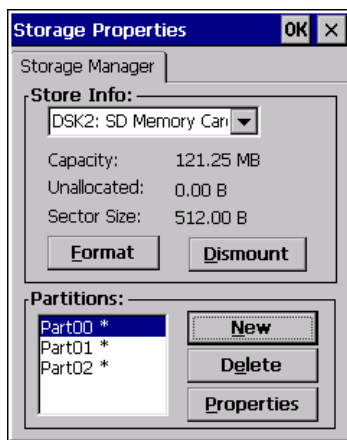
The new partition is automatically mounted. This is indicated by an asterisk (*) next to its name in the partition list. Any unallocated space on the card is indicated at the left, and additional partitions can be created in it.

# 5.8.3  Partition Management

Partitions can be individually dismounted, mounted, deleted, or formatted as well. These and additional tasks are available from the Partition Properties dialog:



To dismount a partition:

1.  Choose the desired partition.
2.  Tap the **Properties** button. The *Partition Properties* dialog appears.

3.  Tap the **Dismount** button. The partition is dismounted. The asterisk disappears next to its name in the partitions list.

To delete a partition:

1.  Select the desired partition.
2.  Tap the **Delete** button. A warning dialog appears.

3.  Tap the **OK** button. The partition is deleted.

To format a partition:

1.  Choose the desired partition.
2.  Tap the **Properties** button. The *Partition Properties* dialog appears.

3.  Tap the **Dismount** button. The partition is dismounted. The asterisk disappears next to its name in the partitions list.

4. Tap the **Format** button. The *Format* dialog appears:
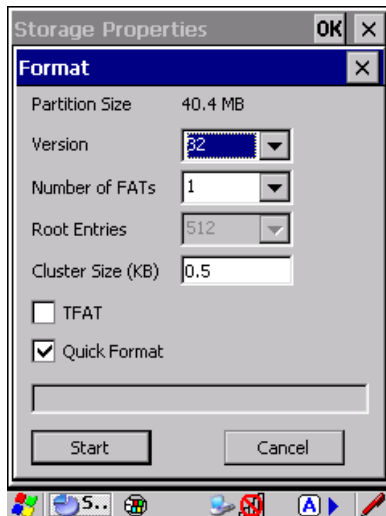


5. Choose your format options. These options include:

- Version of file system (FAT-16, for devices holding up to 4 GB; or FAT-32, for devices containing up to 32 GB).
- Number of FATs (File-Allocation Tables).
- Number of entries allowed in the root directory.
- Cluster size (.5 KB to 64 KB).

There are also two checkboxes, which govern:

- Whether to use the transaction-safe FAT file system (TFAT). This file system keeps multiple copies of the file-allocation table, changing one while maintaining another as a backup.
- Whether to perform a quick format. Quick formatting removes all reference to data in the partition without erasing the actual partition. The partition will be treated as empty, and new data will overwrite it.

6. Tap **Start**. The partition is formatted.

To mount a partition:

1. Choose the desired partition.
2. Tap the **Properties** button. The Partition Properties dialog appears.

3.  Tap the **Mount** button. The partition is mounted. The asterisk appears next to its name in the partitions list.

The *Partition Properties* dialog has buttons for additional functions. Partitions can be defragmented, and their file structure can be scanned.

# 5.9  IPv6 Support

The *IPv6 Support* icon in the *Control Panel* allows you to activate IPv6 network support on your unit if your network setup requires this. This internet protocol specification (version 6) supports 128-bit IP addresses, replacing version 4.
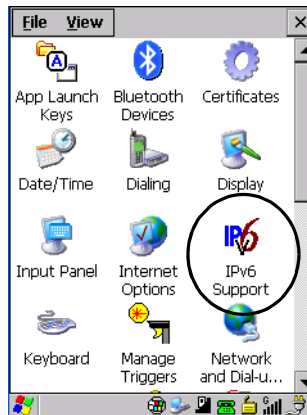


Figure 5.14 IPv6 Support Icon

*   Choose the **IPv6 Support** icon to display the associated dialog box.
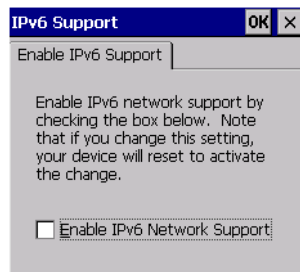


*   Choose the checkbox next to *Enable IPv6 Network Support* to enable this internet protocol.

# 5.10  Scanner Settings

The *Teklogix Scanners* icon in the *Control Panel* provides dialog boxes in which you can tailor bar code options and choose the bar codes your scanner will recognize. The parameters are preset with the default settings of the decoded scanner installed in the unit.
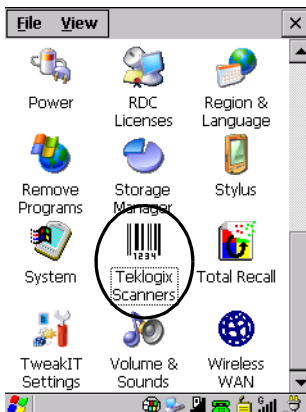


Figure 5.15 Teklogix Scanners Icon

For a listing of available scanners and their specifications, please refer to Chapter 7: "Specifications".

## 5.10.1  Bar Codes
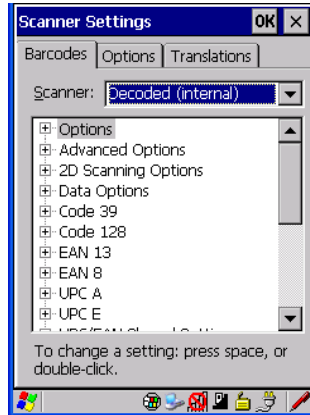


### 5.10.1.1  Scanner

The dropdown menu to the right of the *Scanner* option allows you to choose from one of the following scanner types used with your hand-held: Decoded (internal), Decoded (HHP), Decoded (Intermec ISCP) and Imager.

The symbologies listed change to reflect the scanner you choose and the bar codes it supports.

⚠️ *Important:* ***To improve the decode speed and performance, enable only those codes that are required by the application.***

Keep in mind that some bar code types are only available when an internal imaging scanner is installed. All internal scanners can be configured using the *Barcode* dialog boxes.

### 5.10.1.2  Restoring Default Settings

If you want to restore the factory defaults after making changes, the defaults can be applied to a selected parameter, sub-tree of parameters or all scanner parameters.

• Press and hold the stylus on a symbology (e.g., Code 128) to display a pop up a menu.
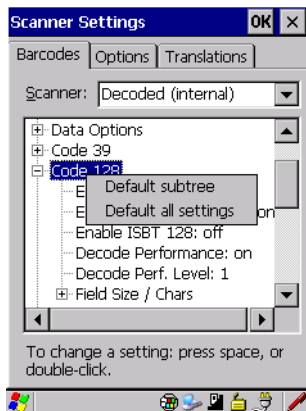
• Choose *Default subtree* to reset only the parameters in the symbology you selected, or choose *Default all settings* to reset all scanner parameters to default settings.

To reset a single parameter to its default setting:

• Press and hold the stylus on the parameter you want to reset.
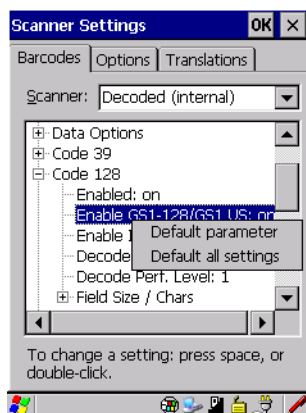
• Choose *Default parameter* to reset the parameter to the default setting.

## 5.10.2 Decoded (Internal) Scanners
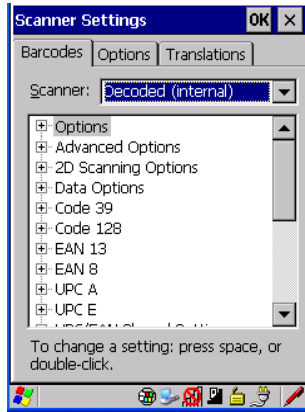


• Tap on the **Scanner** drop-down menu, and choose **Decoded (internal)**.

## 5.10.2.1 Options

*Note:* *Some options are available only for specific scanners. Refer to the option names in this section for scanner model identification.*

### Dot Time (msec)

The value selected for "Dot Time (msec)" determines (in milliseconds) how long the targeting dot remains on before the scanner switches to a normal scan sweep. When you double-tap on this parameter, a dialog box is displayed in which you can enter a value of 0 msec, 200 msec or 400 msec. A value of 0 (zero) disables the target dot.

### Aim Duration

This parameter determines the total time the aiming pattern appears before the scanner laser begins sweeping. When you double-tap on this parameter, a dialog box is displayed in which you can enter a value from 0 to 30 (0 to 3 sec.). A value of 0 (zero) disables the aiming-dot.

### Laser On Time

The value assigned to this parameter determines how long the laser will remain on when the scan button or trigger is pressed.Double-tapping on this parameter displays a dialog box in which you can enter a value between `5` and `99`, each number representing `0.1` seconds.

## 5.10.2.2  Decoded (Internal) Advanced Options

### Continuous Scan Mode

Setting this parameter to 'on' keeps the laser on and continuously decoding as long as the scanner button is pressed and held down.

### Minimum Cancel Time

The value assigned to this parameter determines the time delay before the scanner is turned off, once the scanner trigger or button is released. This gives the scanner a minimum amount of time to complete its current decode before the scan is cancelled when the user quickly triggers on/off.

### Low Power Timeout

To extend laser life, you can select the time the scanner remains active following a successful decode. The scanner wakes from low power mode when a bar code is scanned—a successful decode restores normal blinking.

This is only used if the unit's Trigger Mode has been changed to Continuous On. If the unit is used in a fixed mount this parameter might be used, but not if the unit is used as a hand-held.

When you double-tap on this parameter, a dialog box is displayed in which you can choose a value of 30 sec., 1 min., 2 min. or 3 min.

### Parameter Scanning

Setting this parameter to **ON** enables decoding of parameter bar codes.

### Linear Security Level

This parameter allows you to select the security level appropriate for your bar code quality. There are four levels of decode security for linear code types (e.g., Code 39, Interleaved 2 of 5). Higher security levels should be selected for decreasing levels of bar code quality. As security levels increase, the scanner's decode speed decreases.

Double-tapping on this parameter displays a dialog box in which you can enter a value from 1 to 4.

*Linear security level* 1 specifies that the following code types must be successfully read twice before being decoded:

| Code Type | Length |
|---|---|
| Codabar | All |
| MSI Plessey | 4 or less |
| D 5 of 5 | 8 or less |
| I 2 of 5 | 8 or less |

"Linear security level 2" specifies that all types of codes must be successfully read twice before being decoded.

"Linear security level 3" specifies that code types other than the following must be successfully read twice before being decoded. The following codes must be read three times:

| Code Type | Length |
|---|---|
| MSI Plessey | 4 or less |
| D 2 of 5 | 8 or less |
| I 2 of 5 | 8 or less |

"Linear security level 4" requires that all code types be successfully read three times before being decoded.

## Bi-Direction Redundancy

*Note:* *This parameter is only valid if a" Linear Security Level" is enabled.*

When this parameter is enabled, a bar code must be successfully scanned in both directions (forward and reverse) before being decoded.

## 5.10.2.3 Decoded (Internal) 2D Scanning Options

### Scanning Mode

When you double-tap on this parameter, a dialog box is displayed in which you can choose one of the following scanning modes: Smart Raster, Always Raster, Programmable Raster, Slab Pattern, Cyclone Pattern or Semi-Omni Pattern.

### Raster Height And Raster Expand Rate

These parameter determine the laser pattern's height and rate of expansion.

*Note:* *These parameters are only used when either Programmable Raster or Always Raster is assigned to the "2D Scanning Mode" parameter. "2D Raster Height" and "2D Raster Expand Rate" are intended for very specific applications and are usually not required for normal scanning purposes.*

Double-tapping on this parameter displays a dialog box in which you can enter a value from 1 to 15.

## 5.10.2.4   Decoded (Internal) Data Options

### Transmit Code ID Char

A code ID character identifies the scanned bar code type. In addition to any single character prefix already selected, the code ID character is inserted between the prefix and the decoded symbol.

When you double-tap on this parameter, a dialog box is displayed in which you can choose a transmit code: *None*, *AIM* or *Symbol*.

### Scan Data Format

This parameter allows you to change the scan data transmission format. Double-tapping on "Scan Data Format" displays the following options from which you can choose a data format: data (as-is), data [S1], data [S2], data [S1][S2], [P] data, [P] data [S1], [P] data [S2] and [P] data [S1][S2].

### Prefix [P], Suffix [S1] And Suffix [S2]

A prefix and/or one or two suffixes may be appended to scan data for use in data editing.

When you double-tap on these parameters, a dialog box is displayed in which you can enter a value from 0 to 255.

### Delete Char Set ECIs

Setting this parameter to *on* enables the scanner to delete any escape sequences representing Character Set ECIs – Extended Channel Interpretations (also known as GLIs) from its buffer before transmission.

When this parameter is enabled, the scanner transmits data from PDF417 and MicroPDF417 bar codes containing Character Set ECIs, even when the ECI Protocol is disabled.

## ECI Decoder

Setting this parameter to *on* enables the scanner to interpret any Extended Channel Interpretations (ECIs) supported by the scanner. This parameter has no effect on symbols that were not encoded using ECIs.

If this parameter is set to *off* and a symbol that was encoded using an ECI escape is scanned, the scanner transmits the ECI escape followed by the data that was not interpreted.

# 5.10.2.5   Code 39

## Enabled

Setting this parameter to *on* enables "Code 39".

## Enable Trioptic Code 39

*Note:*   *"Trioptic Code 39" and "Full ASCII" should **not** be enabled simultaneously. The scanner does not automatically discriminate between these two symbologies.*

Trioptic Code 39 symbols always contain six characters. Setting this parameter to on allows this type of symbology to be recognized.

## Convert To Code 32

*Note:*   *"Code 39" must be enabled in order for this parameter to function.*

Setting this parameter to *on* allows the scanner to convert the bar code from "Code 39" to "Code 32".

## Code 32 Prefix

*Note:*   *"Convert to Code 32" must be enabled in order for this parameter to function.*

When this parameter is enabled, the prefix character "A" is added to all "Code 32" bar codes.

## Set Length L1 And Set Length L2

Lengths for "Code 39" can be set for *Any length*, *Length within a range*, *One discrete length* or *Two discrete lengths*. The length of a code refers to the number of characters (i.e., human readable characters), including check digit(s).

Double-tapping on this parameter displays a dialog box labelled *Set Code Lengths* where you can define the code length that will be decoded by your scanner
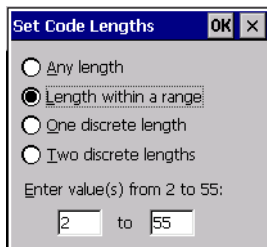
Choosing *One discrete length* allows you to decode only those codes containing a selected length. Choosing *Two discrete lengths* allows you to decode only those codes containing two selected lengths. *Length within a range* allows you to decode a code type within a specified range from 1 to 55.

## Check Digit Verification

When this parameter is enabled (set to *on*), the integrity of a "Code 39" symbol is checked to ensure that it complies with specified algorithms.

*Note: Only those "Code 39" symbols that include a Mod 43 check digit are decoded when this parameter is enabled.*

## Transmit Check Digit

If the check digit is to be transmitted with the data, this parameter must to enabled.

## Full ASCII

If this parameter is enabled, the characters +, %, and / are used as escape characters. The combination of an escape character and the next character is converted to an equivalent ASCII character.

## Decode Performance

If this parameter is enabled, one of three decode levels can be chosen in the "Decode Performance Level" parameter.

## Decode Perf. Level

This parameter provides three levels of decode performance or "aggressiveness" for Code 39 symbols. Increasing the performance level reduces the amount of required bar code orientation – this is useful when scanning very long and/or truncated bar codes. Keep in mind that increased levels reduce decode security.

When you double-tap on this parameter, a dialog box is displayed in which you can enter a decode performance level of between 1 and 3.

## Field Size/Chars

## Field Size

The field size is the length of the field after the first character is stripped and the prefix and suffix characters are added. If the field size is non-zero, only bar codes of that length are passed through.

## Prefix Char

This character, if non-zero, is added before a successfully decoded bar code. Press the key you want to insert in the dialog box attached to this parameter. The ASCII/Unicode key value of the keypress is displayed.

## Suffix Char

This character, if non-zero, is added after a successfully decoded bar code. Press the key you want to insert in the dialog box attached to this parameter. The ASCII/Unicode key value of the keypress is displayed.

## Strip Leading

This parameter determines the number of characters that will be removed from the beginning of the bar code before the prefix character is added.

*Note:    For Code 39 bar codes, the "AIAG Strip" is performed before the "Strip Leading".*

## Strip Trailing

The value entered in this parameter determines the number of characters that will be removed from the end of the bar code before the suffix character is added.

## 5.10.2.6   Code 128

### Enabled

Set this parameter to *on* to enable "Code 128".

### Enable GS1-128/GS1 US

Previously UPC/EAN and UCC, these types of bar codes include group separators and start codes.

### Enable ISBT 128

To successfully scan this variation, "Enable ISBT 128" must be set to *on*.

### Decode Performance

If this parameter is set to *on*, one of three decode levels assigned to the "Decode Performance Level" parameter can be selected.

### Decode Perf. Level

This parameter provides three levels of decode performance or "aggressiveness" for Code 128 symbols. Increasing the performance level reduces the amount of required bar code orientation – this is useful when scanning very long and/or truncated bar codes. Keep in mind that increased levels reduce decode security.

When you double-tap on this parameter, a dialog box is displayed in which you can enter a decode performance level of between 1 and 3.

### Field Size/Chars

Refer to page 143 for details.

## 5.10.2.7   EAN 13

### Enabled

Set this parameter to *on* to enable "EAN 13".

### Prefix/Suffix

### Prefix Char

This character, if non-zero, is added before a successfully decoded bar code. Press the key you want to insert in the dialog box attached to this parameter. The ASCII/Unicode key value of the keypress is displayed.

## Suffix Char

This character, if non-zero, is added after a successfully decoded bar code. Press the key you want to insert in the dialog box attached to this parameter. The ASCII/Unicode key value of the keypress is displayed.

## Strip Leading

This parameter determines the number of characters that will be removed from the beginning of the bar code before the prefix character is added.

*Note: The appended character is treated as any other keyboard character. For example, if [BKSP] is pressed, the usual action for that key is performed.*

## Strip Trailing

The value entered in this parameter determines the number of characters that will be removed from the end of the bar code before the suffix character is added.

# 5.10.2.8   EAN 8

## Enabled

Set this parameter to *ON* to enable "EAN 8".

## EAN-8 Zero Extend

When this parameter is enabled, five leading zeros are added to decoded EAN-8 symbols, making them compatible in format to EAN-13 symbols. Disabling this parameter returns EAN-8 symbols to their normal format.

## Prefix/Suffix

See "Prefix/Suffix" beginning on page 144.

# 5.10.2.9   UPC A

## Enabled

Set this parameter to *on* to enable "UPC A".

## UPC-A, Check Digit

If you enable this parameter, the check digit is included with the decoded bar code data.

### UPC-A, Preamble

When you double-tap on this parameter, a dialog box is displayed where you can choose one of three options for lead-in characters for UPC-A symbols transmitted to the host device:

*System Char* – system character transmitted with the data,

*Country Code and System Char* – both the country code ("0" for USA) and system character are transmitted with the data, or

*None* – no preamble is transmitted. The lead-in characters are considered part of the symbol.

### Prefix/Suffix

See "Prefix/Suffix" beginning on page 144.

## 5.10.2.10  UPC E

### Enabled UPC-E

Set this parameter to *ON* to allow "UPC E" bar code scans.

### Enabled UPC-E1

Set this parameter to **ON** to allow "UPC-E1" (zero suppressed) bar code scans.

### UPC-E And UPC-E1 Check Digit

If you enable one or both of these parameters, a check digit is included with the decoded bar code data.

### UPC-E And UPC-E1 Preamble

When you double-tap on one of these parameters, a dialog box is displayed where you can choose one of three options for lead-in characters for UPC-E and UPC-E1 symbols transmitted to the host device:

*System Char* – system character transmitted with the data,

*Country code and System Char* – both the country code ("0" for USA) and system character are transmitted with the data, or

*None* – no preamble is transmitted. The lead-in characters are considered part of the symbol.

## Conv. UPC-E To UPC-A

This parameter converts UPC-E (zero suppressed) decoded data to UPC-A format before transmission. After conversion, data follows UPC-A format and is affected by UPC-A programming selections (e.g., Preamble, Check Digit).

## Conv. UPC-E1 To UPC-A

This parameter converts UPC-E1 (zero suppressed) decoded data to UPC-A format before transmission. After conversion, data follows UPC-A format and is affected by UPC-A programming selections (e.g., Preamble, Check Digit).

## Prefix/Suffix

Refer to "Prefix/Suffix" beginning on page 144.

# 5.10.2.11 UPC/EAN Shared Settings

The parameters you set here are a shared across all available UPC and EAN bar codes.

## Enable Bookland EAN

Setting this parameter to ON allows your scanner to recognize Bookland EAN bar codes.

## Supplementals

'Supplementals" are additionally appended characters (2 or 5).

Double-tapping this parameter displays a list of options. If **Ignore** is chosen, UPC/EAN is decoded and the supplemental characters are ignored. If **Decode** is chosen, UPC/EAN symbols are decoded *with* supplementals. **Autodiscriminate** works in conjunction with the Supp. Redundancy parameter.

## Supp. Redundancy

With "Autodiscriminate" selected in the "Supplementals" parameter, "Supp. Redundancy" adjusts the number of times a symbol without supplementals is decoded before transmission.

When you double-tap on this parameter, a dialog is displayed in which you can enter a value between 2 and 20. A value of 5 or above is recommended when **Autodiscriminate** is selected and you are decoding a mix of UPC/EAN symbols with and without supplementals.

### Security Level

This parameter controls the tolerance for decoding edge-to-edge UPC/EAN bar codes. Double-tapping on this parameter displays a dialog box in which you can choose a level from 0 to 3. Lower values have a lower tolerance for misreads, but they also increase the time it takes to decode the bar code.

### Linear Decode

"Linear Decode" applies to code types containing two adjacent blocks (e.g., UPC-A, EAN-8, EAN-13). When enabled (set to *on*), a bar code is transmitted only when both the left and right blocks are successfully decoded within one laser scan. This option should be enabled when bar codes are in proximity to each other.

### 2D UPC Half Block Stitching

Setting this parameter to *on* enables "UPC Half Block Stitching" for the omnidirectional scanner engine only.

## 5.10.2.12  Code 93

### Enabled

Set this parameter to *on* to enable "Code 93" or *off* to disable it.

### Set Length L1 And Set Length L2

Lengths for "Code 93" can be set for *Any length*, *Length within a range*, *One discrete length* or *Two discrete lengths*. The length of a code refers to the number of characters (i.e., human readable characters), including check digit(s).

Double-tapping on this parameter displays a dialog box labelled *Set Code Lengths* where you can define the code length that will be recognized by your scanner.

Choosing *One discrete length* allows you to decode only those codes containing a selected length. Choosing *Two discrete lengths* allows you to decode only those codes containing two selected lengths. *Length within a range* allows you to decode a code type within a specified range from 4 to 55.

### Field Size/Char

Refer to page 143 for details.

## 5.10.2.13 Codabar

### Enabled

Set this parameter to *ON* to enable "Codabar".

### Set Length L1 And Set Length L2

Lengths for "Codabar" can be set for *Any length*, *Length within a range*, *One discrete length* or *Two discrete lengths*. The length of a code refers to the number of characters (i.e., human readable characters), including check digit(s).

Double-tapping on this parameter displays a dialog box labelled *Set Code Lengths* where you can define the code length that will be recognized by your scanner.

Choosing *One discrete length* allows you to decode only those codes containing a selected length. Choosing *Two discrete lengths* allows you to decode only those codes containing two selected lengths. *Length within a range* allows you to decode a code type within a specified range from 5 to 55.

### CLSI Editing

When enabled, this parameter strips the start and stop characters and inserts a space after the first, fifth, and tenth characters of a 14-character Codabar symbol.

*Note: Symbol length does not include start and stop characters.*

### NOTIS Editing

When enabled, this parameter strips the start and stop characters from decoded Codabar symbol.

### Field Size/Chars

Refer to page 143 for details.

## 5.10.2.14 MSI Plessey

### Enabled

Set this parameter to *on* to enable "MSI Plessey".

### Set Length L1 And Set Length L2

Lengths for "MSI Plessey" can be set for *Any length*, *Length within a range*, *One discrete length* or *Two discrete lengths*. The length of a code refers to the number of characters (i.e., human readable characters), including check digit(s).

Double-tapping on this parameter displays a dialog box labelled *Set Code Lengths* where you can define the code length that will be recognized by your scanner.

Choosing *One discrete length* allows you to decode only those codes containing a selected length. Choosing *Two discrete lengths* allows you to decode only those codes containing two selected lengths. *Length within a range* allows you to decode a code type within a specified range from 6 to 55.

## Check Digits

Double-tapping on this parameter displays a dialog box in which you can choose One or Two check digit(s).

If this parameter is set to *One*, it is assumed that the last digit is a check digit. If "Check Digits" is set to *Two*, it is assumed that the last two digits are check digits.

*Note:    If Two check digits is selected, an MSI Plessey "Check Digit Algorithm: must also be selected. See below for details.*

## Transmit Check Digit

If this parameter is enabled, the check digit is included with the bar code data.

## Check Digit Algorithm

When the *Two MSI Plessey* check digits option is selected, an additional verification is required to ensure integrity. Double-tapping on this parameter displays a dialog box n which you can choose the algorithm to be used:  MOD 10/MOD 11 or MOD 10/MOD 10.

## Field Size/Chars

Refer to page 143 for details.

# 5.10.2.15  Interleaved 2 of 5

## Enabled

Set this parameter to *ON* to enable "Interleaved 2 of 5".

## Set Length L1 And Set Length L2

Lengths for "Interleaved 2 of 5" can be set for *Any length*, *Length within a range*, *One discrete length* or *Two discrete lengths*. The length of a code refers to the number of characters (i.e., human readable characters), including check digit(s).

Double-tapping on this parameter displays a dialog box labelled *Set Code Lengths* where you can define the code length that will be recognized by your scanner.

Choosing *One discrete length* allows you to decode only those codes containing a selected length. Choosing *Two discrete lengths* allows you to decode only those codes containing two selected lengths. *Length within a range* allows you to decode a code type within a specified range from 4 to 14.

### Check Digit Verification

When enabled, this parameter checks the integrity of an I 2 of 5 symbol to ensure it complies with a specified algorithm – either USS (Uniform Symbology Specification) or OPCC (Optical Product Code Council).

### Transmit Check Digit

If this parameter is enabled, the check digit is included with the bar code data.

### Convert To EAN 13

If this parameter is enabled, the I 2 of 5 bar code is converted to EAN 13.

### Field Size/Char

Refer to page 143 for details.

## 5.10.2.16 Discrete 2 of 5

### Enabled

Set this parameter to *on* to enable "Discrete 2 of 5".

### Set Length L1 And Set Length L2

Lengths for "Discrete 2 of 5" can be set for *Any length*, *Length within a range*, *One discrete length* or *Two discrete lengths*. The length of a code refers to the number of characters (i.e., human readable characters), including check digit(s).

Double-tapping on this parameter displays a dialog box labelled *Set Code Lengths* where you can define the code length that will be recognized by your scanner.

Choosing *One discrete length* allows you to decode only those codes containing a selected length. Choosing *Two discrete lengths* allows you to decode only those codes containing two selected lengths. *Length within a range* allows you to decode a code type within a specified range from 1 to 12.

### Field Size/Char

Refer to page 143 for details.

## 5.10.2.17 RSS Code

### Enable

Setting this parameter to *on* enables "2D RSS Code" scanning capability.

### Enable RSS-14 (Reduced Space Symbology)

RSS-14 code can be either purely linear or split in half with one half stacked on top of the other half. Stacking the code reduces the bar code length, and providing the nominal height of the code is maintained, it can be omni-directionally scanned.

### Enable RSS Limited

"RSS-Limited" is restricted, in that it can only encode 14 digit GTINs (global trade item number) that begin with either a *0* or a *1*. It is not stackable and is not designed to be read omni-directionally.

### Enable RSS Expanded

"RSS Expanded" uses the same application identifiers as UCC/EAN-128 codes but it can be split into sections and stacked several rows high, reducing the length of the symbol, while increasing the capacity of data that can be stored. "RSS Expanded" code can be omni-directionally scanned.

### Field Size/Char

Refer to page 143 for details.

## 5.10.2.18 Composite

*Important: **To successfully read this type of bar code, the two types of symbologies included in a composite bar code must be enabled. In addition, "Center Bar Code Only" must be disabled.***

A composite symbol includes multi-row 2D components making it compatible with linear and area CCD scanners along with linear and rastering laser scanners.

The options available for this parameter represent multi-level components of a composite symbol.

### Enable CC-C And Enable CC-AB

To activate these components, set these parameters to *on*.

### Enable TLC-39

This composite component integrates MicroPDF417 with the linear code. Setting this parameter to *on* enables this parameter.

## 5.10.2.19  PDF-417

### Enable

Setting this parameter to `on` enables PDF-417 two dimensional (2D) coding.

### Field Size/Char

Refer to page 143 for details.

## 5.10.2.20  Micro PDF-417

### Enable

Setting this parameter to *on* enables "Micro PDF-417" bar code scanning. Micro PDF-417 is a multi-row symbology that is useful for applications requiring greater area efficiency but lower data capacity than PDF-417.

### Code 128 Emulation

When this parameter is enabled, the scanner transmits data from certain Micro PDF-417 symbols as if it was encoded in Code 128 symbols.

If Code 128 Emulation is enabled, the following Micro PDF-417 symbols are transmitted with one of the following prefixes:

> ]C1 if the first codeword is 903-907, 912, 914, 915

> ]C2 if the first codeword is 908 or 909

> ]C0 if the first codeword is 910 or 911

If Code 128 Emulation is set to off, the Micro PDF-417 symbols are transmitted with one of the following prefixes:

> ]L3 if the first codeword is 903-907, 912, 914, 915

> ]L4 if the first codeword is 908 or 909

> ]L5 if the first codeword is 910 or 911

### Field Size/Char

Refer to page 143 for details.

## 5.10.3  Decoded (HHP)
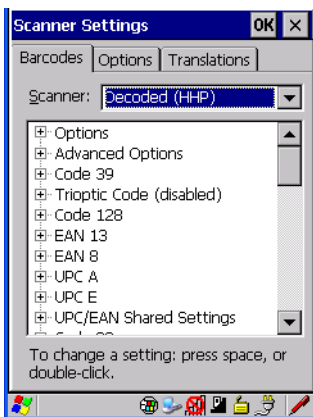


## 5.10.3.1  Decoded (HHP) Scanner Options

### Laser On Time

The value assigned to this parameter determines how long the laser will remain on when the scan button or trigger is pressed.

Double-tapping on this parameter displays a dialog box in which you can enter a value from 1 to 10.

## 5.10.3.2  Decoded (HHP) Advanced Options

### Continuous Scan Mode

Setting this parameter to *on* keeps the laser on and continuously decoding as long as the scanner button is pressed and held down.

### Minimum Cancel Time

The value assigned to this parameter determines the time delay before the scanner is turned off, once the scanner trigger or button is released. This gives the scanner a minimum amount of time to complete its current decode before the scan is cancelled when the user quickly triggers on/off.

## Low Power Timeout

To extend laser life, you can select the length of time the scanner remains active following a successful decode. The scanner wakes from low power mode when a bar code is scanned – a successful decode restores normal blinking.

When you double-tap on this parameter, a dialog box is displayed in which you can choose a value of 30 sec, 1 min, 2 min or 3 min.

*Note:* *This parameter is only used if the Trigger Mode has been set to Continuous On and the hand-held is mounted in a fixed position; otherwise, 'Low Power Timeout' is not used.*

## 5.10.3.3   Code 39

### Enabled

Setting this parameter to *on* enables "Code 39".

### Strip Start/Stop Chars

Codabar uses the characters A, B, C, and D as start and stop characters. Thus, the first and last digits of a Codabar message must be A, B, C, or D, and the body of the message should not contain these characters. Setting this parameter to *on* strips the start and stop characters from this bar code.

### Check Char

When this parameter is set to *Validate only*, the integrity of a "Code 39" symbol is checked to ensure that it complies with specified algorithms.

If "Check Char" is set to *Validate and Transmit*, the check character is validated and transmitted with the data.

Setting this parameter to *None* disables this function.

### Minimum And Maximum Length

Minimum and Maximum lengths for the bar code can be set from *0 to 48*. The length of a code refers to the number of characters (i.e., human readable characters), including check digit(s).

## Append

If this parameter enabled, any Code 39 bar code that contains a space as the first character will be "stored in memory". Once a Code 39 barcode containing a non-space first character is scanned, this bar code will be appended to the bar codes containing the spaces and the imager will transmit the ALL the data. The spaces are then removed.

## Pharmaceutical

This is a numeric (0-9) fixed length barcode used by Italian pharmacies. It is also referred to as *Code 32 Pharmacode* and is a form of Code 39.

## Full ASCII

If this parameter is enabled, the characters +, %, and / are used as escape characters. The combination of an escape character and the next character is converted to an equivalent ASCII character.

## Field Size/Char

Refer to page 143 for details.

## 5.10.3.4   Trioptic Code

This code is used for labelling magnetic storage media.

*Note:*  *If you are scanning Code 32 Pharmaceutical codes, Trioptic Code must be off.*

## 5.10.3.5   Code 128

## Enabled

Setting this parameter to *on* enables "Code 128".

## ISBT Concatenation

These codes are not concatenated by default. You need to set this parameter to *on* to send concatenated code.

## Minimum And Maximum Length

The length of a code refers to the number of characters (i.e., human readable characters), including check digit(s). Double-tapping on these parameters displays a screen in which you can set the minimum and maximum allowable code lengths – *0 to 80*.

## Field Size/Char

Refer to page 143 for details.

# 5.10.3.6   EAN 13 Settings

## Enabled

Set this parameter to *on* to enable "EAN 13".

## Check Digit

If you enable this parameter, a check digit is included with the decoded bar code data.

## Addendum Add-on 2 And Addendum Add-on 5

An addendum is a separate bar code, supplementary to the main bar code. Enabling these parameters defines the length of the addendum bar code to either *2* or *5* characters.

## Addendum Required

When this parameter is set to *on*, the scanner does not accept the main bar code without an addendum.

## Addendum Separator

"Addendum Separator" is a space that is added between the EAN 13 bar code and the *Add-on code/Addenda*. When this parameter is set to *on*, the scanner does not accept the main bar code without an addendum.

## ISBN Translate

When this parameter (International Standard Book Number) is enabled, the first 3 characters ('978') are ignored and the checksum (0.9, 'X') is calculated on the remaining characters.

## Prefix/Suffix

Refer to "Prefix/Suffix" beginning on page 144.

# 5.10.3.7   EAN 8

## Enabled

Set this parameter to *on* to enable "EAN 8".

## Check Digit

If you enable this parameter, a check digit is included with the decoded bar code data.

## Addendum Add-on 2 And Addendum Add-on 5

An addendum is a separate bar code, supplementary to the main bar code. Enabling these parameters defines the length of the addendum bar code to either *2* or *5* characters.

## Addendum Required

When this parameter is set to *on*, the scanner does not accept the main bar code without an addendum.

## Addendum Separator

*Addendum Separator* is a space that is added between the EAN 13 bar code and the *Add-on code/Addenda*. When this parameter is set to *on*, the scanner does not accept the main bar code without an addendum.

## Prefix/Suffix

Refer to "Prefix/Suffix" beginning on page 144.

# 5.10.3.8   UPC A Settings

## Enabled

Set this parameter to *on* to enable "UPC A" bar code scanning recognition.

## Check Digit

If you enable this parameter, a check digit is included with the decoded bar code data.

## Transmit Number System

If this parameter is enabled, the number system digit is transmitted with the decoded bar code data.

## Addendum Add-on 2 And Addendum Add-on 5

An addendum is a separate bar code, supplementary to the main bar code. Enabling these parameters defines the length of the addendum bar code to either *2* or *5* characters.

## Addendum Required

When this parameter is set to *on*, the scanner does not accept the main bar code without an addendum.

## Addendum Separator

"Addendum Separator" is a space that is added between the UPC A bar code and the *Add-on code/Addenda*. When this parameter is set to *on*, the scanner does not accept the main bar code without an addendum.

## Prefix/Suffix

Refer to "Prefix/Suffix" beginning on page 144.

# 5.10.3.9 UPC E Settings

## Enabled

Set this parameter to *on* to enable "UPC E".

## Enabled UPC-E1

Set this parameter to *on* to allow "UPC-E1" (zero suppressed) bar code scans.

## Expand

This parameter expands the UPC E code to a 12 digit UPC-A format.

## Check Digit

If you enable this parameter, a check digit is included with the decoded bar code data.

### Transmit Number System

If this parameter is enabled, the number system digit is transmitted with the decoded bar code data.

### Addendum Add-on 2 And Addendum Add-on 5

An addendum is a separate bar code, supplementary to the main bar code. Enabling these parameters defines the length of the addendum bar code to either *2* or *5* characters.

### Addendum Required

When this parameter is set to *on*, the scanner does not accept the main bar code without an addendum.

### Addendum Separator

"Addendum Separator" is a space that is added between the UPC E bar code and the *Add-on code/Addenda*. When this parameter is set to *on*, the scanner does not accept the main bar code without an addendum.

### Prefix/Suffix

Refer to "Prefix/Suffix" beginning on page 144.

## 5.10.3.10  UPC/EAN Shared Settings

### Extended Coupon Code

This parameter specifies whether or not the imager will read only UPC-A/EAN-13 bar codes that have addenda.

*Note:  The 2 or 5 digit addenda must be turned on/off, depending on the desired behavior.*

## 5.10.3.11  Code 93

### Enabled

Set this parameter to *on* to enable "Code 93".

## Minimum And Maximum Length

The length of a code refers to the number of characters (i.e., human readable characters), including check digit(s). Double-tapping on these parameters displays a screen in which you can set the minimum and maximum allowable code lengths – *0 to 80*.

## Field Size/Char

Refer to page 143 for details.

# 5.10.3.12 Codabar

## Enabled

Set this parameter to *on* to enable "Codabar".

## Start/Stop Transmit

Codabar can use the following sets of characters as start and stop characters:

a, b, c, d

A, B, C, D

a, b, c, d, /, t, n, *, e

DC1, DC2, DC3, DC4

Thus, when a set is chosen, the first and last digits of a Codabar message must be one of those characters and the body of the message should not contain these characters. Setting this parameter to *off* strips the start and stop characters from this bar code.

## Check Char

When this parameter is set to *Validate only*, the integrity of a "Code 39" symbol is checked to ensure that it complies with specified algorithms.

If "Check Char" is set to *Validate and Transmit*, the check character is validated and transmitted with the data.

Setting this parameter to *None* disables this function.

### Concatenation

"Codabar" supports symbol concatenation. When you enable *Concatenation*, the imager looks for a Codabar symbol with a "D" *start* character that is adjacent to a symbol with a "D" *stop* character. In this case, the two messages are concatenated into one with the "D" characters omitted.

### Minimum And Maximum Length

The length of a code refers to the number of characters (i.e., human readable characters), including check digit(s). Double-tapping on these parameters displays a screen in which you can set the minimum and maximum allowable code lengths – *2 to 60*.

### Field Size/Char

Refer to page 143 for details.

## 5.10.3.13  MSI Plessey

### Enabled

Set this parameter to *on* to enable *MSI*.

### Enable Plessey

Set this parameter to *on* to enable *Plessey*.

### Check Char

When this parameter is set to *Validate only*, the integrity of the symbol is checked to ensure that it complies with specified algorithms.

If "Check Char" is set to *Validate and Transmit*, the check character is validated and transmitted with the data.

Setting this parameter to *None* disables this function.

### Minimum And Maximum Length

These parameters apply to *MSI* bar codes. The length of a code refers to the number of characters (i.e., human readable characters), including check digit(s). Double-tapping on these parameters displays a screen in which you can set the minimum and maximum allowable code lengths – *4 to 48*.

## Plessey Minimum And Plessey Maximum Length

These parameters apply to *Plessey* bar codes.The length of a code refers to the number of characters (i.e., human readable characters), including check digit(s). Double-tapping on these parameters displays a screen in which you can set the minimum and maximum allowable code lengths – *4 to 48*.

## Field Size/Char

Refer to page 143 for details.

# 5.10.3.14 Code 11

## Enabled

Set this parameter to *on* to enable "Code 11".

## Check Digits

Double-tapping on this parameter displays a dialog box in which you can choose *One Check Digit* or *Two check digits*.

If this parameter is set to *One Check Digit*, it is assumed that the last digit is a check digit. If it is set to *Two Check Digits*, it is assumed that the last two digits are check digits.

## Minimum And Maximum Length

The length of a code refers to the number of characters (i.e., human readable characters), including check digit(s). Double-tapping on these parameters displays a screen in which you can set the minimum and maximum allowable code lengths – *1 to 80*.

## Field Size/Char

Refer to page 143 for details.

# 5.10.3.15 Interleaved 2 of 5

## Enabled

Set this parameter to *on* to enable "Interleaved 2 of 5".

### Check Digit

When this parameter is set to *Validate only*, the integrity of a symbol is checked to ensure that it complies with specified algorithms.

If "Check Digit" is set to *Validate and Transmit*, the check digit is validated and transmitted with the data.

Setting this parameter to *None* disables this function.

### Minimum And Maximum Length

The length of a code refers to the number of characters (i.e., human readable characters), including check digit(s). Double-tapping on these parameters displays a screen in which you can set the minimum and maximum allowable code lengths – *1 to 80*.

### Field Size/Char

Refer to page 143 for details.

## 5.10.3.16 Matrix 2 of 5

### Enabled

Set this parameter to *on* to enable "Matrix 2 of 5".

### Minimum And Maximum Length

The length of a code refers to the number of characters (i.e., human readable characters), including check digit(s). Double-tapping on these parameters displays a screen in which you can set the minimum and maximum allowable code lengths – *1 to 80*.

### Field Size/Char

Refer to page 143 for details.

## 5.10.3.17 IATA 2 of 5

### Enabled

Set this parameter to *on* to enable "IATA 2 of 5".

## Minimum And Maximum Length

The length of a code refers to the number of characters (i.e., human readable characters), including check digit(s). Double-tapping on these parameters displays a screen in which you can set the minimum and maximum allowable code lengths – *1 to 48*.

## Field Size/Char

Refer to page 143 for details.

# 5.10.3.18  Discrete 2 of 5

## Enabled

Set this parameter to *on* to enable "Discrete 2 of 5".

## Minimum And Maximum Length

The length of a code refers to the number of characters (i.e., human readable characters), including check digit(s). Double-tapping on these parameters displays a screen in which you can set the minimum and maximum allowable code lengths – *1 to 48*.

## Field Size/Char

Refer to page 143 for details.

# 5.10.3.19  Telepen

## Enabled

Set this parameter to *on* to enable "Telepen".

## Output

If you choose *AIM* Output, the imager reads symbols with start/stop pattern 1 and decodes them as standard full ASCII (start/stop pattern 1). If you choose *Original* Output, the imager reads symbols with start/stop pattern 1 and decodes them as compressed numeric with optional full ASCII (start/stop pattern 2).

### Minimum And Maximum Length

The length of a code refers to the number of characters (i.e., human readable characters), including check digit(s). Double-tapping on these parameters displays a screen in which you can set the minimum and maximum allowable code lengths – *1 to 60*.

### Field Size/Char

Refer to page 143 for details.

## 5.10.3.20 RSS Code (Reduced Space Symbology)

### Enable

Setting this parameter to *on* enables "RSS Code" scanning capability.

### Enable RSS Limited

'RSS-Limited" is restricted, in that it can only encode 14 digit GTINs (global trade item number) that begin with either a 0 or a 1. It is not stackable and is not designed to be read omni-directionally.

### Enable RSS Expanded

"RSS Expanded" uses the same application identifiers as UCC/EAN-128 codes but they can be split into sections and stacked several rows high, reducing the length of the symbol, while increasing the capacity of data that can be stored. "RSS Expanded" code can be omni-directionally scanned.

### Minimum And Maximum Length

The length of a code refers to the number of characters (i.e., human readable characters), including check digit(s). Double-tapping on these parameters displays a screen in which you can set the minimum and maximum allowable code lengths – *1 to 74*.

### Field Size/Char

Refer to page 143 for details.

## 5.10.3.21  PosiCode (Reduced Space Symbology)

### Enable

Setting this parameter to *on* enables "PosiCode" scanning capability.

### PosiCode

"PosiCode" is a "position" based symbology. A position based symbology de-couples the widths of the bars from their positions. The centers of the bars are specified to be laid out on a grid of equally spaced parallel lines. The distance between these grid lines is called the G-dimension and is analogous to the X-dimension of conventional bar codes.

There are two variations of this code: PosiCode A, and PosiCode B. The options available with this parameter allow to choose *A and B*, *A and B and Limited A* or *A and B and Limited B*.

### Minimum And Maximum Length

The length of a code refers to the number of characters (i.e., human readable characters), including check digit(s). Double-tapping on these parameters displays a screen in which you can set the minimum and maximum allowable code lengths – *1 to 80*.

### Field Size/Char

Refer to page 143 for details.

## 5.10.3.22  Composite

⚠ ***Important:***  ***To successfully read this type of bar code, the two types of symbologies included in a composite bar code must be enabled.***

A composite symbol includes multi-row 2D components making it compatible with linear and area CCD scanners along with linear and rastering laser scanners.

The options available for this parameter represent multi-level components of a composite symbol.

### GS1 128

"GS1 128" is the GS1 implementation of the Code 128 barcode specification. The former correct name was UCC/EAN-128.

"GS1-128" uses a series of *Application Identifiers* to include additional data such as best before dates, batch numbers, quantities, weights and many other attributes needed by the user.

## EAN/UCC 128 Emulation

The options in this parameter allow you to turn this emulation *on* or *off*, or to enable *RSS Emulation*.

## Minimum And Maximum Length

The length of a code refers to the number of characters (i.e., human readable characters), including check digit(s). Double-tapping on these parameters displays a screen in which you can set the minimum and maximum allowable code lengths – *1 to 2435*.

# 5.10.3.23 TLC-39

This composite component integrates MicroPDF417 with the linear code.

## Enabled

Setting this parameter to *on* enables this parameter.

## Field Size/Char

Refer to page 143 for details.

# 5.10.3.24 PDF-417

## Enabled

Set this parameter to *on* to enable "PDF-417".

## Minimum And Maximum Length

The length of a code refers to the number of characters (i.e., human readable characters), including check digit(s). Double-tapping on these parameters displays a screen in which you can set the minimum and maximum allowable code lengths – *1 to 2750*.

## Field Size/Char

Refer to page 143 for details.

## 5.10.3.25  Micro PDF-417

### Enabled

Set this parameter to *on* to enable "Micro PDF-417".

### Minimum And Maximum Length

The length of a code refers to the number of characters (i.e., human readable characters), including check digit(s). Double-tapping on these parameters displays a screen in which you can set the minimum and maximum allowable code lengths – *1 to 366.*

### Field Size/Char

Refer to page 143 for details.

## 5.10.3.26  Code 16K

The "Code 16K" bar code is a multiple-row bar code that can encode the full ASCII character set below ASCII 128. It uses existing UPC and Code 128 character set patterns. Up to 77 full ASCII characters or 154 numeric characters can be encoded into 2 to 16 rows. Each row is divided by a separator bar. The top and bottom of the symbol also have separator bars that extend to the ends of the minimum quiet zones.

### Enabled

Set this parameter to *on* to enable "Code 16K".

### Minimum And Maximum Length

The length of a code refers to the number of characters (i.e., human readable characters), including check digit(s). Double-tapping on these parameters displays a screen in which you can set the minimum and maximum allowable code lengths – *1 to 160.*

### Field Size/Char

Refer to page 143 for details.

## 5.10.3.27 Code 49

The "Code 49" bar code is a multiple-row bar code that can encode the full ASCII character set below ASCII 128. Up to 49 alphanumeric characters or 81 numeric characters can be encoded into two to eight rows. Each row is divided by a separator bar. The top and bottom of the symbol also have separator bars that extend to the ends of the minimum quiet zones.

### Enabled

Set this parameter to *on* to enable "Code 49".

### Minimum And Maximum Length

The length of a code refers to the number of characters (i.e., human readable characters), including check digit(s). Double-tapping on these parameters displays a screen in which you can set the minimum and maximum allowable code lengths – *1 to 81*.

### Field Size/Char

Refer to page 143 for details.

## 5.10.3.28 Codablock

### Enable

Set this parameter to *on* to enable "Codablock".

### Minimum And Maximum Length

The length of a code refers to the number of characters (i.e., human readable characters), including check digit(s). Double-tapping on these parameters displays a screen in which you can set the minimum and maximum allowable code lengths – *1 to 2048*.

### Field Size/Char

Refer to page 143 for details.

## 5.10.3.29 2D Data Matrix

### Enable

Set this parameter to *on* to enable "2D Data Matrix".

## Minimum And Maximum Length

The length of a code refers to the number of characters (i.e., human readable characters), including check digit(s). Double-tapping on these parameters displays a screen in which you can set the minimum and maximum allowable code lengths – *1 to 1500.*

## Field Size/Char

Refer to page 143 for details.

# 5.10.3.30  2D QR Code

## Enabled

Set this parameter to *on* to enable "2D QR Code".

## Minimum And Maximum Length

The length of a code refers to the number of characters (i.e., human readable characters), including check digit(s). Double-tapping on these parameters displays a screen in which you can set the minimum and maximum allowable code lengths – *1 to 3500.*

## Field Size/Char

Refer to page 143 for details.

# 5.10.3.31  2D Maxicode

## Enabled

Set this parameter to *on* to enable "2D Maxicode".

## Minimum And Maximum Length

The length of a code refers to the number of characters (i.e., human readable characters), including check digit(s). Double-tapping on these parameters displays a screen in which you can set the minimum and maximum allowable code lengths – *1 to 150.*

## Field Size/Char

Refer to page 143 for details.

## 5.10.3.32  2D Aztec

### Enabled

Set this parameter to *on* to enable "2D Aztec".

### Aztec Runes

*Aztec Runes*, the smallest type of Aztec Code symbol, has the ability to encode a very short license plate message.

### Minimum And Maximum Length

The length of a code refers to the number of characters (i.e., human readable characters), including check digit(s). Double-tapping on these parameters displays a screen in which you can set the minimum and maximum allowable code lengths – *1 to 3750.*

### Field Size/Char

Refer to page 143 for details.

## 5.10.3.33  Postal: PlaNET

### Enabled

Set this parameter to *on* to enable "Postal: PlaNET".

### Check Digit

If enabled, the check digit will be transmitted at the end of the scanned data.

### Field Size/Char

Refer to page 143 for details.

## 5.10.3.34  Postal: PostNET

### Enabled

Set this parameter to *on* to enable "Postal: PostNET".

### Check Digit

If enabled, the check digit will be transmitted at the end of the scanned data.

## Field Size/Char

Refer to page 143 for details.

## 5.10.3.35  Postal: Australian

### Enabled

Set this parameter to *on* to enable "Postal: Australian".

### Field Size/Char

Refer to page 143 for details.

## 5.10.3.36  Postal: Canadian

### Enabled

Set this parameter to *on* to enable "Postal: Canadian".

### Field Size/Char

Refer to page 143 for details.

## 5.10.3.37  Postal: China

### Enabled

Set this parameter to *on* to enable "Postal: China".

### Minimum And Maximum Length

The length of a code refers to the number of characters (i.e., human readable characters), including check digit(s). Double-tapping on these parameters displays a screen in which you can set the minimum and maximum allowable code lengths – *2 to 80.*

### Field Size/Char

Refer to page 143 for details.

## 5.10.3.38  Postal: Japanese

### Enabled

Set this parameter to *on* to enable "Postal: Japanese".

### Field Size/Char

Refer to page 143 for details.

## 5.10.3.39 Postal: Kix

### Enabled

Set this parameter to *on* to enable "Postal: Kix".

### Field Size/Char

Refer to page 143 for details.

## 5.10.3.40 Postal: Korean

### Enabled

Set this parameter to *on* to enable "Postal: Korean".

### Minimum And Maximum Length

The length of a code refers to the number of characters (i.e., human readable characters), including check digit(s). Double-tapping on these parameters displays a screen in which you can set the minimum and maximum allowable code lengths – *2 to 48*.

### Field Size/Char

Refer to page 143 for details.

## 5.10.3.41 Postal: Royal

### Enabled

Set this parameter to *on* to enable "Postal: Royal".

### Field Size/Char

Refer to page 143 for details.

## 5.10.4  Decoded (Intermec ISCP)
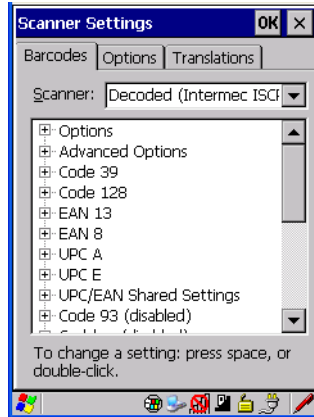


- Tap on the **Scanner** drop-down menu, and choose **Decoded (Intermec ISCP).**

## 5.10.4.1  Decoded (Intermec ISCP) Options

### Laser On Time

The value assigned to this parameter determines how long the laser will remain on when the scan button or trigger is pressed.

Double-tapping on this parameter displays a dialog box in which you can enter a value between 1 and 10 seconds.

## 5.10.4.2  Decoded (Intermec ISCP) Advanced Options

### Continuous Scan Mode

Setting this parameter to 'on' keeps the laser on and continuously decoding as long as the scanner button is pressed and held down.

### Minimum Cancel Time

The value assigned to this parameter determines the time delay before the scanner is turned off, once the scanner trigger or button is released. This gives the scanner a minimum amount of time to complete its current decode before the scan is cancelled when the user quickly triggers on/off.

### Low Power Timeout

To extend laser life, you can select the length of time the scanner remains active following a successful decode. The scanner wakes from low power mode when a bar code is scanned – a successful decode restores normal blinking.

When you double-tap on this parameter, a dialog box is displayed in which you can choose a value of 30 sec, 1 min, 2 min or 3 min.

*Note:* *This parameter is only used if the Trigger Mode has been set to Continuous On and the hand-held is mounted in a fixed position; otherwise, 'Low Power Timeout' is not used.*

### Parameter Scanning

Setting this parameter to *Enabled* allows decoding of parameter bar codes.

### Same Read Validate

The data is only transmitted after repeated reads give the same result. The value assigned at this parameter determines the number of reads required, from 0 to 10 times.

### Same Read Timeout

Prevents the same bar code from being read more than once. The value assigned determines after what time period the scanner will timeout, from 0 to 2550 msec.

### Diff Read Timeout

Prevents unwanted reading of other bar codes on the same label. The value assigned determines after what time period the scanner will timeout, from 0 to 2550 msec.

## 5.10.4.3   Code 39

### Enable

Setting this parameter to *on* enables "Code 39".

### Full ASCII

If this parameter is enabled, the characters +, %, and / are used as escape characters. The combination of an escape character and the next character is converted to an equivalent ASCII character.

## Reading Range

Determines the reading distance from which a bar code can be successfully scanned. The default setting, *Extended*, allows for increased reading distance.

## Start/Stop Transmit

Setting this parameter to *on* enables the transmission of start and stop characters, which are usually not transmitted. Code 39 can start and end with either a **\*** or a **$** character (see also next parameter *Accepted Start Char*).

## Accepted Start Char

This parameter allows the user the option of using one of the two start/stop characters or both ($ char, * char, $ and * char).

## Check Digit Verification

Uses the specified algorithm of the option you've chosen to ensure the integrity of the symbol data before transmitting. If the data does not contain that algorithm, the data is not transmitted. The available options are: Disabled, MOD 43 Check, French CIP, or Italian CIP.

*Notes: French CIP (French pharmaceutical) is only used with bar codes containing 7 characters.*

*Italian CIP (Italian pharmaceutical) is also known as Code 32. It is transmitted as a standard Code 39 if checksum is not validated.*

## Transmit Check Digit

If the check digit is to be transmitted with the data, this parameter must be enabled.

## Minimum Length

Minimum lengths for the bar code can be set from *0 to 255*. The length of a code refers to the number of characters (i.e., human readable characters), including check digit(s).

## Field Size/Char

Refer to page 143 for details.

## 5.10.4.4  Code 128

### Enable

Setting this parameter to *on* enables "Code 128".

### GS1-128

"GS1-128" is the GS1 implementation of the Code 128 barcode specification. The former correct name was UCC/EAN-128.

### GS1-128 Identifier

"GS1-128 Identifier" allows the AIM ID " ]C1" for EAN 128 to be transmitted or removed. By default, this identifier is transmitted if EAN 128 is enabled.

### GTIN Compliant

GTIN (global trade item number) processing transmits EAN 128 as the 14-character EAN/UCC GTIN. To use GTIN processing, you must activate the EAN 128 symbology.

*Important:* ***When EAN 128 and GTIN processing are both activated, it is not possible to read normal EAN 128 Codes.***

### FNC1 Conversion

"FNC1 Conversion" allows the FNC1 character to be converted to another character for applications that cannot use the default <GS> Group Separator or hex (1d).

Double-tapping on this option displays a dialog box listing the allowable range – 0 to 255.

### Enable ISBT 128

To successfully scan this type of bar code (International Society of Blood Transfusion), this option must be set to *on*. If you enable this type of bar code, Code 128/EAN 128 is deactivated to avoid any confusion.

### ISBT Concat Transmit

The codes are not concatenated by default. You need to choose one of the options provided for this parameter to send concatenated code. Choosing *Only Concatenated Codes* transmits only concatenated codes—single codes will not be transmitted. Choosing *Concatenated or Single* transmits single codes or

concatenated codes. If only one code of a pair is read, that code will be transmitted as a single code. If both codes in a pair are detected, they will be concatenated provided that *ISBT Concat Any Pair* (see below) is enabled.

## ISBT Concat Any Pair

Enabling this parameter causes all code pairs that can be, to be concatenated even if they do not comply with Section 4.1 of the "ISBT 128 Bar Code Symbology and Application Specification for Labeling of Whole Blood and Blood Components" (June 2000, Version 1.2.1).

## Reading Range

Determines the reading distance from which a bar code can be successfully scanned. The default setting *Extended*, allows for increased reading distance.

## Check Digit Verification

The available options for this parameter are Disabled or French CIP. This parameter uses the specified algorithm of the option you've chosen to ensure the integrity of the symbol data before transmitting. If the data does not contain that algorithm, the data is not transmitted.

*Note: French CIP (French pharmaceutical) is only used with bar codes containing 7 characters.*

## Minimum Length

Minimum lengths for the bar code can be set from *0 to 255*. The length of a code refers to the number of characters (i.e., human readable characters), including check digit(s).

## Field Size/Char

Refer to page 143 for details.

# 5.10.4.5   EAN 13 Settings

## Enabled

Set this parameter to *on* to enable "EAN 13".

### ISBN Conversion

When this parameter (International Standard Book Number) is enabled, the first 3 characters ('978') are ignored and the checksum (0.9, 'X') is calculated on the remaining characters.

### Transmit Check Digit

If the check digit is to be transmitted with the data, this parameter must be enabled.

### Prefix/Suffix

Refer to "Prefix/Suffix" beginning on page 144.

## 5.10.4.6   EAN 8

### Enabled

Set this parameter to *on* to enable "EAN 8".

### Transmit Check Digit

If the check digit is to be transmitted with the data, this parameter must be enabled.

### Convert To EAN 13

If this parameter is enabled, an EAN 8 bar code is converted to EAN 13.

### Prefix/Suffix

Refer to "Prefix/Suffix" beginning on page 144.

## 5.10.4.7   UPC A Settings

### Enabled

Set this parameter to *on* to enable "UPC A" bar code scanning recognition.

### Transmit Check Digit

If the check digit is to be transmitted with the data, this parameter must be enabled.

### Transmit Number System

If this parameter is enabled, the number system digit is transmitted with the decoded bar code data.

## Convert To EAN 13

If this parameter is enabled, a UPC A bar code is converted to EAN 13.

## Prefix/Suffix

Refer to "Prefix/Suffix" beginning on page 144.

# 5.10.4.8  UPC E Settings

## Enabled

Set this parameter to *on* to enable "UPC E".

## Enable UPC-E1

Set this parameter to *on* to allow "UPC-E1" (zero suppressed) bar code scans.

## Transmit Check Digit

If the check digit is to be transmitted with the data, this parameter must be enabled.

## Transmit Number System

If this parameter is enabled, the number system digit is transmitted with the decoded bar code data.

## Convert To UPC-A

This parameter converts UPC E (zero suppressed) decoded data to UPC A format before transmission. After conversion, data follows UPC A format and is affected by UPC A programming selections (e.g. Check Digit).

## Prefix/Suffix

Refer to "Prefix/Suffix" beginning on page 144.

# 5.10.4.9  UPC/EAN Shared Settings

The setting assigned to the "Addendum" parameter associated with this option is shared across all UPC and EAN bar codes.

## Addendum

An addendum is a separate bar code, supplementary to the main bar code.
This parameter provides two options: *Not Required but Transmitted if Read* or *Required and Transmitted*.

- Double-tap on **Addendum** to display a dialog box listing your options.
- Highlight an item, and tap on **OK**.

When "Addendum" is set to *Not Required but Transmitted if Read*, the scanner searches for an addendum and if one exists, appends it to the main bar code. When the parameter is set to *Required and Transmitted*, the scanner does not accept the main bar code without an addendum.

### Addendum Add-on 2 And Addendum Add-on 5

Enabling these parameters sets the length of the addendum bar code to either *2* or *5* characters.

### GTIN Compliant

GTIN (global trade item number) processing transmits EAN 128 as the 14-character EAN/UCC GTIN. To use GTIN processing, you must activate the EAN 128 symbology.

> ⚠️ *Important:* **When EAN 128 and GTIN processing are both activated, it is not possible to read normal EAN 128 Codes.**

### Reading Range

This parameter determines the reading distance from which a bar code can be successfully scanned. The default setting, *Extended*, allows for increased reading distance.

## 5.10.4.10  Code 93

### Enabled

Set this parameter to *on* to enable "Code 93".

### Minimum Length

Minimum lengths for the bar code can be set from *0 to 255*. The length of a code refers to the number of characters (i.e., human readable characters), including check digit(s).

### Field Size/Char

Refer to page 143 for details.

## 5.10.4.11 Codabar

### Enabled

Set this parameter to *on* to enable "Codabar".

### Start/Stop Transmit

Codabar can use the following sets of characters as start and stop characters:

a, b, c, d

A, B, C, D

a, b, c, d, /, t, n, *, e

DC1, DC2, DC3, DC4

Thus, when a set is chosen, the first and last digits of a Codabar message must be one of those characters and the body of the message should not contain these characters. Setting this parameter to *Not Transmitted* strips the start and stop characters from this bar code.

### CLSI Library System

When enabled, spaces are inserted after characters 1, 5, 10 in the 14-character label (used in the USA by libraries using the CLSI system).

### Check Digit Verification

When enabled, this parameter checks the integrity of a symbol to ensure it complies with a specified algorithm – either *USS* (Uniform Symbology Specification) or *OPCC* (Optical Product Code Council).

### Transmit Check Digit

If the check digit is to be transmitted with the data, this parameter must be enabled.

### Set Length L1, Set Length L2, And Set Length L3

Lengths for "Codabar" can be set from *0 to 255*. The length of a code refers to the number of characters (i.e., human readable characters), including check digit(s).

Double-tapping on these parameters displays dialog boxes where you can define the code length that will be recognized by your scanner.

### Length Mode

You can choose to set L1 as Minimum Length or L1,L2,L3 as Fixed Length.

### Field Size/Char

Refer to page 143 for details.

## 5.10.4.12  MSI Plessey

### Enabled

Set this parameter to *on* to enable "MSI".

### Enable Plessy

Set this parameter to *on* to enable "Plessy".

### Check Digit Verification

The available options for this parameter are *MOD 10 Check* and *Double MOD 10 Check*. This parameter uses the specified algorithm of the option you've chosen to ensure the integrity of the symbol data before transmitting. If the data does not contain that algorithm, the data is not transmitted.

### Transmit Check Digit

If the check digit is to be transmitted with the data, this parameter must be enabled.

### Plessy Transmit Check Digit

If the check digit is to be transmitted with the Plessy data, this parameter must be enabled.

### Minimum Length

Minimum lengths for the bar code can be set from *0 to 255*. The length of a code refers to the number of characters (i.e., human readable characters), including check digit(s).

### Plessy Minimum Length

Minimum lengths for the Plessy bar code can be set from *0 to 255*. The length of a code refers to the number of characters (i.e., human readable characters), including check digit(s).

### Field Size/Char

Refer to page 143 for details.

## 5.10.4.13 Code 11

### Enabled

Set this parameter to *on* to enable "Code 11".

### Check Digit Verification

The available options for this parameter are *MOD 10 Check* and *Double MOD 10 Check*.This parameter uses the specified algorithm of the option you've chosen to ensure the integrity of the symbol data before transmitting. If the data does not contain that algorithm, the data is not transmitted.

### Transmit Check Digit

If the check digit is to be transmitted with the data, this parameter must be enabled.

### Minimum Length

Minimum lengths for the bar code can be set from *0 to 255*. The length of a code refers to the number of characters (i.e., human readable characters), including check digit(s).

### Field Size/Char

Refer to page 143 for details.

## 5.10.4.14 Interleaved 2 of 5

### Enabled

Set this parameter to *on* to enable "Interleaved 2 of 5".

### Reading Range

This parameter determines the reading distance from which a bar code can be successfully scanned. The default setting, *Extended*, allows for increased reading distance.

### Check Digit Verification

The available options for this parameter are *Disabled*, *MOD 10 Check* and *French CIP*. "Check Digit Verification" uses the specified algorithm of the option you've chosen to ensure the integrity of the symbol data before transmitting. If the data does not contain that algorithm, the data is not transmitted.

> *Note:* *French CIP (French pharmaceutical) is only used with bar codes containing 7 characters.*

### Transmit Check Digit

If the check digit is to be transmitted with the data, this parameter must be enabled.

### Set Length L1, Set Length L2, And Set Length L3

Lengths for "Interleaved 2 of 5" can be set from *0 to 255*. The length of a code refers to the number of characters (i.e., human readable characters), including check digit(s).

Double-tapping on these parameters displays dialog boxes where you can define the code length that will be recognized by your scanner.

### Length Mode

You can chose to set L1 as Minimum Length or L1,L2,L3 as Fixed Length.

### Field Size/Char

Refer to page 143 for details.

## 5.10.4.15 Matrix 2 of 5

### Enabled

Set this parameter to *on* to enable "Matrix 2 of 5".

### Minimum Length

Minimum lengths for the bar code can be set from *0 to 255*. The length of a code refers to the number of characters (i.e., human readable characters), including check digit(s).

### Field Size/Char

Refer to page 143 for details.

## 5.10.4.16 Discrete 2 of 5

### Enabled

Set this parameter to *on* to enable "Discrete 2 of 5".

## Standard 2 of 5 Format

This parameter allows you to choose a standard format – either *Identicon (6 start/stop bars) or Computer Identics (4 start/stop bars)*.

## Check Digit Verification

The available options for this parameter are *Disabled* and *MOD 10 Check*. "Check Digit Verification" uses the specified algorithm of the option you've chosen to ensure the integrity of the symbol data before transmitting. If the data does not contain that algorithm, the data is not transmitted.

## Transmit Check Digit

If the check digit is to be transmitted with the data, this parameter must be enabled.

## Set Length L1, Set Length L2, And Set Length L3

Lengths for "Discrete 2 of 5" can be set from *0 to 255*. The length of a code refers to the number of characters (i.e., human readable characters), including check digit(s).

Double-tapping on these parameters displays dialog boxes where you can define the code length that will be recognized by your scanner.

## Length Mode

You can chose to set *L1 as Minimum Length* or *L1,L2,L3 as Fixed Length*.

## Field Size/Char

Refer to page 143 for details.

## 5.10.4.17 Telepen

## Enabled

Set this parameter to *on* to enable "Telepen".

## Format

This parameter allows you to set the bar code character format to *either ASCII or Numeric*.

### Minimum Length

Minimum lengths for the bar code can be set from *0 to 255*. The length of a code refers to the number of characters (i.e., human readable characters), including check digit(s).

### Field Size/Char

Refer to page 143 for details.

## 5.10.4.18  RSS Code (Reduced Space Symbology)

### Enable

Setting this parameter to *on* enables "RSS Code" scanning capability.

### Enable RSS-14

RSS-14 code can be either purely linear or split in half with one half stacked on top of the other half. Stacking the code reduces the bar code length, and providing the nominal height of the code is maintained, it can be omni-directionally scanned.

### Enable RSS Limited

"RSS-Limited" is restricted, in that it can only encode 14 digit GTINs (global trade item number) that begin with either a 0 or a 1. It is not stackable and is not designed to be read omni-directionally.

### Enable RSS Expanded

"RSS Expanded" uses the same application identifiers as UCC/EAN-128 codes but they can be split into sections and stacked several rows high, reducing the length of the symbol, while increasing the capacity of data that can be stored. "RSS Expanded" code can be omni-directionally scanned.

### Field Size/Char

Refer to page 143 for details.

## 5.10.4.19  PDF-417

### Enabled

Set this parameter to *on* to enable "PDF-417".

## Field Size/Char

Refer to page 143 for details.

# 5.10.4.20  Micro PDF-417

## Enabled

Set this parameter to *on* to enable "Micro PDF-417".

## Code 128 Emulation

When this parameter is enabled, the scanner transmits data from certain Micro PDF-417 symbols as if it was encoded in Code 128 symbols.

If Code 128 Emulation is enabled, the following Micro PDF-417 symbols are transmitted with one of the following prefixes:

> ]C1if the first codeword is 903-907, 912, 914, 915

> ]C2if the first codeword is 908 or 909

> ]C0if the first codeword is 910 or 911

If Code 128 Emulation is set to *off*, the Micro PDF-417 symbols are transmitted with one of the following prefixes:

> ]L3if the first codeword is 903-907, 912, 914, 915

> ]L4if the first codeword is 908 or 909

> ]L5if the first codeword is 910 or 911

## Field Size/Char

Refer to page 143 for details.

# 5.10.4.21  Codablock

## Enable Codablock A
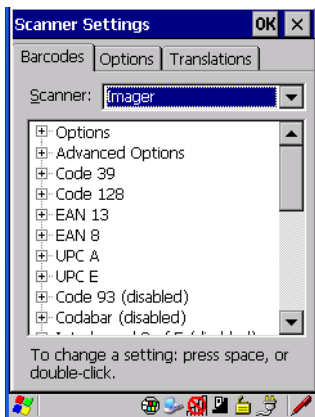
Set this parameter to *on* to enable "Codablock type A".

## Enable Codablock F

Set this parameter to *on* to enable "Codablock type F".

## Field Size/Char

Refer to page 143 for details.

## 5.10.5  Imager



• Tap on the **Scanner** drop-down menu, and choose **Imager**.

## 5.10.5.1  Imager Options

### TekImager Enabled

Setting this option to *on* enables the imager installed in your hand-held.

### Continuous Scan Mode

Setting this parameter to *on* keeps image capture active and continuously decoding as long as the scanner button is pressed and held down.

### Center Bar Code Only

*Note:    This parameter must be disabled when reading Composite bar codes.*

When more than one bar code is visible in a single snap shot, this parameter allows you to specify that only the centre image within the imager framing marker be read. When this parameter is set to *on*, the target dot is pointed at the centre image and only that image is returned.

### Max Number Barcodes

This parameter specifies the maximum number of bar codes the imager will attempt to decode in an image. A maximum of 6 bar codes can be decoded at one time.

### Barcodes Must Decode

This parameter specifies the minimum number of bar codes that the imager must decode in order to report success.

*Note:* *This number must be less than the number of bar codes assigned to "Max Number Barcodes". The driver validates and reassigns the value if necessary.*

### Window Width

"Window Width" determines the width of the captured image in pixels.

*Note:* *The driver will validate and reassign the value assigned to this parameter, if necessary; the driver will also use the Window Width value to horizontally center the image in the field of view.*

### Window Height

This parameter determines the height of the captured image in pixels.

*Note:* *The driver will validate and reassign the value assigned to this parameter, if necessary; the driver will also use "Window Height" value to vertically center the image in the field of view.*

### Dot Time (msec)

The value selected for "Dot Time (msec)" determines (in milliseconds) how long the targeting dot remains on before the scanner begins capturing images. When you double-tap on this parameter, a dialog box is displayed in which you can enter a value of between 0 and 3000. A value of 0 disables the target dot.

## 5.10.5.2   Imager Advanced Options

*Important:* ***Do not adjust the advanced options without first consulting Psion Teklogix technical support.***

### Factory Defaults On Reboot

The value assigned to this parameter determines whether or not the driver will restore the factory defaults to the imager device on the next reboot.

*Note:* *The driver will default the imager device on a 'clean' reset, regardless of the value of this parameter.*

### Min Scan Duration

This parameter defines the minimum amount of time in seconds that the imager will scan when the trigger is pressed and held down without successful decode.

*Note:* *The actual scan duration when the trigger is pressed relies on the value assigned to* Captures Per HW Trigger, *below.*

### Captures Per HW Trigger

The value assigned to this parameter determines the number of captures the imager device will take while the imager's internal hardware trigger is held down.

*Note:* *This parameter, together with "Min Scan Duration", determines the actual scan duration. When the scan trigger is pressed and held down, the driver starts a timer based on the value of "Min Scan Duration" and also sends a command to emulate the hardware trigger. When completed, if the time has not yet expired, it will send another command to the imager device, forcing the imager to flash again using the value assigned to "Captures Per HW Trigger".*

### Auto Exposure

*Important:* *This parameter value should only be changed by qualified Psion Teklogix personnel. It should be left at the default value – 'on'.*

Setting this parameter to *on* allows the imager to make automatic gain, integration and illumination adjustments based on ambient light before capturing the bar code. If the adjustment is insufficient, further adjustments are made automatically before another image is captured.

### Fast Converge

*Note:* *"Auto Exposure" must be set to 'on' in order for this parameter to function.*

*Keep in mind that while this parameter can improve imager performance, "Fast Converge" increases battery power consumption.*

Setting this parameter to *on* speeds the "Auto Exposure" process. It allows the imager to rapidly snap a number of bar code capture attempts while finding ideal values for gain, integration and illumination.

## Max Gain, Max Integration And Max Illumination

⚠️ ***Important:*** ***These parameter values should only be changed by qualified Psion Teklogix personnel.***

These parameters represent internal values used by the 2D imager. The "Auto Exposure" parameter automatically adjusts the "Max Gain", "Max Integration" and "Max Illumination" parameters to produce the best bar code read. Keep in mind that "Auto Exposure" must be set to *on* in order for these parameter values to be automatically adjusted.

Double-tapping on any of these parameters displays an associated dialog box in which an allowable range is displayed: Max Gain – 357 to 7920, Max Integration – 0 to 65535, Max Illumination – 0 to 7.

## Decoder Timeout

The decoder is a set of algorithms that examine the image and attempt to find the bar codes, and then turn the pixels into data that the computer can use—this process takes time. "Decoder Timeout" limits the amount of time the decoder will spend attempting to decode an image, and forces it to stop and grab a new image, which will probably be easier to decode.

📖 *Note: When decoding multiple bar codes in one image, the value assigned to 'Decoder Timeout' should be increased to 200ms/extra bar code after the first.*

## Adaptive Windowing

"Adaptive Windowing" is an advanced technique used to speed up bar code recognition in certain applications. This parameter automatically reduces the size of the window to the user-programmed window size when it successfully decodes (which reduces decode time the next time it is used), but increases it to the full size window (1280x1024 for SX5303) on a failed decode.

📖 *Note: This feature assumes that you have reached an understanding about how the device operates in your application, and that, after a learning period, operators will get used to using the imager in one particular way. It also assumes that a trained operator will usually only have near miss scenarios.*

### Constant Illumination

"Constant Illumination" is used to reduce the intrusiveness of the device's illumination on the observer. Instead of the illumination turning on and off every time the device attempts a decode (2-4 times per second), the illumination stays on from the time the trigger is pulled until a decode is successful. This feature is useful in low light environments, since it will also reduce the distraction that the illumination can have on nearby co-workers.

## 5.10.5.3   Code 39 Settings

### Enabled

Set this parameter to *on* to enable "Code 39".

### Field Size/Char

Refer to page 143 for details.

## 5.10.5.4   Code 128 Settings

### Enabled

Set this parameter to *on* to enable "Code 128".

### Field Size/Char

Refer to page 143 for details.

## 5.10.5.5   EAN 13

### Enabled

Set this parameter to *on* to enable "EAN 13".

### Addendum

An addendum is a separate bar code, supplementary to the main bar code. This parameter provides three options: Disabled, Optional and Required. Depending on the value chosen for this parameter, an addendum is recognized or ignored.

- Double-tap on **Addendum** to display a dialog box listing your options.
- Highlight an item, and tap on **OK**.

When "Addendum" is set to *Disabled*, the scanner does not recognize an addendum. If this parameter is set to *Optional*, the scanner searches for an addendum and if one exists, appends it to the main bar code. When the parameter is set to *Required*, the scanner does not accept the main bar code without an addendum.

*Note:*    *Setting "Addendum" to 'Optional' reduces performance. It should only be chosen if at least some of the bar codes being read have addendums.*

## Prefix/Suffix

Refer to "Prefix/Suffix" beginning on page 144.

## 5.10.5.6    EAN 8

### Enabled

Set this parameter to *on* to enable "EAN 8".

### Addendum

Refer to "Addendum" on page 194.

### Prefix/Suffix

Refer to "Prefix/Suffix" beginning on page 144.

## 5.10.5.7    UPC A

### Enabled

Set this parameter to *on* to enable "UPC A".

### Addendum

Refer to "Addendum" on page 194.

### Prefix/Suffix

Refer to "Prefix/Suffix" beginning on page 144.

## 5.10.5.8    UPC E

### Enabled

Set this parameter to *on* to enable "UPC E".

### Addendum

Refer to "Addendum" on page 194.

### Prefix/Suffix

Refer to "Prefix/Suffix" beginning on page 144.

## 5.10.5.9  Code 93

### Enabled

Set this parameter to *on* to enable "Code 93".

### Field Size/Char

Refer to page 143 for details.

## 5.10.5.10  Codabar

### Enabled

Set this parameter to *on* to enable "Codabar".

### Field Size/Char

Refer to page 143 for details.

## 5.10.5.11  Interleaved 2 of 5

### Enabled

Set this parameter to *on* to enable "Interleaved 2 of 5".

### Field Size/Char

Refer to page 143 for details.

## 5.10.5.12  RSS Code (Reduced Space Symbology)

### Enable

Setting this parameter to *on* enables "RSS Code" scanning capability.

### Field Size/Char

Refer to page 143 for details.

### 5.10.5.13 Composite

⚠️ *Important:* ***To successfully read this type of bar code, the two types of symbolo-
gies included in a composite bar code must be enabled.***

### Enabled

Set this parameter to *on* to enable "Composite" bar codes.

## 5.10.5.14 PDF-417

### Enable

Setting this parameter to *on* enables PDF-417 two dimensional (2D) coding.

### Field Size/Char

Refer to page 143 for details.

## 5.10.5.15 Micro PDF-417

### Enable

Setting this parameter to *on* enables "Micro PDF-417" bar code scanning. Micro
PDF-417 is a multi-row symbology that is useful for applications requiring greater
area efficiency but lower data capacity than PDF-417.

### Field Size/Char

Refer to page 143 for details.

## 5.10.5.16 2D Data Matrix

### Enable

Set this parameter to *on* to enable "Data Matrix".

### Field Size/Char

Refer to page 143 for details.

## 5.10.5.17 2D QR Code

### Enabled

Set this parameter to *on* to enable "2D QR Code".

### Field Size/Char

Refer to page 143 for details.

## 5.10.5.18  2D Maxicode

### Enabled

Set this parameter to *on* to enable "2D Maxicode".

### Field Size/Char

Refer to page 143 for details.

## 5.10.5.19  2D Aztec

### Enabled

Set this parameter to *on* to enable "Aztec".

### Field Size/Char

Refer to page 143 for details.

## 5.10.5.20  Postal: PlaNET

### Enabled

Set this parameter to *on* to enable "Postal: PlaNET".

### Field Size/Char

Refer to page 143 for details.

## 5.10.5.21  Postal: PostNET

### Enabled

Set this parameter to *on* to enable "Postal: PostNET".

### Field Size/Char

Refer to page 143 for details.

## 5.10.5.22  Postal: Australian

### Enabled

Set this parameter to *on* to enable "Postal: Australian".

### Field Size/Char

Refer to page 143 for details.

## 5.10.5.23  Postal: Japanese

### Enabled

Set this parameter to *on* to enable "Postal: Japanese".

### Field Size/Char

Refer to page 143 for details.

## 5.10.5.24  Postal: Korean

### Enabled

Set this parameter to *on* to enable "Postal: Korean".

### Field Size/Char

Refer to page 143 for details.

## 5.10.5.25  Postal: Royal

### Enabled

Set this parameter to *on* to enable "Postal: Royal".

### Field Size/Char

Refer to page 143 for details.

## 5.10.6   Options

This tab allows you to tailor the double-click parameters and the display options associated with your scanner.
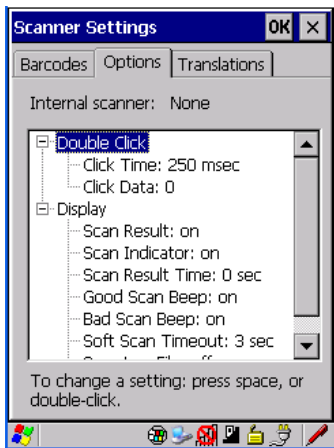


## 5.10.6.1   Double Click Parameters

### Click Time (msec)

This parameter controls the maximum gap time (in milliseconds) for a double-click. If the time between the first and second clicks of the scanner trigger is within this time, it is considered a double-click. The allowable range is 0 to 1000. A value of zero disables this feature.

A double-click produces different results depending on whether or not a value is assigned in the "Click Data" parameter. When a value is not assigned for the "Click Data", double-clicking the scanner trigger overrides the target dot delay set in the "Dot Time" parameter and initiates a normal scan sweep. If a value is assigned for the "Click Data" parameter, double-clicking the scanner trigger inserts the "Click Data" value rather than initiating a scan.

### Click Data

For both integrated and external scanners, this parameter determines which character is sent to the application installed in your hand-held following a double-click. A dialog box appears, asking that you press the key you want to insert. The ASCII/Unicode key value of the keypress is displayed.

## 5.10.6.2   Display Parameters

### Scan Result

When this parameter is enabled, the type of bar code and the result of the scan appear on the screen. Note that this information is only displayed after a successful decode and is visible only while the scanner trigger is pressed. When the trigger is released, this information is cleared from the screen.

### Scan Indicator

When this parameter is enabled, the laser warning logo appears on the display whenever the scanner is activated.

### Scan Result Time (sec)

The value assigned to the "Scan Result Time (sec)" parameter determines how long the scan results of a successful scan are displayed on the screen. Time is measured in seconds, and a value of "0" (zero) disables the parameter. When you choose this option, a dialog box appears where you can enter a value.

*Note:  To remove the scan result from the screen before the "Result Time" has expired, point the scanner away from the bar code and press the trigger.*

### Good Scan Beep And Bad Scan Beep

These parameters determine whether or not the hand-held emits an audible scanner 'beep' when a good (successful) scan or a bad (unsuccessful) scan is performed. Set these parameters to either *on* to enable the beeper or *off* to disable it.

### Soft Scan Timeout

This parameter is used by the SDK "Scan" function (soft-scan: starting a scan session via the SDK function, instead of a physical user trigger press). The value assigned to this parameter determines the soft-scan timeout from 1 to 10 sec. (default is 3 sec.).

### Scan Log File

If this parameter is enabled, the input barcode and the modified/translated output bar code are logged in the file \Flash Disk\ScanLog.txt. Keep in mind that if the "Scan Log File" is enabled, there is a slight performance effect when performing multiple scans since the log file is written to persistent storage.

## 5.10.7  Translations Tab

The *Translations* tab allows you to define up to 10 *cases*, each consisting of up to 10 *rules* in sequential order. Only one *case* will be applied to a bar code and a case will only be applied if all *rules* specified in the case are successful – if a *rule* within a *case* fails, the entire *case* fails.
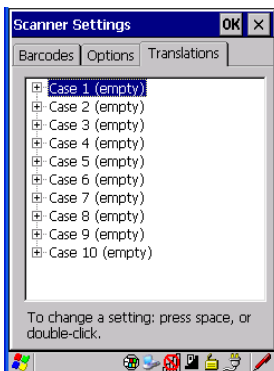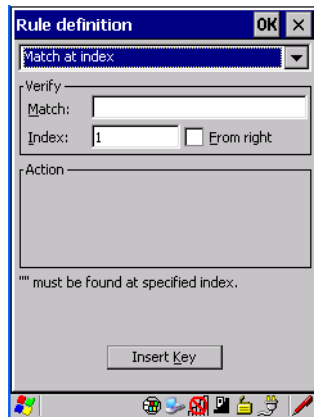


• In the *Translation* tab, tap on the **Case #** to create rules.
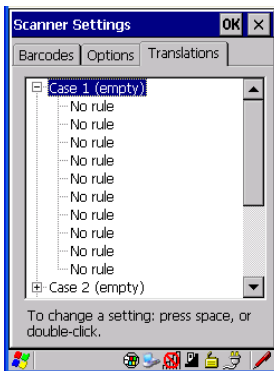
• Tap on the **No rule** dropdown menu to display the rules.
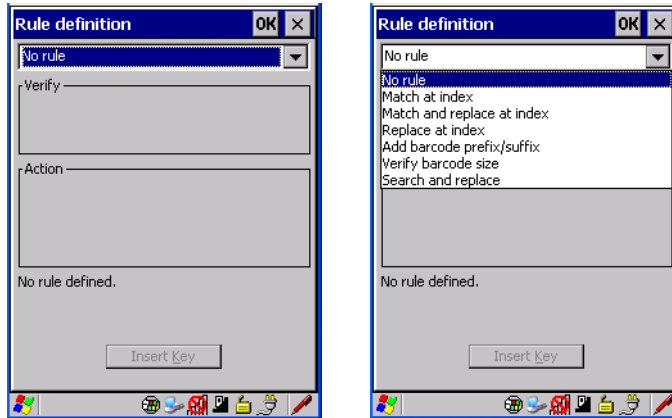


When you choose a rule, an associated screen is displayed in which you can define the rule.



## 5.10.7.1    Case Rules

The case rules are defined as follows:

• No rule – ignored.

• Search and replace – replaces *all* instances of the match string. (Note that this rule cannot fail.)

• Match at index – matches the match string at a specified index.

- Match and replace at index – matches the match string at a specified index and replaces/changes it.
- Replace at index – replaces/changes unspecified data in a given range.
- Add barcode prefix/suffix – adds a global prefix or suffix.
- Verify barcode size – verifies the bar code size. This rule should generally be assigned first, before creating subsequent rules.

*Note: Keep in mind that the effects of previously applied rules must be taken into account when creating subsequent rules. For example, if the bar code size is important, it should be checked before any rules that might change the size are applied.*

Translation information about the status of each case/rule is displayed in the scan log file (see "Scan Log File" on page 201) when enabled. This is useful if a case fails, and you are trying to determine why a rule is failing.

# 6 PERIPHERAL DEVICES & ACCESSORIES

# 6.1  Carrying Accessories

There are a variety of carrying accessories to help the operator work safely and comfortably with the WORKABOUT PRO.

| Carrying Accessory | Model Number |
|---|---|
| Hand Strap | WA6025 for WORKABOUT PRO C<br>WA6125 for WORKABOUT PRO S |
| Pistol Grip | WA6001-G1 |
| Pistol Grip for SX5393 Imager | WA6002-G1 |
| Protective Carrying Case for WORKABOUT PRO C (Model # varies depending on the end-cap installed on hand-held) | WA6091-G2(with a belt clip – works with scanners)<br>WA6094-G2 with GSM or 802.11b/g end-cap<br>WA6095-G2 with 1D Scan or 1D Imager end-cap<br>WA6096-G2 with 2D scan or 1D imager end-cap<br>WA6097-G2 with universal end-cap (case's top open) |
| Protective Carrying Case for WORKABOUT PRO S (Model # varies depending on the type end-cap installed on hand-held) | WA6190-G2 (with a belt clip – works with scanners)<br>WA6194-G2 with GSM or b/g end-cap<br>WA6195-G2 with 1D Scan or 1D Imager end-cap<br>WA6196-G2 with 2D scan or 1D imager end-cap<br>WA6197-G2 with universal end-cap (case's top open) |
| Soft Shell Holster | WA6050 |

Table 6.1  Carrying Accessories

*Important:*   ***Do not use adhesives such as Loctite to secure screws on carrying accessories. These chemicals may damage the plastic casing.***
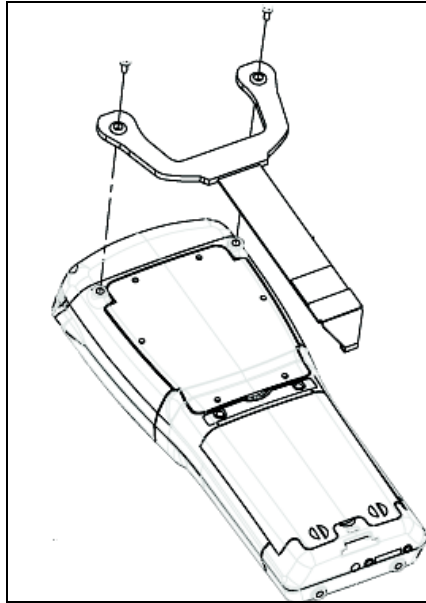
## 6.1.1  Attaching The Hand Strap

The hand strap can be attached to the back of the WORKABOUT PRO to provide a secure means for operators to carry the hand-held.

The hand strap is attached to the back of unit using two Phillips head screws provided with this accessory.

- Use a Phillips screwdriver to attach the strap to the two threaded inserts on the back of the WORKABOUT PRO, near the top of the unit

- Stretch the hand strap toward the base of the WORKABOUT PRO, and hook the bottom of the strap into the slot near the base of the battery pack.
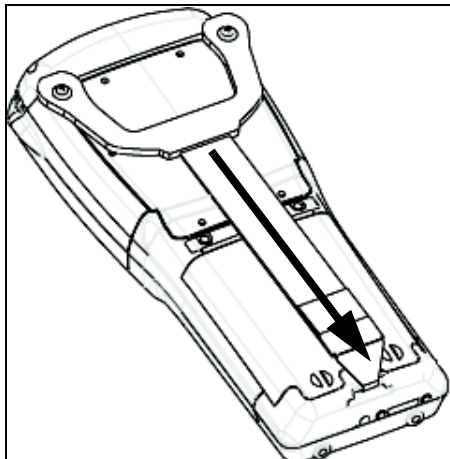
# 6.1.2  Attaching The Pistol Grip

The pistol grip is attached to the four threaded inserts on the back of the WORK-ABOUT PRO. Four Phillips head screws are provided with this accessory.



*Note:*   *Prior to installation, make sure the trigger mechanism is securely snapped into the pistol grip body and that the trigger operates properly.*

• Position the pistol grip so that it fits snugly over the back of the unit and the holes in the pistol grip are aligned with the threaded inserts on the back of the WORKABOUT PRO.

• Tighten the screws to a torque of 3 lbs-in (3kgf-cm) to secure the pistol grip in place.

## 6.1.3  Protective Carrying Case

A carrying case is available for WORKABOUT PROs to shield the unit from damage. It is equipped with a soft plastic window to protect the unit display and keyboard. A variety of cases are available, depending on the type of end-cap attached to your unit.

## 6.1.4  Soft Shell Holster

A soft shell holster with removable belt and swivel holster pad can be used to hang a WORKABOUT PRO with a pistol grip from you waist



Soft Shell Holster

Swivel Holster Pad and Removable Belt

Figure 6.1 Soft Shell Holster

• Insert the belt in the swivel holster pad.
• Attach the pad on either the left or right side of the holster case, depending on whether you are left- or right-handed.

- Fasten the belt comfortably around your waist. Slide the adjustable ring on the belt to tighten the holster in place.
- Connect the safety tether to one of the clips on the bottom of the soft shell holster. Connect the other end to the hole in the end of the WORKABOUT PRO pistol grip. This tether will catch the unit in case of a drop. The tether can be adjusted to the operator's height. The clips will break away in case of a severe force.

# 6.2  The Batteries

The WORKABOUT PRO will operate with any of the following Lithium-Ion battery packs:

- High-Capacity – Model WA3006
- Super High-Capacity – Model WA3010

In addition to the main battery, the hand-held is equipped with a replaceable, rechargeable Lithium-Ion backup battery.

# 6.3  Adaptor Cable Options

The following are adaptors can be ordered for your WORKABOUT G2:

| Model Number | Adaptor Cable Description |
|---|---|
| WA1002 | Tether to USB device. This cable is used to connect USB devices such as USB Flash memory devices. |
| WA4020-G2 | Tether to RS232. This is a full RS232 port on COM2. |
| WA4001-G2 | Tether to USB Client. (For ActiveSync) |
| WA4010-G1 | USB to Ethernet adaptor. |
| WA4015 | USB/RS232 adaptor. This cable is used with docking station WA4003-G2. |

# 6.4  Chargers And Docking Stations

⚠ *Important:* ***Keep in mind when ordering a charger or docking station, you
must also order the appropriate power cord separately.***

Psion Teklogix offers a variety of chargers and docking stations for the WORKABOUT PRO. These include:

- AC Adaptor–Model No. PS1050-G1

- Cigarette Lighter Adaptor–Model No. WA3113-G2
- Single Battery Charger–Model No. WA3001-G1
- Quad Battery Charger–Model No. WA3004-G1
- Desktop Docking Station–Model No. WA4003-G2
- Quad Docking Station For 7527C-G2–Model No. WA4204-G2
- Quad Docking Station For 7527S-G2–Model No. WA4304-G2

# 6.4.1  Installation–Chargers And Docking Stations

When installing a charger or docking station, consider the following guidelines.

- Keep chargers and docking stations away from excessive dirt, dust and contaminants.
- Chargers will not charge batteries outside an ambient temperature range of 0° C to 45 °C (32° F to 113° F). It is recommended that the charger or docking station be operated at room temperature–between 18° C and 25° C (64° F to 77° F) for maximum performance.

After unpacking your unit:

- Visually inspect the charger for possible damage.
- Install the IEC power cord and apply power.

# 6.4.2  Power Consumption Considerations

Check to ensure the mains circuit supplying chargers and/or docking stations is adequate for the load, especially if several chargers and docking stations are being powered from the same circuit.

- Quad charger–can consume up to 2A @ 120VAC or 1A @ 240VAC.
- Quad docking station–can consume up to 3A @ 120VAC or 1.5A @ 240VAC.

# 6.4.3  Operator Controls

WORKABOUT PRO docking stations and chargers have no operator controls or power switches.

# 6.4.4  Important Charger Safety Instructions

- **SAVE THESE INSTRUCTIONS**–This manual contains important safety and operating instructions for battery charger s.

- Before using the battery charger, read all instructions and cautionary markings on (1) battery charger, (2) battery, and (3) product using battery.
- The mains power cord shall comply with national safety regulations of the country where the equipment is to be sold.
- Use of an attachment not recommended or sold by the battery charger manufacturer may result in fire, electric shock, or personal injury.
- To reduce risk of damage to the electric plug and cord when unplugging the charger, pull the plug rather than the cord.
- Make sure the cord is positioned so that it is not stepped on, tripped over, or otherwise subjected to damage or stress.
- Do not operate the charger with a damaged cord or plug. Replace immediately.
- Do not operate the charger if it has received a sharp blow, been dropped, or otherwise damaged in any way; it should be inspected by qualified service personnel.
- Do not disassemble the charger; it should be repaired by qualified service personnel. Incorrect reassembly may result in electric shock or fire.
- To reduce risk of electric shock, unplug the charger from the outlet before attempting any maintenance or cleaning.
- An extension cord should not be used unless absolutely necessary. Use of an improper extension cord could result in fire or electric shock. If an extension cord must be used, make sure:
    - The plug pins on the extension cord are the same number, size, and shape as those on the charger.
    - The extension cord is properly wired and in good electrical condition and that the wire size is larger than 16 AWG.
- Do not expose the charger to rain or snow.
- Do not place batteries in the charger if they are cold from extended exposure to a freezer or outside temperatures below 10°C (50°F). Allow them to warm up to room temperature for at least two hours.
- Do not use the charger if, after an overnight charge, any of the batteries feel warmer than the charger housing. The charger should be inspected by qualified service personnel.
- Do not use the charger if any of the batteries or the charger get more than lukewarm. The equipment should be inspected by qualified personnel.

# 6.5  Desktop Docking Station

The WORKABOUT PRO can be inserted in a desktop docking station, model number WA4003-G2.
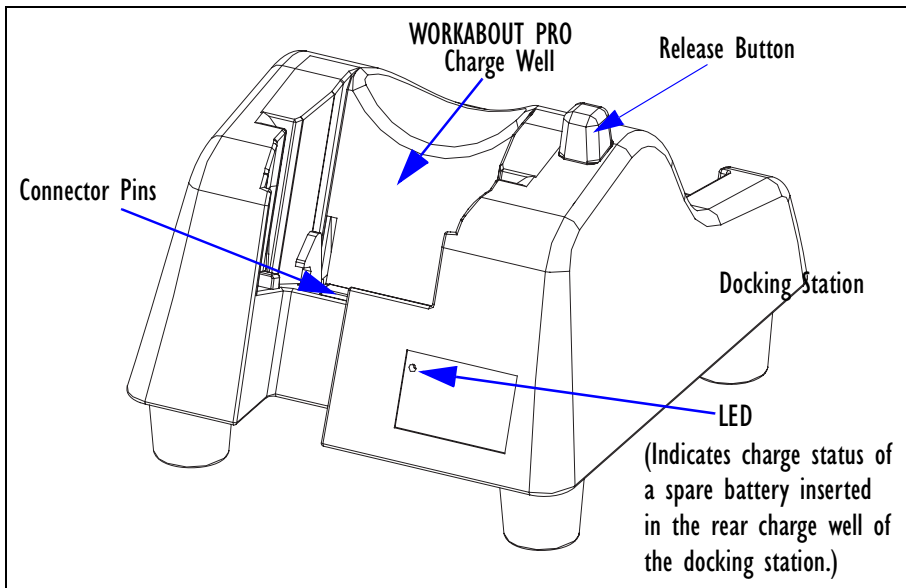


Figure 6.2 Desktop Docking Station

*Note:    The desktop docking charger is shipped with its own user manual. It is critical that it be reviewed for additional information and updates.*

The desktop docking station is designed to charge the battery installed in the WORKABOUT PRO along with a spare battery pack. It is equipped with two USB ports–a Host USB port to connect peripherals such as a printer, keyboard, etc. and a Client USB to connect the docking station to a PC.
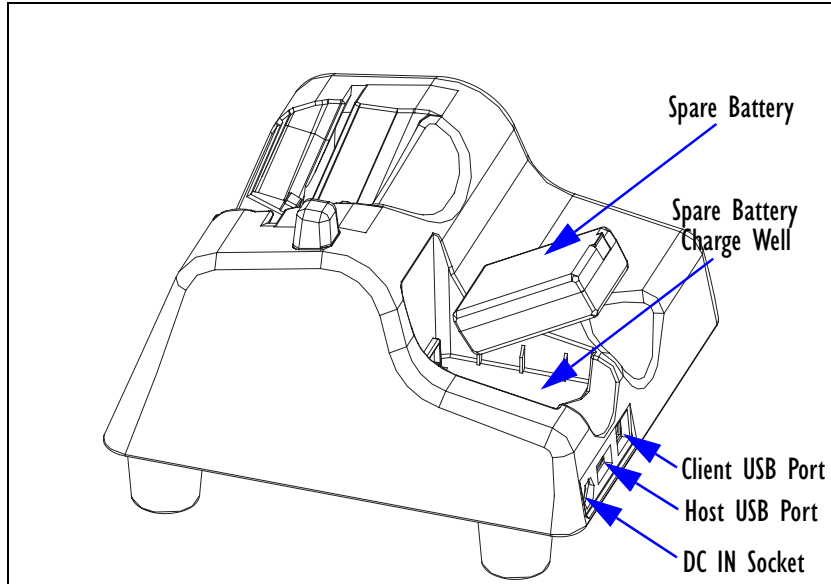
Figure 6.3 Back Of Desktop Docking Station

⚠️ ***Important:*** *This docking station can only be used to charge Psion Teklogix approved Lithium-Ion batteries.*

## 6.5.1  Charging A Battery Installed In The WORKABOUT PRO

- Insert the DC power cable to the DC IN socket on the desktop docking station. Plug the pronged end of the cable into an AC outlet.
- Slide the hand-held into the docking station, making certain that the LIF (Low Insertion Force) port on base of the WORKABOUT is securely seated on the docking station connector pins. An icon is displayed briefly in the *navigation bar* at the top of the hand-held screen indicating that the unit is properly installed in the station– ▣ . This icon is only displayed when the unit is switched on.

The LED on the WORKABOUT PRO lights up indicating that the unit has external power and battery charging will begin. It is safe to leave the unit in the desktop docking station while it is not in use–the battery will not be overcharged.

## 6.5.2  Charging A Spare Battery

• Insert the battery in the spare battery charge well at the back of the docking station, aligning the contacts on the battery with the contacts in the spare battery charge well.

## 6.5.3  Battery Charge Duration

A fully discharged battery can take up to 5 hours to charge. The desktop docking station stops applying power to the battery when it is fully charged—there is no risk of overcharge if the battery remains in the charge well.

## 6.5.4  Charger LED Indicators

The desktop docking station is equipped with a single dual-coloured LED indicator in the lower-right corner of the front panel.

| LED Behaviour | Charge Status |
|---|---|
| Off | No battery detected in the slot. |
| Solid Green | Charge complete. |
| Fast Flashing Green | Battery charged to less than 80% of capacity. |
| Slow Flashing Green | Battery charged to greater than 80% of capacity. |
| Solid Red | Battery temperature outside of charge range– 0° C to 50 °C. |
| Flashing Red | Battery is not charging. Battery fault. |

**Table 6.2  Desktop Battery Charger LED Behaviour**

*Note:*   *Battery charging continues whether the hand-held is switched on or off.*

## 6.5.5  Troubleshooting The Charging Operation Of The Dock

The quad battery charger troubleshooting section beginning on page 224 also applies to the charging behaviour of the desktop docking station.

## 6.5.6  Linking A WORKABOUT PRO To A PC

The desktop docking station can be connected to a PC so that you can exchange files in the same way that you would between PC drives. A USB cable is included with your docking station.

*Note:*   *For information about data transfer with the Windows XP operating system and ActiveSync and with the Vista operating system, refer to "Data*

*Transfer Between The PC & The Hand-Held" on page 20.*

To link the WORKABOUT PRO to a PC:

- Insert the hand-held in the desktop docking station.
- Insert the USB cable into the docking station Client USB connector. Attach the other end of the cable to a USB port on the PC.

# 6.5.7 Linking A WORKABOUT PRO To An Ethernet Network

An USB-Ethernet adaptor cable — model number WA4010-G1 — is used to connect the WORKABOUT PRO to an Ethernet network through a desktop docking station.

- Insert the adaptor's USB connector into the Host USB port on the desktop docking station.
- Connect your network Ethernet cable to the Ethernet port on the adaptor cable.

## 6.5.7.1 Network Access

The hand-held unit automatically detects insertion into the desktop dock and loads the appropriate drivers to communicate with the USB-Ethernet converters.

### Network Addressing

The host application uses standard TCP/IP protocol to name, locate and communicate with a specific WORKABOUT PRO on the network.

If a link is established between a WORKABOUT PRO and a host, the application on the host and on the hand-held must have a recovery mechanism in the event that the WORKABOUT PRO is removed from the dock, interrupting the link.

# 6.5.8 Troubleshooting The Docking Station Operations

The indicators, applications and drivers required to use and monitor the desktop docking station as a *dock* (as opposed to a charger) are installed on the WORKABOUT PRO—no applications are present on the docking station itself.

# 6.6 AC Wall Adaptor— Model #PS1050-G1

The AC wall adaptor available for your WORKABOUT PRO allows you to operate your hand-held using AC power while charging the battery inserted in the unit.

Adaptor plugs suitable for use in the following countries are shipped with the AC wall adaptor: United Kingdom, Australia, Europe and North America.
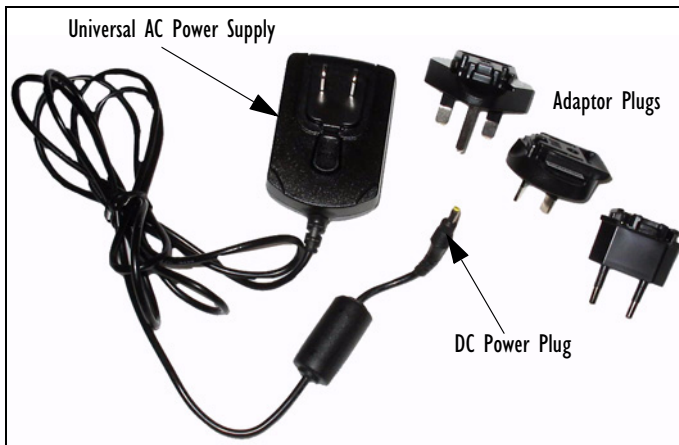


- Choose the adaptor plug that is suitable for use in your country. Slide the adaptor plug into the Universal AC power supply, snapping it into place. These two pieces, coupled together, are referred to as an AC wall adaptor.
- Insert the DC power plug into the DC IN socket at the base of WORK-ABOUT PRO, located between the tether and LIF ports.
- Plug the pronged end into an AC outlet.

# 6.7  Cigarette Lighter Adaptor–Model #WA3113-G2

*Important:* ***It is critical that you review the safety instructions outlined in the quick start guide enclosed with your cigarette lighter adaptor before using the accessory.***

The cigarette lighter adaptor allows you to power your hand-held and recharge your battery using power drawn from your vehicle's cigarette lighter outlet.
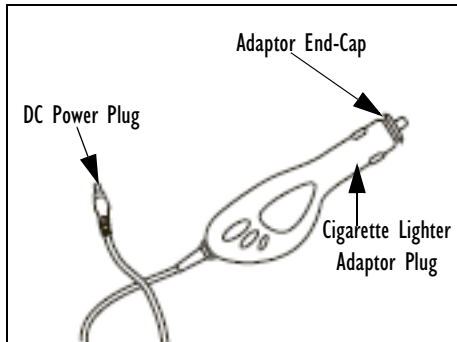


Adaptor End-Cap

DC Power Plug

Cigarette Lighter
Adaptor Plug

Figure 6.4 Cigarette Lighter Adaptor

• Unscrew the adaptor end-cap, and remove the fuse inside the adaptor.
• Replace it with the fuse provided with your kit, and screw the adaptor end-cap back into position.
• Insert the DC power plug into the DC IN socket at the base of the WORK-ABOUT PRO.
• Insert the cigarette lighter adaptor plug into cigarette lighter outlet in your vehicle.

# 6.8 Single Battery Charger–Model #WA3001-G1



The single battery charger is designed to charge a single battery. It has a DC IN socket and is equipped with one LED that indicates the status of the charge process.

## 6.8.1   Inserting A Battery In The Single Battery Charger

- Insert the DC power plug into the charger. Plug the pronged end of the power cable into an AC outlet.
- Install the battery, aligning the contacts on the battery with the contacts in the battery charge well.

## 6.8.2   Battery Charge Duration

It can take up to 4 hours to fully charge a battery. The single battery charger stops applying power to the battery when it is fully charged—there is no risk of overcharge if the battery remains in the charge well. The 75% charge indicator is handy if you need a quick recharge—a quick charge often takes less than one hour.

## 6.8.3   Charge Indicators—The LED

The LED on the top of the charger indicates battery charge progress.

| LED Behaviour | Charge Status |
|---|---|
| Off | No battery detected in the charge well. |
| Solid green | Battery is fully charged. |
| Fast flashing green | Battery is charged to 75% of capacity. |
| Slow flashing green | Charge in progress. |
| Solid red | Battery is outside ambient temperature range of 0° C to 45 °C (32° F to 113° F). |
| Flashing red | Charge alarm indicating a charging circuit problem. Refer to "Troubleshooting" on page 224 for details. |
| Flashing red then green in a 3 second cycle | Power up test sequence. |

**Table 6.3   Single Battery LED Behaviour**

*Note:*   *Battery charging continues whether the hand-held is switched on or off.*

# 6.9  Quad Battery Charger–Model #WA3004-G1
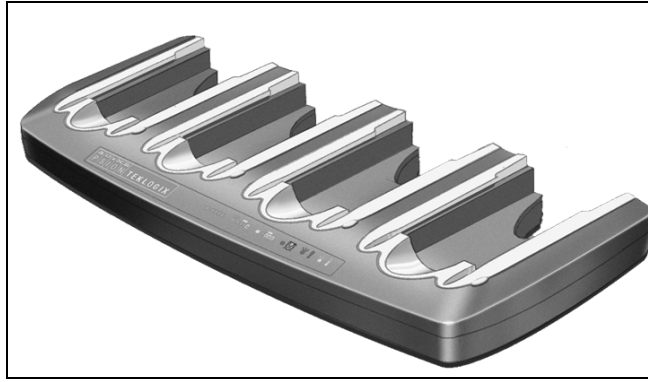


The quad battery charger is designed to charge up to four Lithium Ion batteries at one time.

📖 *Note:    The gang charger is shipped with a user manual. It is critical that this manual be reviewed for additional information and updates.*

## 6.9.1  Charging Batteries

• Slide the battery into a charge well, aligning the contacts on the battery with the contacts in the charge well.

## 6.9.2  Battery Charge Duration

A fully discharged battery can take up to 4 hours to charge. The quad battery charger stops applying power to the battery when it is fully charged—there is no risk of overcharge if the battery remains in the charge well. The 75% charge indicator is handy if you need a quick recharge—a quick charge often takes less than one hour.

## 6.9.3  Charge Indicators–The LEDs

Each battery charge well is equipped with an LED to indicate the charge status of the battery. When a battery is inserted in the charger, the colour and behaviour of the LED associated with the charge well in use indicates the status of the charge. Refer to Table 6.3 on page 222 for details.

## 6.9.4  Troubleshooting

### 6.9.4.1    Excessive Charge Duration

The charger is equipped with a recalibration function—a function that fully discharges and then fully recharges the battery. This process is necessary to recalibrate the battery capacity gauge internal to the battery. The charger attempts recalibration when:

- the battery capacity is at less than 30%, and
- the battery has undergone more than 40 partial charge cycles since the last full discharge.

The recalibration function extends the charge time by up to 2 hours.

### 6.9.4.2    Indicator Flashing Red

If the indicator flashes red:

- Remove all batteries and disconnect the mains power cable.
- Wait at least 20 seconds, and then plug the cable in again.

If any of the charge well LEDs continue to flash red, the charger is defective and requires service. If all indicators are flashing red, there is a power supply problem and the charger requires service.

### 6.9.4.3    Power LED Does Not Light Up

- Remove all batteries, and unplug the charger.
- Connect another device to the mains outlet to ensure there is power.
- Remove the IEC mains power cable from the charger, and check it for damage.
- Reconnect the mains cable in the charger and mains outlet.

If the power LED still does not light up:

- Unplug the mains cable, and check the fuse at the rear of the charger.

If the fuse appears to be intact, the charger requires service.

### 6.9.4.4    Indicator Does Not Light When Battery Installed

- Remove the battery, and clean the contacts on the battery and the charge well.
- Reinstall the battery, and check that it is fully seated in the charger well.
- Inspect the charge well contacts for damage (are they bent, flattened, twisted or broken).

- Try inserting a battery that you know to be working in the charger well.
- Reconnect the mains power cable, and check that the charger well indicator flashes at powerup.

## 6.10  Quad Docking Station—WA4204-G2 & WA4304-G2



📖 *Note:* *WA4204-G2 is designed for WORKABOUT PRO C models; WA4304-G2 is designed for WORKABOUT PRO S models.*

*The quad docking station is shipped with a docking manual. It is critical that this manual be reviewed for additional information and updates.*

The quad docking station permits each of four docked WORKABOUT PROs to communicate with a 10/100 BaseT Ethernet network at greater than 2Mbps. It also provides sufficient power to operate and fast charge the batteries in the units.

## 6.10.1  Quad Docking Station Setup

After unpacking the unit:

- Visually inspect the unit for any damage.
- Install the IEC power cord and apply power.

A green indicator in the lower-right corner of the front panel lights up to indicate that power is present.

- Attach a CAT5 RJ45 network patch cable (supplied) between your network and the RJ45 jack on the rear of the dock.

A green LED is illuminated next to the RJ45 connector when a valid network link is established.

A user application must be loaded onto each WORKABOUT PRO that utilizes the quad dock for communication. When the network is connected and this application is loaded, the quad dock is ready for use.

# 6.10.2  Quad Indicators

The quad dock is equipped with a power indicator LED and RJ45 link and traffic indicator LEDs. When a valid network link is established, a green LED is illuminated next to the RJ45 connector.

# 6.10.3  Inserting A WORKABOUT In The Quad Docking Station

•  Slide the WORKABOUT PRO into the cradle portion of the quad dock until lightly latched.

The hand-held detects that it is in a quad dock and momentarily displays the appropriate icon in the navigation bar at the top of the screen—  . The LED on the hand-held unit lights up to show it has external power and may start charging the battery.

Interaction with the WORKABOUT PRO while in the quad dock is a function of the user application software used to communicate with the host network.

# 6.10.4  Network Access

The quad docking station has one 10/100 Ethernet port. You can insert up to four hand-held units. The hand-helds are connected to an internal USB hub. The hand-held unit automatically detects insertion into a quad docking station and loads the appropriate drivers to communicate with the USB/Ethernet converters.

# 6.10.4.1  Network Addressing

Although the USB converters have fixed Ethernet MAC addresses, there is generally no correlation between these addresses and a specific hand-held. The host application uses standard TCP/IP protocol to name, locate and communicate with a specific WORKABOUT PRO on the network.

If a link is established between a WORKABOUT PRO and a host, the application on the host and on the hand-held must have a recovery mechanism in the event that the WORKABOUT PRO is removed from the dock and the link is interrupted.

## 6.10.5  Battery Charging–LED Behaviour

The quad docking station supplies DC power to enable the WORKABOUT PRO internal fast charger. Charge status is displayed on the hand-held LED–the LED turns red while the battery is being charged and turns green once the charge is complete. If the battery is fully charged when the unit is inserted in the docking station, the LED flashes red for less than a second and then turns green. Battery charging continues whether the WORKABOUT PRO is switched on or off.

It can take up to 4 hours to fully charge the internal battery.

## 6.10.6  Troubleshooting

The indicators, applications and drivers required to use and monitor the docking station are installed on the WORKABOUT PRO–no indicators or applications are present on the docking station itself.

### 6.10.6.1  Network Link Unsuccessful

If a network link fails, the WORKABOUT PRO application alerts the operator that the link was unsuccessful.

### 6.10.6.2  Hand-Held LED Does Not Light When Docked

- Check that the quad docking station has power–is the Power LED on the docking station illuminated?
- Try inserting the WORKABOUT PRO in another well in the quad dock.
- Check for dirt or contamination on the docking contacts at the bottom of the WORKABOUT PRO. Wipe the contacts with a damp cloth if necessary.
- Check the pogo pins inside the dock cradle for dirt. Gently wipe with a damp cloth if they appear to be dirty or discoloured.
- Check that the pogo pins are not bent or damaged.
- Remove and reinsert the WORKABOUT PRO in the cradle, and check that the latch is holding the unit in place (the pogo pins must be compressed for proper contact).
- Make certain that the battery installed in the WORKABOUT PRO is not defective.

# 6.11  The Vehicle Cradle

The vehicle cradle is a highly ruggedized, single station dock. Although it provides quick insertion and removal, the cradle holds the WORKABOUT PRO securely even when operated in high vibration environments.

*Note:*  *Shock and vibration specifications for the WORKABOUT PRO are veri-fied using Psion Teklogix-approved RAM mounts and mounting hardware. Use of non-certified Psion Teklogix mounting hardware is not recom-mended, and may void warranty coverage.*

The model number for vehicle cradles varies depending on the type of hand-held:

- • WORKABOUT PRO C – Model # WA1210-G2
- • WORKABOUT PRO S – Model # WA1310-G2

A port replicator option is available for powered vehicle cradles. Refer to "The Port Replicator" on page 232 for details.

## 6.11.1  Vehicle Cradle Mounting Recommendations

*Warning:*  *Before mounting a vehicle cradle in a vehicle, there are a number of operator safety issues that require careful attention. An improp-erly mounted cradle may result in one or more of the following: operator injury, operator visibility obstruction, operator distraction and/or poor ease of egress for the operator. Psion Teklogix strongly recommends that you seek professional mounting advice from the vehicle manufacturer.*

*Cable routing within a vehicle cab also requires careful consider-ation, especially for separately tethered scanners and other devices with loose cables. If you are unable to obtain suitable advice, contact Psion Teklogix for assistance (see* Appendix A: Support Ser-vices And Worldwide Offices*). Note also that for better protection, the equipment should be mounted inside the vehicle roll cage.*

Pedestal mounts are recommended for all fixed mount locations because they offer optimal operator access. In addition, for safety reasons, only pedestal mounts with fully locking joints should be used in vehicles. Always adjust the pedestal for the optimum viewing angle, and securely tighten the hex and wing screws.

The most effective way to mount the vehicle cradle is to use the four #8-32 threaded inserts on the rear of the unit. Bolts must not extend more than 10mm (3/8") into the cradle.

To accommodate the service loop of the connector cable, leave a 4" clearance at the bottom of the cradle. Leave a 7" (minimum) clearance at the top of the cradle to allow easy removal of the hand-held. Also remember to leave at least a 3" clearance at the sides of the cradle to allow activation of the release knobs. Refer to the detailed assembly instructions that are packaged with the cradle when selecting a mounting location.

### 6.11.1.1    Mounting Template

The vehicle cradle is shipped with detailed mounting instructions including a drill template.

## 6.11.2   Wiring Guidelines

Before installing cables between the cradle and other devices, review the following:

- Ensure that drilling holes will not damage the vehicle or its wiring.
- Protect cable runs from pinching, overheating and physical damage.
- Use grommets to protect cables that pass through metal.
- Use plastic straps and tie-downs to secure cables and connectors in their desired location, away from areas where they may get snagged or pulled.
- Keep cables away from heat sources, grease, battery acid and other potential hazards.
- Keep cables away from control pedals and other moving parts that may damage the cables or interfere with the operation of the vehicle.

## 6.11.3   Using The Vehicle Cradle

If your WORKABOUT PRO is equipped with a shoulder strap or cover, these accessories need to be removed before installing the unit in a vehicle cradle. There is no need to remove handstraps, pistol grips or tethered devices from the unit.

- Slide the WORKABOUT PRO into the cradle, and press firmly downward until it locks into place. On a vehicle, it's a good idea to pull up on the WORKABOUT PRO to be certain that it is secure.
- To remove the unit, press firmly on the RELEASE button on the front face of the unit until it releases from it latch. The hand-held will be slightly raised so that it can be removed.

## 6.11.4  Maintaining The Vehicle Cradle

Two latches in the cradle hold the WORKABOUT PRO firmly in place. Although these latches are designed for robustness and endurance, they will wear over time and will no longer lock the hand-held securely in the cradle. For replacement parts and instructions contact Psion Teklogix. Partial disassembly is required.

## 6.11.5  Powered Cradle Installation In High Voltage Vehicles

*Warning:*   ***Voltages exceeding 60VDC are considered hazardous. For powered cradle installations on vehicles with batteries above this voltage, ensure the powered cradle power connector is mounted in a dry location on the vehicle, or that the connector is insulated with an appropriate waterproof material after installation. The connector must also be installed out of the vehicle operator's reach. Exposing an accessible power connector to water or other liquids could create a hazardous situation resulting in serious injury or death.***

Installation of powered cradles in vehicles that operate above 60VDC require special consideration.

Due to the hazardous voltages present on these vehicles, it is necessary to ensure that the powered cradle power supply cable connector is not accessible to the vehicle operator, and does not get exposed to water or other liquids. This can be accomplished in one of the following ways:

- Ensure the power connector is installed in a dry location on the vehicle, away from the vehicle operator's reach (perhaps under a vehicle dash or in a sealed housing).
- Cover the power connector with a waterproof heat shrink material.
- Wrap the connector securely with a waterproof electrical tape in an area out of the vehicle operators reach.

All other installation requirements outlined in this document should also be followed for High Voltage vehicles to insure safe installation and operation of the powered cradle.

## 6.11.6  Powered Vehicle Cradle Installation

The powered cradle is designed to allow the WORKABOUT PRO to be powered by a vehicle battery. The battery installed in the hand-held is also recharged by the vehicle battery. This option accepts DC power sources ranging from 9 to 20V, with optional pre-regulator.

The vehicle cradle can be ordered with the powered cradle option installed.

*Warning:* ***Applying a voltage greater than that specified or reversing or
reversing polarity may result in permanent damage to the cradle
power option and will void the product warranty.***

## 6.11.6.1    Wiring Vehicle Power To The Cradle

A 1.8 meter (6 foot) extension power cable (PN 13985) is supplied with your
powered vehicle cradle.   This cable should be wired to a filtered, fused (maximum
10A) accessory supply on the vehicle.   The power cradle draws no more than 8A
(less if the accessory supply is greater than 12V). Any additional wiring, connectors
or disconnects used should be rated for at least 10A.

The red lead of the power cable attaches to the positive vehicle supply. The black
lead connects to the negative supply—this should be connected to a proper terminal
block and not to the vehicle body. The power cradle is fully isolated and can be used
with both negative and positive chassis vehicles.

You may have the option of connecting power before or after the 'key' switch. It is
preferable to wire the power cradle *after* the key switch—that is, it cannot be turned
on without the key on. However, if the operator switches the key off repeatedly for
long periods during a shift, it may make more sense to wire the cradle *before* the
switch.

Keep in mind that the WORKABOUT PRO will continue to operate with or without
vehicle power as long as its battery has sufficient charge.

If an unfused power source must be used, a fuse assembly (PN 19440) must be
added to the extension power cable (the fuse and instructions are supplied with the
cable). Use only a 10A slow blow UL approved fuse in the fuse assembly.

## 6.11.7  The Port Replicator



The port replicator (Model# WA4005-G1) is an optional accessory that allows tethered devices as well as mounted peripherals (e.g., bar code printers or weigh scales) to be attached to the vehicle cradle. The replicator can be used with or without the cradle power option.

The functionality of the WORKABOUT PRO tether port is replicated into RS-232 serial interfaces by the port replicator. It provides the user with 3 DB9 serial interfaces as well as one Type B USB port (for connecting a Host device).

# 6.12  Scanners And Imagers

The WORKABOUT PRO supports a wide range of scanner/imager options to address a variety of user application requirements. The scanner/imager installed in your unit can be configured using the *Scanner Settings* dialog box in the *Control Panel (see page 134) and the Manage Triggers application (see* page 104).

Scanner/imagers available for your hand-held include:

| Scan Engine | Kit Model Number |
|---|---|
| 1D Laser SE955 | WA9102-G1<br>WA9112-G1<br>WA9002-G1 |
| 1D Laser SE1223HP | WA9000-G1 |
| 1D Laser SE1223LR | WA9005-G1 |
| 1D Laser SE1223ALR | WA9006 |
| 1D Imager EV15 | WA9103-G1<br>WA9113-G1<br>WA9003-G1 |

| 2D Imager SX5393 | WA9010 WA9007-G1 |
|---|---|
| 2D Imager HHP 5180 | WA8010-G1 WA8110-G1 WA9012-G1 |

It is critical that you review the safety information in the *WORKABOUT PRO Hand-Held Computer Regulatory & Warranty Guide*, PN 8000126 before proceeding.

## 6.12.1  Scanning Techniques

- Hold the scanner at an angle. Do not hold it perpendicular to the bar code.
- Do *not* hold the scanner directly over the bar code. In this position, light can reflect back into the scanner's exit window and prevent a successful decode.
- Scan the entire bar code. If you are using a 1D or PDF laser scanner, make certain that the scan beam crosses every bar and space on the bar code, including the margins on either end of the symbol.
- If you are using a 2D imaging scanner, make certain the red, oval shaped framing mark is centered within the bar code you want to scan.
- When using imaging scanners, do not move the scanner while decoding the bar code. Movement blurs the image.
- Hold the scanner farther away for larger bar codes.
- Hold the scanner closer for bar codes with bars that are close together.

A bar code icon appears on the screen during a scan. While the scanner beam is active, the onscreen message states: SCANNING. If you want to turn off the onscreen message, disable "Scan Indication" in the *Options* tab of the *Scanner Settings* menu in the Control Panel

When the scan is successful, the bar code data is displayed on the screen until the scan button (or pistol trigger) is released, but only if "Scan Result" is turned on in the *Options* tab of the *Scanner Settings* menu in the Control Panel.

## 6.12.2  Troubleshooting

If the scanner is not working, investigate the following:

- Is the unit on?
- Check that the bar code symbology being scanned is enabled for the hand-held you are using. Check any other parameters that affect the scanning pro-

cedure or the bar code.

- Check the bar code to make sure it is not damaged. Try scanning a different bar code to verify that the problem is not with the bar code.

- Check that the bar code is within the proper range.

- Does the hand-held display the warning without scanning? This suggests a hardware problem in the hand-held.

- Is the laser beam scanning across the bar code?

- Once the scan beam has stopped, check the scanner window for dirt or fogging.

## 6.12.3  Operating One Dimensional (1D) Laser Scanners

- Turn the hand-held on. Wait until the unit has booted up completely.

*Important:*   ***If an aiming dot is available on the installed scanner, the dot will be enabled for a configurable time period (including off), after which normal scanning begins. Refer to "Dot Time (msec)" on page 137 for details.***

***Double-clicking the trigger will override the aiming delay and initiate an immediate scan. Note that the aiming dot is standard on long-range and high visibility internal scanners.***

- Aim at the bar code and press the scan key or the trigger. A scan beam and a warning indicator appear until a successful decode is achieved or six seconds have elapsed.

## 6.12.4  Operating Internal PDF Laser Scanners

This scanner decodes PDF417 two-dimensional bar codes.

- Turn the hand-held on. Wait until the unit has booted up completely.

- Aim at the bar code and press the scan key or the trigger. The beam expands into a rectangle covering the bar code to properly scan it. The scan beam and a warning indicator are visible until a successful decode is achieved or three seconds have elapsed.

## 6.12.5  Operating Two Dimensional (2D) Imagers

An imager takes a snap shot of a single bar code or multiple bar codes (at one time). It can find a bar code regardless of its orientation—that is, even a bar code printed at a 45 degree angle to the hand-held will be decoded successfully.

*Note: When scanning **multiple** bar codes, ensure that all of the desired bar codes are within the field of view of the scanner. It is possible that even when all bar codes are within the field of view, not all of them will be decoded. Only successfully decoded bar codes are passed to the application program. The application program then issues a warning, asking that you scan the missing bar codes.*

*When scanning a **single** bar code, ensure that only the desired bar code is within the field of view of the scanner.*

Because imagers generally have a shorter depth of field than laser scanners, some practise may be required to find the optimal distance from the types of bar codes being scanned. Although the imager includes illumination LEDs, ambient light will help the imager decode the bar codes, especially if the bar code is far from the hand-held.

*Important: **Keep in mind that the imager scanner is a camera, and the LED illumination is a flash. Glare can be an issue on reflective media such as plastic coated bar codes, just as glare is an issue for photographers. When pointing at a shiny surface, either shift the bar code to the side or top, or angle the bar code so that the glare reflects away from the imager scanner.***

***Most imagers take several 'snap shots' of the bar code in order to decode it. It is normal for the LEDs to flash two or three times. Hold the unit steady between flashes to improve decode performance.***

• Turn the hand-held computer on. Wait until the unit has booted up completely.

• Aim at the bar code and press the scan key or the trigger. Hold the trigger until a successful or failed scan result is obtained.

• When the scan button or trigger is pressed, a red, oval shaped light (the framing marker) is displayed. Centre the framing marker in the field—either in the centre of the bar code you want to scan or in the centre of the area in which multiple bar codes are to be scanned.

The illumination LEDs will flash (typically several times) and a picture of the bar code(s) is taken.

# 6.13   Bluetooth Peripherals

The WORKABOUT PRO is equipped with a *Bluetooth* radio, making it is possible to communicate with a variety of *Bluetooth* peripherals, including GSM/GPRS handsets, scanners, printers, and so on.

The range of the *Bluetooth* radio is limited to approximately 5 meters.

Psion Teklogix provides built-in support for the *Bluetooth* peripherals listed below.

- GSM/GPRS universal handset
- *Bluetooth* printer
- *Bluetooth* headset

Keep in mind that *Bluetooth* and IEEE 802.11b/g radios both operate in the 2.4GHz band. Although the WORKABOUT PRO includes features to minimize interference, performance of the system will not be optimal if you use both radios simultaneously. Typically, when both radios operate in the hand-held at the same time, they cannot transmit simultaneously—this has a negative impact on overall system throughput. To minimize the impact on the backbone 802.11g network, Psion Teklogix recommends using Bluetooth peripherals that have low transaction rates (such as printers and scanners).

Refer to "Bluetooth Setup" on page 109 for information about setting up your *Bluetooth* devices for communication. In addition, review the manual shipped with your *Bluetooth* device to determine the method used to pair with the WORKABOUT PRO host.

# SPECIFICATIONS 7

*Note:* ***Performance specifications are nominal & subject to change without notice.***

# 7.1 WORKABOUT PRO Specifications

## Model Variants
- WORKABOUT PRO C – Model 7527C-G2
- WORKABOUT PRO S – Model 7527S-G2

## Platform
- PXA270 @ 520 MHz, 32 bit RISC CPU
- 128 MB flash, 128 MB RAM

## Operating System
- Microsoft® Windows® CE 5.0

## Wireless Communication
Optional expansion modules for:
- 802.11b/g (via Compact Flash) operating in the 2.4GHz band:
    - Supports IEEE 802.11b data rates of 1,2,5.5 and 11Mbps using Direct Sequence Spread Spectrum (DSSS).
    - Supports IEEE 802.11g data rates of 6,9,12,24,36,48 and 54Mbps,using Orthogonal Frequency Division Multiplexing (OFDM) base band modulation
- GSM/GPRS EDGE (via expansion interface)
    - Quad-Band – 850/900/1800/1900
    - Voice and Data
    - GPRS Class B, Multi-Slot Class 12
    - EGPRS Class B,Multi-Slot Class 12
- Integrated Bluetooth class II, ver 1.2
    - Working Range:16.4 ft.to 32.81 ft. (5m to 10m)

*Note:* *802.11b/g, GSM, and Bluetooth are available simultaneously.*

## Bar Code Applications

- Optional 1D imager expansion module
- Optional 2D imager expansion module
- Optional 1D SE955 laser scanner expansion module
- Optional 1D SE1223 High Performance laser scanner expansion module
- Optional bolt-on pistol grip

*Note: All are user upgradeable*

## RFID Modules

- HF Module
    - Frequency: 13.56 MHz
    - Tags supported: ISO 15693, Philips ICode™; TI TagiIt™; Tagsys (C210,C220,C240,C270)
    - Read/write range up to: 3.15 in.(80 mm)
- MIFARE module
    - Frequency: 13.56 MHz
    - Tags supported: ISO 14443 A&B, Mifare
    - Read/write range up to: 1.97 in.(50 mm)
- LF module
    - Frequency: 125 KHz, 134.2 KHz
    - Tags supported: EM 4x0x, EM 4x50; Hitag 1 & 2; ISO HDXA & FDXB
    - Read/write range up to: 2.756 in.(70 mm)
- UHF module
    - Frequency: 868 MHz or 915 MHz
    - Read range: up to 4.92 ft.(150 cm) [915MHz] and up to 2.62 ft.(80 cm) [868 MHz]
    - Tag supported: EPC Class 1 Gen 2, other protocols depending on regions

## User Interface

- Color Touch Screen Display 3.6 in.(9.144 cm) diagonal
    - Full VGA 480x640 resolution
    - Transflective, portrait mode TFT
    - Adjustable Backlight

- Sunlight readable (for outdoor use)
        - High reliability LED backlight
        - Easily replaceable and customizable bezel
    • Touchscreen
        - Passive stylus or finger operation
        - Signature capture
    • Keyboards
        - Full Alpha-Numeric (C model)
        - Numeric (S model)
        - Ergonomically enhanced for ambidextrous, one-hand operation
        - Backlit, high durability hard-capped keys
    • Indicators And Controls
        - LED indicates battery charge status

## Programming Environment
    • Psion Teklogix Mobile Devices SDK
    • Hardware Development Kit (HDK)
    • .NET and C++ programming using Microsoft® Visual Studio® 2005
    • Java programming supporting JDK 1.2.2 or higher
    • Standard Protocol APIs
        - Windows sockets (CE .net)

## Application Software
    • Internet Explorer 6.0 incl.with Windows CE 5.0
    • Unique Psion Teklogix Voice Dialer and Contacts Manager incl.Windows CE 5.0
    • PTX Connect VoIP
    • Optional Open TekTerm terminal emulation software, supports IBM 5250,IBM 3270, HP2392, ANSI and TESS
    • Mobile Control Center (MCC) device management

## Expansion Slots
- One SD/MMC memory card slot – user accessible
- End-cap USB Interface supports GPS expansion module
- 100-PIN expansion interface: supports PCMCIA (type II),GSM/GPRS EDGE and other third-party expansion modules developed using Psion Teklogix WORKABOUT PRO Hardware Developer's Kit
- Flex cable interface with robust connector: supports scanner (serial) and imager (USB) modules
- One Type II CF Card Slot

## External Connectors
- One Tether connection with full RS232 and USB 1.1 functionality
- One Low-Insertion Force (LIF) docking connector
- DC Power Jack

## Power Management
- Optional 3.7V, 3000 mAh High Capacity Battery Pack
- Optional 3.7V, 4000 mAh Super High Capacity Battery Pack
- Advanced Smart Battery with gas gauge
- 3 power source options: Runs off battery, AC power, or automotive power supplies
- Built-in charger
- Rechargeable, user replaceable backup battery pack

## Environmental
- Withstands 26 drops (on 12 edges,8 corners, 6 faces) at 5 ft.(1.5 meters) to polished concrete while powered on and configured with accessories such as CF radio, scanner/imager, and pistol grip
- Rain/Dust: IP65,IEC 60529
- Operating Temperature: 14°F to 122°F (-10°C to +50°C)
- 5%-95% RH non-condensing
- Storage Temperature: -40°F to 140°F (-40°C to +60°C)

## Physical Dimensions And Weight
- WORKABOUT PRO C:
  - 8.775 in. x 2.95/3.94 in. x 1.22/1.65 in. (223 mm x 75/100 mm x 31/42 mm)
- WORKABOUT PRO S:
  - 7.87 in. x 2.95/3.94 in. x 1.22/1.65 in. (200 mm x 75/100 mm x 31/42 mm)
- Weight (w/o battery pack):
  - WORKABOUT PRO C:1 lbs (455 g)
  - WORKABOUT PRO S:.859 lbs (390 g)

## Power Accessories
- AC power supply (charge & operate hand-held)
- Automotive power supply (charge & operate hand-held)
- Single and Quad slot battery pack chargers
- Powered cradle for vehicle mount applications

## Communication Accessories
- Quad Dock (4-site) with 10/100 BaseT Ethernet and charge functions
- Desktop Docking Station (charges hand-held & spare battery) provides USB1.1 host and device ports and supports optional plug-on expansion modules supporting 10/100 BaseT Ethernet or RS232 connections
- USB cable supports Active Sync without requiring a docking station
- Optional End-Caps supporting RS232, TTL, and IrDA

## Carrying Accessories
- Hand-strap, pistol grip with trigger, holster and various protective carrying cases and pouches

## Approvals
- Safety:
  - CSA/UL60950-1, IEC 60950-1, EN60950-1
- EMC:
  - FCC Part 15 Class B
  - EN 55022
  - EN 55024

- EN 301 489
- Laser:
  - IEC 60825-1, Class 2
  - FDA 21 CFR 1040.10.
  - 1040.11 Class II
- Bluetooth: 1.2
- RF:
  - Bluetooth and 802.11b/g: EN300 328, Part 15.247
  - GSM/GPRS: EN301 511; EN50360/361, NAPRD03; 3GPP51.010;
    FCC Parts 22 & 24; Industry Canada; RSS-132 & 133
- In-Vehicle Cradle: e Mark

# 7.2  Radio Specifications

## Model RA2041: 802.11b/g Direct Sequence Spread Spectrum (DSSS)

| | |
|---|---|
| Form factor | Compact Flash Type I extended |
| Antenna port | Two Hirose U.FL connectors for antenna diversity |
| Transmit Power | 802.11g: 32mW maximum (+15 dBm) |
| | 802.11b: 80mW maximum (+19 dBm) |
| Frequency Range | 2.400 - 2.4897 GHz |
| Channels | FCC:    11 |
| | ETSI:   13 |
| | TELEC: 13 |
| RX Sensitivity | -96dBm @ 1Mbps, -90dBm @ 11Mbps, |
| | -94dBm @ 6Mbps, -75dBm @ 54Mbps |
| Data Rates | 802.11g: 6, 9, 12, 18, 24, 36, 48, 54Mbps |
| | 802.11b: 1, 2, 5.5, 11 Mbps |

## Model RA3030-G2- GSM/GPRS/EDGE Radio

Quad-Band GSM 850/900/1800/1900 MHz
EDGE (E-GPRS) multi-slot class 10
GPRS multi-slot class 12
GSM release 99

| | |
|---|---|
| Output power: | - Class 4 (2 W) for EGSM850 |
| | - Class 4 (2 W) for EGSM900 |

          - Class 1 (1 W) for GSM1800

          - Class 1 (1 W) for GSM1900

Control via AT commands
(Hayes 3GPP TS 27.007 and 27.005)
SIM Application Toolkit (release 99)
TCP/IP stack access via AT commands

| | |
|---|---|
| Internet Services: | TCP, UDP, HTTP, FTP, SMTP, POP3 |
| Supply voltage range: | 3.2 to 4.3 V |

**Specifications for:**

| | |
|---|---|
| EDGE data transmission: | EDGE class 10: max 236.8 kbps (downlink) |
| | Mobile station class B |
| | Modulation and coding scheme MCS 1-9 |
| GPRS data transmission: | GPRS class 12 |
| | Mobile station class B |
| | PBCCH support |
| | Coding schemes CS 1-4 |
| CSD data transmission: | Up to 14.4 kbps |
| | V.110 |
| | Non-transparent mode |
| | USSD support |
| SMS: | Point-to-point MO and MT |
| | SMS cell broadcast |
| | Text and PDU mode |
| Fax: | Group 3, class 1 |
| Voice: | Triple-rate codec for HR, FR, and EFR |
| | Adaptive multi-rate AMR |
| | Basic hands-free operation |
| | Echo cancellation |
| | Noise reduction |
| Interfaces: | Hirose U.FL-R-SMT 50 ohm antenna connector |
| | Antenna solder pad |
| | Molex 80-pin board-to-board connector |
| | - Power supply |
| | - Audio: 2x analog, 1x digital |
| | - 2 x serial interface (ITU-T V.24 protocol) |

- USB 2.0 full speed
- SIM card interface 3 V, 1.8 V
- I2C bus

### *Bluetooth* Radio

Embedded (920 kbps serial interface)

| | |
|---|---|
| *Bluetooth* Version | 1.2 compliant (features Adaptive Frequency Hopping for better co-existence with 802.11 radio) |
| Chip Antenna | 2dBi peak |
| Transmit Power | -3dBm (0.5mW) minimum, +4dBm (2.5mW) max |
| Frequency Range | 2.400 - 2.4835 GHz |
| RX Sensitivity (BER<=0.1%) | -80dBm max |
| Data Rate | 732.2 kbps and 57.6 kbps asymmetric, 433.9 kbps symmetric |

# 7.3 Battery Specifications

## 7.3.1 High-Capacity (Model WA3006)

### 7.3.1.1 Electrical Specifications

*Note: The electrical specifications apply for ambient temperature TAMB of 0° to +40°C unless otherwise stated.*

| Item | Description | Specification | Remark |
|---|---|---|---|
| 1 | Interface Chipset | Maxim DS2762 | - |
| 2 | Rated Voltage | 3.7V | Typical |
| 3 | Rated Capacity | 3000mAh | Typical |
| 4 | Rated Charge Current | 1.5A | Maximum |
| 5 | Charge Voltage | 4.2 +/- 0.05V | Maximum |
| 6 | Discharge Cut-off voltage | 2.6V | Typical |
| 7 | Discharge Current | Constant voltage Current limited | - |
| 8 | Discharge Current | 0.5C (-20°C to 60°C) | Typical |
| 9 | Internal Resistance | 200 mΩ | Maximum |

## Battery Pack Electrical Specifications

| Description | Specification | | |
|---|---|---|---|
| | Minimum | Typical | Maximum |
| Over voltage detection voltage | 4.325V | 4.350V | 4.375V |
| Charge enable | 4.10V | 4.15V | 4.20V |
| Under voltage detection voltage | 2.5V | 2.6V | 2.7V |
| Over current detection current | - | 3.5A | - |
| Short-circuit detection current | 5.0A | 8.0A | 11.0A |
| Short-circuit detection voltage | 150mV | 200mV | 250mV |
| Over voltage delay time | 0.8s | 1s | 1.2s |
| Under voltage delay time | 90ms | 100ms | 110ms |
| Over current delay time | 5ms | 10ms | 20ms |
| Short-circuit delay time | 160μs | 200μs | 240μs |
| Recovery charge current | 0.5mA | 1mA | 2mA |

## 7.3.1.2 Standard Discharge

*Note: Standard charge is defined as charging with constant voltage limit of 4.2V and constant current limit of 0.9A; the termination charge occurs when the current drops to 45mA.*

*Standard discharge is defined as discharging at a constant current of 350mA until the battery protection circuit switches the battery output off in over-discharge mode.*

## Acceptance Test Specifications

| Description | Condition | Standard |
|---|---|---|
| Open circuit voltage | After standard charge, measure within 24 hours. | 4.15V or more |
| Internal Resistance | After standard charge, measure within 24 hours. | 200 mΩ max. |
| Capacity_1 | After standard charge, measure time taken for a fast discharge. | 110 minutes or more |
| Charge/Discharge Cycle | After repeating standard charge and fast discharge, measure the fast discharge time after 300 discharge cycles. | 90 minutes or more |
| Capacity_2 | After standard charge, measure the time taken for a standard discharge. | 500 minutes or more |

| Description | Condition | Standard |
|---|---|---|
| Over Discharge | After standard charge, apply a standard discharge followed by a standby discharge. Then measure capacity after carrying out standard charge and then a fast discharge. | 110 minutes or more |
| Self discharge | After a standard charge, keep battery at 25°C for 30 days. Measure the time taken for a fast discharge. | 100 mins or more |
| Temperature | Perform a standard charge and fast discharge at 0°C, 25°C and 40°C and measured the time taken for a fast discharge at 25°C. | 100 mins. @ 0°C 110 mins. @ 23°C 105 mins. @ 40°C |
| Temp./Humidity Cycle | After standard charge, carry out 5 cycles of the following: 65°C and 90% humidity for 8 hrs. 25°C and 65% humidity for 4 hrs. -20°C for 8 hrs. 25°C and 65% humidity for 4 hrs. Following that, perform a fast discharge, standard charge and then a fast discharge. Measure the time taken for the second discharge. | 100 minutes or more |
| Dry heat | After standard charge, keep the battery at 60°C for 8 hrs. Carry out a fast discharge, standard charge and then a fast discharge, measured the time taken for the second discharge. | 100 minutes or more |
| EMC/CE Testing | The battery will need to pass the requirements of the EMC directive 89/336/EEC (and amendments) when fitted into the product: Emissions to EN55022 Class B (1998) Immunity to EN55024 (1998) | Test to be performed by manufacturer. |
| Electro-Static Discharge Test | EN61000-4-8: A. Contact Discharge: +/-8kV for each contact pad by 10 times. B. Air Discharge: +/-15kV for 10 times (the discharge test point is for around battery casing.) | No damage |

## 7.3.1.3    Safety Data

| Description | Condition | Test Condition/Result |
|---|---|---|
| Short Circuit Test | After a standard charge, short terminals and discharge for 1 hr. | Protection circuit board to operate. No explosion, fire, smoke, or leakage. |
| Over Charging Test | After a standard charge, charge continuously at 4.2V and 4A for 8 hrs. | Protection circuit board to operate. No explosion, fire, smoke, or leakage. |

| Description | Condition | Test Condition/Result |
|---|---|---|
| Reverse Charging Test | After a standard discharge, reverse-charge continuously at 4.2V and 4A for 8hrs. | Protection circuit board to operate. No explosion, fire, smoke, or leakage. |

## 7.3.1.4    Safety License

| Item | License | Standard |
|---|---|---|
| 1 | UL 1642 | The lithium-ion cell has been listed and pass the UL1642 standard by UL Lab. |
| 2 | UL 2054 | The battery pack is in the process to apply the UL 2054 battery standard. |
| 3 | 89/336 EEC-EMC directive. | The battery pack is in the process to apply the below standard: -EN55022 -LVD 72/23 EEC -EN55024 -EN61326 |
| 4 | RoHS Directive | The battery pack is in the process to apply the RoHS directive applicable report by SGS Lab. |

## 7.3.1.5    Environmental Test

| Description | Test Reference | Test Condition/Result |
|---|---|---|
| Drop | (mechanical) | Drop sample battery on all faces from height of 1.2 meters onto concrete floor. No explosion, fire, vent, leakage and the open circuit voltage higher than 3.7V. |
| Storage at high temp. | EN60068-2-2 Test | +60°C dry for 240 hours No explosion, fire, vent or leakage. |
| Storage at low temp. | EN60068-2-1 Test | -20°C dry for 240 hours No explosion, fire, vent or leakage. |
| Storage at high temp. and high humidity | IEC68-2-3 Test | +40°C at 90%RH for 240 hours. No explosion, fire, vent or leakage. |
| Storage temp. cycling | IEC68-2-14 Test | +60oC (2C) for 1 hour (T1), -20oC (2C) for 1 hour. 3 minutes Max allowed for change between T1 and T2. Cycle 10 times No explosion, no fire, no vent, and no leakage. |
| Vibration resistance | BS2011 Part 2.1 FDC (IEC68-2-37) | After standard charge, tested under the following conditions: Random vibration 5Hz-500Hz ASD 0.02g2/Hz in 3 axis for 15 mins. After which, carry out a standard discharge, charge, discharge. No parting joints/cracks or damage to connectors. No leakage or critical damage. |

| Description | Test Reference | Test Condition/Result |
|---|---|---|
| Impact shock resistance | - | 3 cycles of 50G 11ms, 1/2 sine pulse acceleration applied in 6 directions. 18 shocks total. |
| ESD protection | - | Accordance with EN61000-4-8 |

# 7.3.2 Super High-Capacity (Model WA3010)

## 7.3.2.1 Electrical Specifications

*Note: The electrical specifications apply for ambient temperature TAMB of 0° to +40°C unless otherwise stated.*

| Item | Description | Specification | Remark |
|---|---|---|---|
| 1 | Interface Chipset | Maxim DS2762 | - |
| 2 | Rated Voltage | 3.7V | Typical |
| 3 | Rated Capacity | 4000mAh | Typical |
| 4 | Rated Charge Current | 1.2A | Maximum |
| 5 | Charge Voltage | 4.2 +/- 0.05V | Maximum |
| 6 | Discharge Cut-Off Voltage | 2.6V | Typical |
| 7 | Charge Method | Constant voltage Current limited | - |
| 8 | Discharge Current | 0.5C (-20°C to 60°C) | Typical |
| 9 | Internal Resistance | 150 m$\Omega$ | Maximum |
| 10 | Charging Temperature | 0 to 40 | Typical |

### Battery Pack Electrical Specifications

| Item | Description | Specification | | |
|---|---|---|---|---|
| | | Minimum | Typical | Maximum |
| 1 | Over voltage detection voltage | 4.325V | 4.350V | 4.375V |
| 2 | Charge enable | 4.10V | 4.15V | 4.20V |
| 3 | Under voltage detection voltage | 2.5V | 2.6V | 2.7V |
| 4 | Over current detection current | 2.97A | 3.17A | 3.36A |
| 5 | Short-circuit detection current | 9.9A | 13.33A | 16.83A |
| 6 | Short-circuit detection voltage | 150mV | 200mV | 250mV |
| 7 | Over voltage delay time | 0.8s | 1s | 1.2s |
| 8 | Under voltage delay time | 90ms | 100ms | 110ms |
| 9 | Over current delay time | 5ms | 10ms | 20ms |

| Item | Description | Specification | | |
|------|-------------|--------------|--|--|
| 10 | Short-circuit delay time | 160μs | 200μs | 240μs |
| 11 | Recovery charge current | 0.5mA | 1mA | 2mA |

## 7.3.2.2   Standard Discharge

***Note:*** *Standard charge is defined as charging with constant voltage limit of 4.2V and constant current limit of 0.9A; the termination charge occurs when the current drops to 45mA.*

*Standard discharge is defined as discharging at a constant current of 350mA until the battery protection circuit switches the battery output off in over-discharge mode.*

### Acceptance Test Specifications

| Description | Condition | Standard |
|-------------|-----------|----------|
| Open circuit voltage | After standard charge, measure within 24 hours. | 4.15V or more |
| Internal Resistance | After standard charge, measure within 24 hours. | 150 mΩ max. |
| Capacity_1 | After standard charge, measure time taken for a fast discharge. | 110 minutes or more |
| Charge/Discharge Cycle | After repeating standard charge and fast discharge, measure the fast discharge time after 300 discharge cycles. | 90 minutes or more |
| Capacity_2 | After standard charge, measure the time taken for a standard discharge. | 500 minutes or more |
| Over Discharge | After standard charge, apply a standard discharge followed by a standby discharge. Then measure capacity after carrying out standard charge and then a fast discharge. | 110 minutes or more |
| Self discharge | After a standard charge, keep battery at 25°C for 30 days. Measure the time taken for a fast discharge. | 100 mins or more |
| Temperature | Perform a standard charge and fast discharge at 0°C, 25°C and 40°C and measured the time taken for a fast discharge at 25°C. | 100 mins. @ 0°C<br>110 mins. @ 23°C<br>105 mins. @ 40°C |

| Description | Condition | Standard |
|---|---|---|
| Temp./Humidity Cycle | After standard charge, carry out 5 cycles of the following: 65°C and 90% humidity for 8 hrs. 25°C and 65% humidity for 4 hrs. -20°C for 8 hrs. 25°C and 65% humidity for 4 hrs. Following that, perform a fast discharge, standard charge and then a fast discharge. Measure the time taken for the second discharge. | 100 minutes or more |
| Dry heat | After standard charge, keep the battery at 60°C for 8 hrs. Carry out a fast discharge, standard charge and then a fast discharge. Measure the time taken for the second discharge. | 100 minutes or more |
| EMC/CE Testing | The battery will need to pass the requirements of the EMC directive 89/336/EEC (and amendments) when fitted into the product: Emissions to EN55022 Class B (1998) Immunity to EN55024 (1998) | Test to be performed by manufacturer. |
| Electro-Static Discharge Test | EN61000-4-8: A. Contact Discharge: +/-8kV for each contact pad by 10 times. B. Air Discharge: +/-15kV for 10 times (the discharge test point is for around battery casing.) | No damage |

## 7.3.2.3    Safety Data

| Description | Condition | Test Condition/Result |
|---|---|---|
| Short Circuit Test | After a standard charge, short terminals and discharge for 1 hr. | Protection circuit board to operate. No explosion, fire, smoke, or leakage. |
| Over Charging Test | After a standard charge, charge continuously at 4.2V and 4A for 8 hrs. | Protection circuit board to operate. No explosion, fire, smoke, or leakage. |
| Reverse Charging Test | After a standard discharge, reverse-charge continuously at 4.2V and 4A for 8hrs. | Protection circuit board to operate. No explosion, fire, smoke, or leakage. |

## 7.3.2.4    Safety License

| Item | License | Standard |
|---|---|---|
| 1 | UL 1642 | The lithium-ion cell has been listed and pass the UL1642 standard by UL Lab. File No. MH12383 |

| Item | License | Standard |
|------|---------|----------|
| 2 | UL 2054 | The battery pack is in the process to apply the UL 2054 battery standard. File No. MH29921. |
| 3 | 89/336 EEC-EMC directive | The battery pack is in the process to apply the below standard: -EN55022 -LVD 72/23 EEC -EN55024 -EN61326 |
| 4 | RoHS Directive | The materials of battery pack are used in accordance with the European RoHS directive. |

## 7.3.2.5   Environmental Test

| Description | Test Reference | Test Condition/Result |
|-------------|----------------|------------------------|
| Drop | (mechanical) | Drop sample battery on all faces from height of 1.2 meters onto concrete floor.<br>No explosion, fire, vent, leakage and the open circuit voltage higher than 3.7V. |
| Storage at high temp. | EN60068-2-2 Test | +60°C dry for 240 hours<br>No explosion, fire, vent or leakage. |
| Storage at low temp. | EN60068-2-1 Test | -20°C dry for 240 hours<br>No explosion, fire, vent or leakage. |
| Storage at high temp. and high humidity | IEC68-2-3 Test | +40°C at 90%RH for 240 hours.<br>No explosion, fire, vent or leakage. |
| Storage temp. cycling | IEC68-2-14 Test | +60°C (2C) for 1 hour (T1), -20oC (2C) for 1 hour. 3 minutes Max allowed for change between T1 and T2.<br>Cycle 10 times<br>No explosion, no fire, no vent, and no leakage. |
| Vibration resistance | BS2011 Part 2.1 FDC (IEC68-2-37) | After standard charge, tested under the following conditions: Random vibration 5Hz-500Hz ASD 0.02g2/Hz in 3 axis for 15 mins. After which, carry out a standard discharge, charge, discharge. No parting joints/cracks or damage to connectors. No leakage or critical damage. |
| Impact shock resistance | - | 3 cycles of 50G 11ms, 1/2 sine pulse acceleration applied in 6 directions. 18 shocks total. |
| ESD protection | - | Accordance with EN61000-4-8 |

# 7.4 Scanner/Imager Model Numbers

| Scanner/Imager Engine | Kit Model Number | Form Factor |
|---|---|---|
| 1D Laser SE955 | WA9102-G1 | End-Cap without GSM |
| | WA9112-G1 | End-Cap with GSM |
| | WA9002-G1 | Pod |
| 1D Laser SE1223HP | WA9000-G1 | Pod |
| 1D Laser SE1223LR | WA9005-G1 | Pod |
| 1D Laser SE1223ALR | WA9006 | Pod (non-RoHS) |
| 1D Imager EV15 | WA9103-G1 | End-Cap without GSM |
| | WA9113-G1 | End-Cap with GSM |
| | WA9003-G1 | Pod |
| 2D Imager SX5393 | WA9010 | Pod (non-RoHS) |
| | WA9007-G1 | Slim Pod |
| 2D Imager HHP 5180 | WA8010-G1 | End-Cap without GSM |
| | WA8110-G1 | End-Cap with GSM |
| | WA9012-G1 | Slim Pod |

# 7.5 Scanner Specifications

## 7.5.1 SE 1223HP, LR, ALR And SE 955HP Specifications

| Scan Engine | SE 1223HP | SE 1223LR | SE 1223ALR | SE 955HP |
|---|---|---|---|---|
| Scan Angle | 42º ± 2º | 23º ± 2º | 13º ± 2º | 47° ± 3° default / 35° ± 3° reduced |
| Scan Rate | 35 (± 5) scans/sec (bi-directional) | 35 (± 5) scans/sec (bi-directional) | 35 (± 5) scans/sec (bi-directional) | 104 (± 12) scans/sec (bi-directional) |

| Scan Engine | SE 1223HP | SE 1223LR | SE 1223ALR | SE 955HP |
|---|---|---|---|---|
| Scan Pattern | Linear | Linear | Linear | Linear |
| Wavelength | 650nm | 650nm | 650nm | 650nm |
| Input Voltage | 5.0 VDC ± 10% | 5.0 VDC ± 10% | 5.0 VDC ± 10% | 3.0-5.5 VDC ± 10% |
| Input Current | 110 mA typical | 115 mA typical | 115 mA typical | 65 mA typical |
| Standby Current | 130 µA typical | 70 µA max. | 70 µA typical | 8 µA max |
| Operating Temperature | -40ºC to 60ºC <br> -40ºF to 140ºF | -30º to 55ºC <br> -22ºF to 131ºF | -30°C to 55°C <br> -22ºF to 131ºF | -20° to 60° C <br> -4° to 140° F |
| Print Contrast | Minimum 20% absolute dark/light reflectance measured at 650 nm | Minimum 40% absolute dark/light reflectance measured at 650 nm | Minimum 40% absolute dark/light reflectance measured at 650 nm | Minimum 25% absolute dark/light reflectance measured at 650 nm |
| Dimensions | 1.93 cm max. H x 3.84 cm max. W x 3.51 cm max. D <br><br> 0.76 in. max. H x 1.51 in. max. W x 1.38 in. max. D | 1.93 cm max. H x 3.84 cm max. W x 3.51 cm max. D <br><br> 0.76 in. max. H x 1.51 in. max. W x 1.38 in. max. D | 1.93 cm max. H x 3.84 cm max. W x 3.51 cm max. D <br><br> 0.76 in. max. H x 1.51 in. max. W x 1.38 in. max. D | 1.21 cm H x 2.16 cm W x 1.55 cm (max) <br><br> 0.47 in. H x 0.85 in. W x 0.61 in. D (max) |
| Symbologies | UPC/EAN, Code 128, Code 39, Code 93, I 2 of 5, Discrete 2 of 5, Codabar, MSI UCC/EAN 128, TriOptic Code 39 | UPC/EAN, Code 128, Code 39, Code 93, I 2 of 5, Discrete 2 of 5, Codabar, MSI UCC/EAN 128, TriOptic Code 39 | UPC/EAN, Code 128, Code 39, Code 93, I 2 of 5, Discrete 2 of 5, Codabar, MSI UCC/EAN 128, TriOptic Code 39 | UPC/EAN, Code 128, Code 39, Code 93, I 2 of 5, Discrete 2 of 5, Codabar, MSI Plessey |

## 7.5.1.1　　SE 1223HP Decode Zone

| 4,844 Lux to 86,112 Lux | | | | |
|---|---|---|---|---|
| | Minimum range | Width of field | Maximum range | Width of field |
| Mil Size | Inches | Inches | Inches | Inches |
| 5 | 2.75 | 1.25 | 7 | 3 |
| 7.5 | 2.25 | 1 | 11 | 4 |
| 10 | 1.75 | 0.5 | 15.75 | 6 |
| UPC | 2 | 1 | 22 | 9 |
| 15 | 2 | 1 | 25 | 10 |
| 20 | 2 | 1 | 30 | 12.5 |
| 40 | 3.75 | | 56 | 23 |
| 55 | 5 | | 66 | 25 |

## 7.5.1.2　　SE 1223LR Decode Zone

| 4,844 Lux to 86,112 Lux | | | | |
|---|---|---|---|---|
| | Minimum range | Width of field | Maximum range | Width of field |
| Mil Size | Inches | Inches | Inches | Inches |
| 10 | 11 | 2 | 24 | 5 |
| 15 | 7.5 | 1 | 39 | 8 |
| 20 | 7.5 | 1 | 48 | 10 |
| 40 | 10 | 2 | 90 | 19 |
| 55 | 10 | 2 | 120 | 24 |
| 70 reflective | 48 | | 200 | 40 |
| 100 reflective | 60 | | 240 | 48 |
| High quality symbols in normal room light. | | | | |

## 7.5.1.3　　SE 1223ALR Decode Zone

| 4,844 Lux to 86,112 Lux | | | | |
|---|---|---|---|---|
| | Minimum range | Width of field | Maximum range | Width of field |
| Mil Size | Inches | Inches | Inches | Inches |

| 4,844 Lux to 86,112 Lux | | | | |
|---|---|---|---|---|
| UPC | 19 | 2 | 39 | 4 |
| 15 | 20 | 2 | 50 | 6 |
| 30 | 33 | 4 | 98 | 11 |
| 55 | 27 | 2 | 115 | 12 |
| 70 reflective | 114 | 12 | 250 | 28 |
| 100 reflective | 125 | 14 | 360 | 41 |
| High quality symbols in normal room light. | | | | |

## 7.5.1.4 SE 955HP Decode Zone

| Decode Zone Typical | |
|---|---|
| 4 mil | 1.0 in. - 5.5 in. / 2.54 cm - 13.97 cm |
| 5 mil | 1.25 in. - 8 in. / 3.18 cm - 20.32 cm |
| 7.5 mil | 1.5 in. - 13.25 in. / 3.81 cm - 33.66 cm |
| 10 mil | 1.5 in. - 17.5 in. / 3.81 cm - 44.45 cm |
| UPC 100% | 1.5 in. - 23.5 in. / 3.81 cm - 59.69 cm |
| 15 mil | 1.5 in. - 29.5 in. / 3.81 cm - 74.93 cm |
| 20 mil | 1.75 in. - 35.5 in. / 4.45 cm - 90.17 cm |
| 40 mil | * - 40 in. / * - 101.6 cm |
| 55 mil | * - 55 in. / * - 139.7 cm |
| * dependent on width of bar code | |

## 7.5.2 EV15 Imager Specifications

| Parameter | EV15 |
|---|---|
| Light Source | 617nm Highly Visible LED |
| Scan Angle | 40º |
| Minimum Print Contrast | Minimum 25% |
| Min x. Dimension | 0.1 mm (4 mils) |
| Reading Distance | Up to 90cm (35 in) |

| Parameter | EV15 |
|---|---|
| Symbologies | UPC (E&A), EAN, RSS, Code 39, Code 128, UCC/EAN 128, ISBN, ISBT, Interleaved, Matrix, Industrial and Standard 2 of 5, Codabar, Code 93/93i, Code 11, MSI, Plessey, Telepen, PDF417, Micro PDF417 |
| Ambient Light | Works in any lighting conditions, from 0 to 100,000 lux |
| Shock | 2000G, 0.7ms, half sinus, 3 axes |
| Vibration | 50G r.m.s |

## 7.5.2.1    EV15 Imager Decode Zone

| 0 Lux to 100,000 Lux | | |
|---|---|---|
| | Minimum range | Maximum range |
| Mil Size | Inches | Inches |
| 5 | 2.5 | 7 |
| 10 | 3 | 14 |
| UPC | 2 | 14.5 |
| 20 | 2.5 | 22 |
| 40 | 3 | 35.5 |
| High quality symbols in normal room light. | | |

## 7.5.3  HHP5180 Imager

| Parameter | HHP5180 |
|---|---|
| Image Sensor | 752 X 480 CMOS sensor |
| Motion Tolerance | 4 in. (10.2cm) per second |
| Rotational Sensitivity | 360° |
| Viewing Angle | ±40° |
| Ambient Light | Total darkness to 100,000 lux (full sunlight) |
| Illumination LEDs | 626nm ±30nm |
| Aiming: | LEDs: 526nm ±30nm<br>Laser: 650nm ±10nm |

| Parameter | HHP5180 |
|---|---|
| Symbologies supported | 2D: PDF417, MicroPDF417, MaxiCode, Data Matrix, QR Code, Aztec, Aztec Mesa, Code 49, UCC Composite<br><br>Linear: Code 39, Code 128, Codabar, UPC, EAN, Interleaved 2 of 5, RSS, Code 93, Codablock<br><br>Postal: Postnet (US), Planet Code, BPO 4 State, Canadian Post, Japanese Post, KIX (Netherlands) Post<br><br>OCR Fonts: OCR-A, OCR-B |
| Size | 1.78cm Depth x 2.79cm Width (without mounting tabs) x 1.21cm Height<br>0.7 in. Depth x 1.1 in. Width (without mounting tabs) x 0.475 in. Height |
| Weight | 5.9 grams (.21 ounces) |
| Operational Input Voltage: | Imager: 3.3 VDC ±5% (23°C)<br>Illumination + Aimer 5300: 3.0 VDC to 5.5 VDC (23°C) |
| Current Draw: | Imager: Operating Current – 100 mA<br>          Standby Current: 100 µA |
| Operating Temperature | -30° to +50°C (-34° to 122°F) |
| Storage Temperature | -40° to +70°C (-40° to 158°F) |
| Humidity | up to 95% RH, non-condensing at 122° F (50°C) |
| Shock | 18 shocks of 3,500 G for 0.5 msec at 23°C (73° F) |

## 7.5.3.1   HHP5180 Imager Decode Zone

| Performance | | | | | | |
|---|---|---|---|---|---|---|
| **Focal Point** | | | | | | |
| SR | 7 inches (17.8 cm) from lens plate | | | | | |
| SF | 4.5 inches (11.4 cm) from lens plate | | | | | |
| SR Working Range* | 8.3 mil Linear (.020 cm) | 10 mil PDF417 (.025 cm) | 13 mil UPC (.033 cm) | 15 mil Data Matrix (.038 cm)6 | 15 mil QR (.038 cm) | 35 mil Maxicode (.089 cm) |
| **Near** | 3.5 in. (8.9 cm) | 3.1 in. (7.9 cm) | 2.1 in. (5.3cm) | 2.3 in. (5.8 cm) | 2.1 in. (7.9 cm) | 2.0 in. (5.1 cm) |
| **Far** | 7.6 in. (19.3cm) | 9 in. (22.9 cm) | 13.2 in. (33.5 cm) | 10.2 in. (25.9 cm) | 8.8 in. (22.4 cm) | 13.0 in. (33 cm) |

| Performance | | | | | | |
|---|---|---|---|---|---|---|
| SF Working Range* | 6.6 mil PDF417 (.017 cm) | 7.5 mil Linear (.019 cm) | 8.3 mil Data Matrix (.021 cm) | 8.3 mil QR (.021 cm)6 | 10 mil Linear (.025 cm) | 13 mil UPC (.033 cm) |
| Near | 2.8 in. (7.1cm) | 2.5 in. (6.4cm) | 3.4 in. (8.6cm) | 3.4 in. (8.6cm)) | 2.2 in. (5.6cm) | 2.0 in. (5.1cm) |
| Far | 6 in. (15.2cm) | 6.5 in. (16.5cm) | 5.7 in. (14.5cm) | 5.4 in. (13.7cm) | 7.6 in. (19.3cm) | 8.9 in. (22.6cm) |
| *Data characterized at 23°C and 0 lux ambient light. | | | | | | |

## 7.5.4  SX5393 Imager

| Parameter | HHP5180 |
|---|---|
| Optical Resolution | 1024H x 1024v |
| Field of view at 6 inches | 5.12 in. x 5.12 in. |
| Pitch Angle | ±45° |
| Skew Angle | ±45° |
| Ambient Light | 0 to 100,000 lux (full sunlight) 300 lux nominal. |
| Minimum Contrast | 10% |
| Targeting | Intuitive range finding 626 nm Red LED. |
| Self Illumination | Red LED |
| Supply Voltage | 5 V ± 10% |
| Power Supply | 3.6 Volt DC nominal (2.7 - 5 Volts DC) |
| Connectivity | USB 1.1 or serial async |
| Connector to the interface board | Molex 52892-1295 or HiRose FH12-12S-.5SH |
| Symbologies Supported | Code 39; Code 39 Full ASCII; UPC-A, -A2, -A5; UPC-E, -E2, -E5; EAN-8 -13; JAN; I2of5; Code 128; Codabar/NW7; RSS 14, RSS Limited, RSS Expanded, RSS 14 Truncated, PDF417, microPDF417; Composite, CC-A, CC-B, CC-C; image capture and signature capture, Data Matrix; QR Code; Maxicode; Aztec Code; Planet; Postnet; Royal Mail 4SCC; 4 State postal codes from Australia, Canada, Japan; Korean Post 3of5 |
| Operating Temperature | -20° to +50°C (-4° to 122°F) |
| Storage Temperature | -30° to +60°C (-22° to 140°F) |
| Humidity | 5% to 95% (non-condensing) |
| Weight | Image engine 4.1 grams Co-processor board 6.80 grams |

| Parameter | HHP5180 |
|-----------|---------|
| Shock | 15 drops, 5 ft to concrete at room temperature when integrated correctly into end-user packaging |

## 7.5.4.1   SX5393 Imager Decode Zone

| x Lux to 100,000 Lux | | |
|---|---|---|
| | Minimum range | Maximum range |
| Mil Size* | Inches | Inches |
| 10 | 4.6 | 5.7 |
| 15 | 3.8 | 9.2 |
| 15** | 4 | 9.7 |
| 20.8 | 2.6 | 11.7 |
| *QR code **Data Matrix | | |
| Code 39 | Minimum range | Maximum range |
| Mil Size | Inches | Inches |
| 7.5 | 4.1 | 8.4 |
| 10 | 3.1 | 10.9 |
| 15 | 4 | 9.7 |

# APPENDIX A

# PORT PINOUTS

## A.1 LIF (Low Insertion Force) Port Pinout

| PIN # | Signal Name |
|---|---|
| 1 | Ground |
| 2 | Ground |
| 3 | USB Host Data Plus, For connecting USB devices |
| 4 | USB Host Data Minus, For connecting USB Devices |
| 5 | USB Host Power, for powering USB devices (5V, 100mA Max) |
| 6 | DC Power in, for supplying power to WORKABOUT PRO / charging battery (5V, 3A) |
| 7 | DC Power in, for supplying power to WORKABOUT PRO / charging battery (5V, 3A) |
| 8 | LIF Detect, determines if a device is attached to the LIF |
| 9 | USB Device Data Minus, for operating the WORKABOUT PRO as a USB device |
| 10 | USB Device Data Plus, for operating the WORKABOUT PRO as a USB device |
| 11 | Ground |
| 12 | Ground |

## A.2 Tether Port Pinout

| PIN # | Signal Name |
|---|---|
| 1 | Ground |
| 2 | USB Data Plus (can be configured as Host or Device) |
| 3 | USB Data Minus (can be configured as Host or Device) |

| PIN # | Signal Name |
|-------|-------------|
| 4 | USB VBUS   (can provide 5V, 100mA Max for powering USB Devices) |
| 5 | RS232 Tx data |
| 6 | RS232 Rx Data |
| 7 | Tether detect resistor ID. Determines what kind of device is attached to the Tether port |
| 8 | DC Power In |
| 9 | DC Power In |
| 10 | DC Power In |
| 11 | RS232 CTS |
| 12 | RS232 RTS |
| 13 | RS232 DSR |
| 14 | RS232 DTR |
| 15 | RS232 DCD |
| 16 | RS232 RI |
| 17 | Ground |
| 18 | Ground |
| 19 | Ground |
| 20 | Ground |

# A.3  Battery Contact Pinout–WA3006 & WA3010

| PIN # | Signal Name | Function |
|-------|-------------|----------|
| 1 | P- | Power Pin for Battery Pack Negative |
| 2 | DQ | Maxim DS2762 Data |
| 3 | TH (GND) | Ground |
| 4 | P+ | Power Pin for Battery Pack Positive |
| 5 | PS | Power Switch Sensor |
| - | Plastic Rip | - |
| 6 | P- | Power Pin for Battery Pack Negative |

## A.4   Positive Female Battery Connector
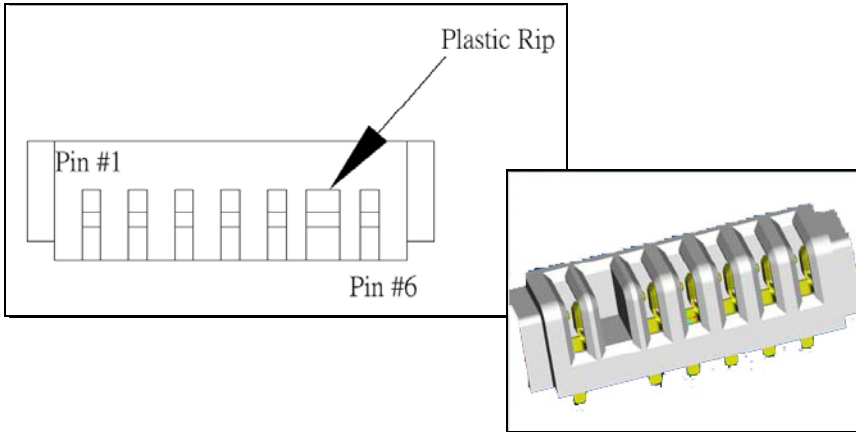
# APPENDIX **B**

# WIRELESS WIDE AREA NETWORK (WWAN)

## B.1  Wireless WAN

Psion Teklogix offers a quad band, GPRS radio – Model Number RA3030-G2; a WORKABOUT PRO equipped with a GSM/GPRS radio has wide area networking capabilities. With this radio and a SIM card, you can wirelessly transfer data, and you use the hand-held *voice* option to place phone calls.

## B.1.1  Taskbar Icons

Wireless WAN icons in the taskbar indicate the status of your wide area network connection. Note that these icons are only visible when a GSM/GPRS radio is installed in the computer, and the interface is enabled.

The letter in the signal strength icon (**G** for GSM/GPRS) indicates that a packet data service is available and initialized. Keep in mind that the signal strength icon is displayed without a letter if packet data service is not available or if it is available but not yet initialized.

User interaction is required (e.g. the user is required to enter a PIN).

A non-recoverable (fatal) error has occurred.

The modem status is unknown or the modem is not connected to any network (the signal strength is 0%).

The modem has found a network, and the signal strength is between 1% and 20%.

The modem has found a network, and the signal strength is between 21% and 40%.

The modem has found a network, and the signal strength is between 41% and 60%.

The modem has found a network, and the signal strength is between 61% and 80%.

The modem has found a network, and the signal strength is between 81% and 100%.

A GPRS packet data connection is active, the signal strength is between 41% and 60% and GSM.GPRS packet service is available.

The signal strength icon is replaced by a connection indicator icon when a packet data connection is started.

$^{G}$⚡  A GPRS packet data connection is active.

In addition to the signal strength or connection indicator a second icon may be shown.

✉  A new SMS (Short Message Service) message has arrived.

☎  The dialer icon is displayed when the Voice option is available (SIM card and GPRS radio are installed). When you have an active call, this icon flashes yellow and then green.

## B.1.2  Establishing A Connection

To display the main *Wireless WAN dialog* box:

- Double-tap on the **Wireless WAN** icon in the taskbar.

If the icon is not visible in the taskbar, the radio interface has been shut down or the modem has been removed:

- In the *Control Panel*, choose the **Wireless WAN** icon.
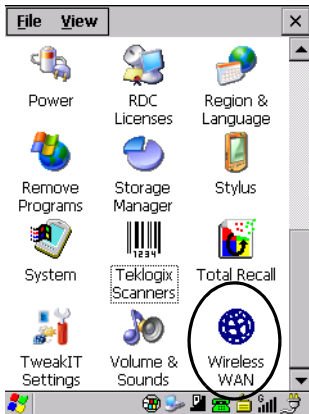


Figure B.1  Wireless WAN Icon

The main *Wireless WAN* dialog box is displayed.
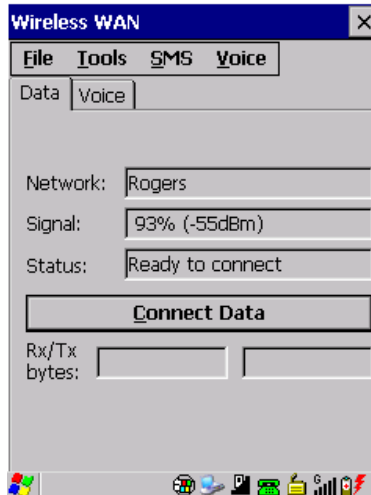


Figure B.2 Establishing A Connection

*Note: If you are prompted to enter a PIN, refer to "Entering A PIN Number" on page 4 for details.*

When "*Ready to connect*" is displayed in the *Status* field, the *Connect Data* button is enabled.

• Tap on the **Connect Data** button.

The progress of the connection is tracked in the *Status* field.

• PPP link to modem active.
• Authenticating user.
• User authenticated.
• Connected.

*Note: Keep in mind that these states may be displayed fairly quickly if the progress of the connection is rapid.*

When the connection state reaches PPP link to modem active, the taskbar icon changes to indicate an active connection. The Connect Data button changes to Disconnect.

## Disconnecting From A Network

To disconnect from the network:

- Tap the stylus on the **Disconnect** button, and then on **OK**.

When the computer's network connection is severed, the *Status* field displays "*Ready to connect*".

The signal strength is displayed in the main Wireless WAN screen, even while a connection is active. The *Rx bytes* and *Tx bytes* fields estimate the amount of data transmitted and received, respectively.

## Shutting Down The Wireless WAN User Interface

While it is not usual to shut down the GSM/GPRS user interface, you can accomplish this by tapping on the **File** menu and choosing the **Exit** command at the bottom of the main *Wireless WAN* dialog box

*Note: Once you've shut down the user interface, you can only enable the radio by opening the Control Panel and tapping on the Wireless WAN icon to display the Wireless WAN dialog box.*

# B.1.3 Advanced Information

In most cases, when a GSM/GPRS radio and SIM are installed in your computer, setup is automatic. Follow the steps outlined under the heading "Establishing A Connection" on page 2 to make a connection. The information in this section is for advanced setup purposes.

## Entering A PIN Number

If a PIN is required, a PIN entry dialog box is displayed.

- Type your PIN, and press [ENTER].

*Note: If you exceed the number of allowable attempts, a PUK entry window is brought to the foreground. You'll need to enter a new PIN number.*

Once the correct PIN or PUK is entered or if none was required, the modem is instructed to perform a GSM network registration followed by a GPRS attach. The main *Wireless WAN* dialog box reflects the progress of the initialization.

- Searching for modem
- Initializing modem
- SIM is ready
- Searching for network
- Registered on network

- Searching for GPRS
- Ready to connect

If the modem loses the connection to the GSM network, the following states are repeated: *Searching for network, Registered on networ*k, *Searching for packet data,* and *Ready to connect*.

## Error States

The following temporary error states (i.e., these states may disappear without inter-action) may be displayed:

- Emergency calls only.
  The modem has found a network but is not allowed to register (e.g. no roaming agreement between networks). The modem keeps searching for another network.

- No network found.
  A network is not currently available. The modem continues searching for a network.

- Packet data not available.
  The current network does not support a packet data service.

- Packet data not allowed.
  The modem is not allowed to use the packet data service on the current network (e.g. no GPRS roaming agreement between network; a roaming agreement for voice may still be in place). It is also possible that you do not have a subscription for GPRS at all.

The remaining error states are permanent:

- SIM is missing.
  The SIM card is missing. After the SIM has been inserted a warm boot may be required.

- SIM failure.
  The SIM card is permanently disabled (e.g. because the wrong PUK has been entered too many times). A new SIM is needed.

- Modem failure.
  The modem did not respond to commands as expected. If a warm boot does not clear this condition, the modem may need to be replaced.

- NDIS error.
  An internal software error has occurred. If a warm boot does not clear this condition, Psion Teklogix technical support may need to investigate further.

## B.1.4  Tools Menu

The **Tools** menu in the main *Wireless WAN* dialog box offers some additional, advanced setup features.
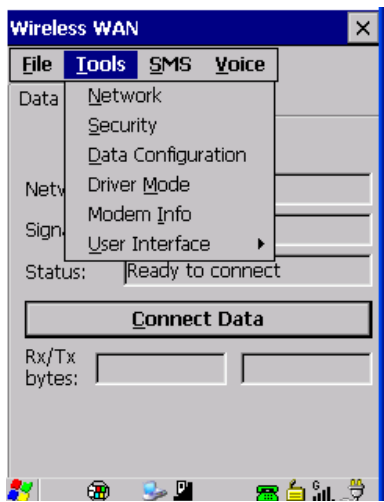


### Data Configuration
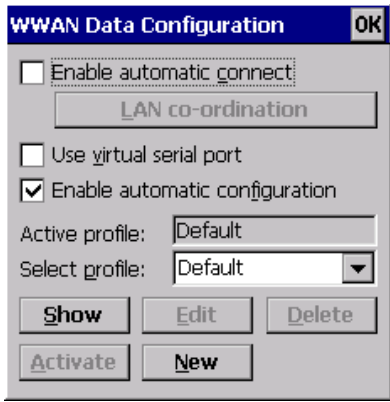


#### Enable Automatic Connect

If the *Enable automatic* **connect** checkbox is checked (unchecked by default), the Wireless WAN user interface will attempt to establish a GPRS connection whenever GPRS is available (e.g. after resume from suspend without further user interaction).

To activate the automatic connection mode:

- Tap on the **OK** button.

While automatic connection mode is enabled, the *Connect Data* button in the main *Wireless LAN* dialog box changes to *Disable Auto*. To close the currently active connection (if any) and disable the automatic connection mode:

- Tap on **Disable Auto.**

*Important:* ***Automatic connection mode should not be used if applications other than the Wireless WAN user interface (e.g. Connection Manager) are expected to open and close connections.***

***If the automatic connection mode is enabled and another application closes the GPRS connection, the WWAN user interface will immediately try to re-establish the connection.***

### Use Virtual Serial Port

If *Use virtual serial port* is enabled, packet data connections are established through the virtual serial port of the WWAN driver rather than through the WWAN driver directly. This checkbox should ***only*** be checked if certain third-party VPN (Virtual Private Network) clients are used that do not work correctly otherwise. The default setting is **disabled** (unchecked).

*Notes:* *The connection setup takes longer through the virtual serial port.*

### Enable Automatic Configuration

In most cases, ***the data connection is configured automatically and no user inter-action is required.*** This is true even if multiple SIM cards from different operators are used with the same device. The connection parameters are adjusted automatically when a new SIM card is detected (this may require a warm boot). The connection parameters are retrieved from a database.

Manual configuration should be necessary only if:

- One or more parameters in the database are incorrect or a new operator is not yet in the database. (The database should be corrected for subsequent software releases.)
- An operator has assigned individual GPRS user names and passwords.
- A very large site has their own APN. Such connections always have to be configured manually.

- A customer has subscribed for a static IP address. By definition this must be configured manually.

## Profiles

In the following section, all the parameters that need to be configured for a connection (such as APN, user name, password, DNS server addresses etc.) are referred to as a profile. Every profile is identified by an arbitrary, unique name. The profile named *Default* is special in that it is always present and can neither be edited nor deleted. The *Default* profile uses parameters from a built-in database. The home network (the network that issued the SIM) is used for the database look-up. While there can be many configured profiles, only one profile can be active at any time.

If connection profiles are configured manually, the *Enable automatic configuration* checkbox should normally be unchecked.

In one particular use case, manually configured profiles may be combined with automatic configuration. If multiple SIM cards are used with the same device, each SIM card being from a different operator and some or all of them requiring a manually set up profile, automatic configuration may be used to automatically pick the correct manually configured profile for each SIM card. For this to work, each profile must be configured while the corresponding SIM card is inserted in the device and initialized (i.e. the status is at least *SIM is ready*).

The *Select profile:* drop-down list in the data configuration profile selects to which profile a subsequent action applies. A profile named *Default* is always present and contains the current parameters from the database. The following actions are available:

### Show

The parameters for the selected profile are displayed when you tap the stylus on this button. For the *Default* profile, the publicly known password is shown—otherwise, the password is hidden.

### Edit

The parameters of the selected profile can be edited when you choose the *Edit* button. Keep in mind that you **cannot** edit the **Default** profile.

### Delete

The selected profile is deleted. You **cannot** delete the *Default* profile.

### Activate

When this button is chosen, the selected profile becomes the active profile. Activa-

tion is possible only if the *Enable automatic configuration:* checkbox is unchecked.

### New

Tapping on the *New* button allows you to create a new profile.
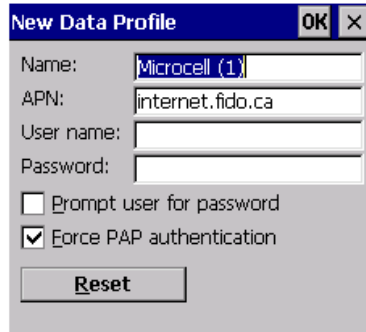


Figure B.3   Creating A New Profile

The name of the newly created profile must be different from all existing profiles. Also, the name cannot be *Default*. When the *New Data Profile* dialog box is opened, a proposal for a unique name is filled in the corresponding entry field. If a manually configured profile has a secret password and unauthorized access to the device is a concern even after the SIM PIN has been entered, the password should not be entered in the *New Data Profile* dialog box and the *Prompt user for password* checkbox should be checked instead. In this case, you will be prompted for the password each time a connection is initiated (the *Connect Data* button in the main *Wireless WAN* dialog box is selected). If *Force PAP authentication* (Password Authentication Protocol) is enabled, a simple authentication protocol is used to authenticate a user to a remote access server or Internet Service Provider.

### Reset

The Reset button in the New Profile and Edit Profile dialog boxes resets all entry fields to the values they had when the dialog box was opened.

### Advanced IP
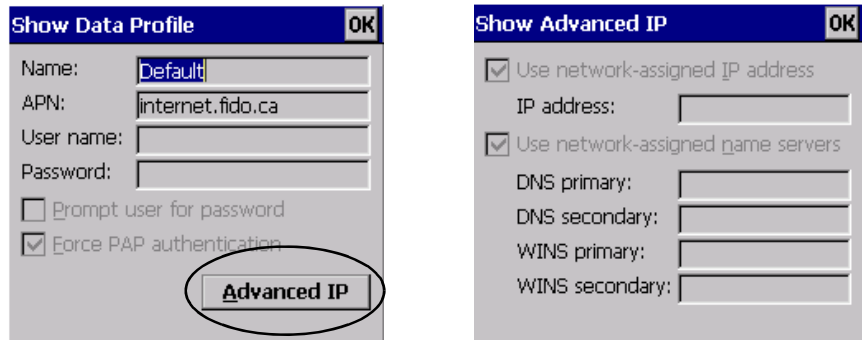


Figure B.4  Assigning IP Information

The *Advanced IP* button in the *Show Profile* and *Edit Profile* dialog boxes opens another dialog box that allows you to configure a static IP address as well providing DNS and WINS fields so that you can specify DNS and WINS resolvers.

## Security Configuration
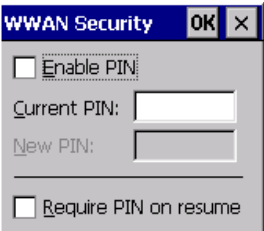


The *Security Configuration* dialog box is accessed through the *Tools* menu. The *Security Configuration* dialog box allows you to enable, disable and change the PIN. You will need the current PIN to make any of these changes. The PIN must be enabled in order to be changed. (If the PIN is disabled, the *New PIN* entry field is greyed out.)

*Note:*     *Keep in mind that some network operators do not allow the SIM PIN to be disabled. A new PIN must consist of 4 to 8 numeric digits.*

The *Require PIN on resume* checkbox is independent of the aforementioned settings. By default, this checkbox is unchecked. While this option remains unchecked, any PIN entered on startup or through the *Security Configuration* dialog box and submitted successfully to the modem is stored in memory for as long as the device is not rebooted. This stored PIN is then used without further user interaction whenever

the modem requires a PIN (such as resume after suspend or modem removal). The stored PIN is also automatically entered in the *Current PIN* text box whenever the *Security Configuration* dialog box is called up.

If unauthorized access to the device is a concern, the *Require PIN on resume* checkbox should be checked. In this case, the PIN is not stored; whenever a PIN is required, you will be prompted to enter an appropriate value.

## Network Configuration

In the main Wireless WAN window:

- Tap on the **Tools** menu, and choose **Network**.
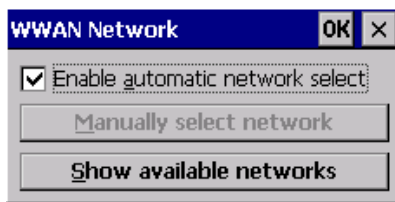


By default the GSM radio modem automatically chooses from the available and allowed networks (allowed networks are the home network and all other networks with which the home network has a roaming agreement). You may find there are some situations in which you want to override this default behaviour. For example, you may want to disable roaming if you find yourself in a border area where the home network is not available but a foreign roaming partner is available. Abroad, you may find that an available network does not have GPRS roaming agreements. In this case, you'll need to manually select the network which you know to support GPRS roaming.

Automatic network selection is enabled or disabled by checking or unchecking *Enable automatic network select* in the *Network* dialog box. When automatic network selection is disabled, you must select a network manually.

Available networks can also be viewed without changing any settings. Scanning for available networks is a lengthy operation—a progress bar is shown while the scan is active. For every network that is found, the network name, country, status and numeric network identifier (MCC/MNC, Mobile Country Code followed by the Mobile Network Code) is displayed.

*Notes: Your home network operator will need to let you know which other networks have roaming agreements. Even when a network is listed with an*

*'Available' status, it does not necessarily follow that it can be used or that the roaming agreement covers GPRS.*

*A status of 'Forbidden' indicates that the network cannot be used. If you choose a network that is not covered by a roaming agreement, the status in the main WWAN dialog box changes to 'Emergency calls only', 'No network found', 'GPRS not available' or 'GPRS not allowed'.*

## Driver Mode Configuration
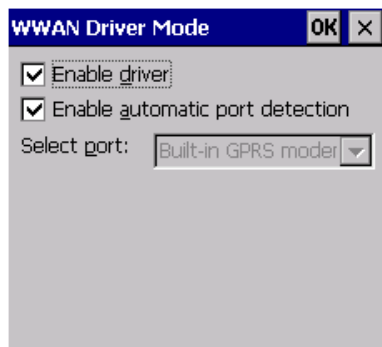


By default, the Wireless WAN driver is enabled (the *Enable driver* checkbox is checked). The driver must be disabled in order to use the modem for anything other than GPRS (e.g. dial-up data, fax, or in order to manually submit AT commands to the modem for development, testing, approvals, etc.). If the *Enable driver* checkbox is not checked, the driver is shut down as soon as the *OK* button in the *Driver Mode* dialog box is chosen.

If, on the other hand, the Wireless WAN driver is not running and the *Enable driver* checkbox is checked, the Wireless WAN driver is started as soon the *Driver Mode* dialog box is closed using the *OK* button.

*Note:    When the driver is not running, no network status or signal strength can be displayed.*

Since all currently supported GSM modems are automatically detected, the *Enable automatic port detection* checkbox should always be checked. If this checkbox is not checked, a serial port can be selected manually. This experimental feature allows the driver to be used with an internal GSM modem that was not recognized by the automatic detection or an external GSM modem connected to a serial port of the computer through USB or through *Bluetooth*. An external modem connected to a

serial port must support 115.2kbit/s, 8bit, no parity and hardware flow control.

## Modem Information
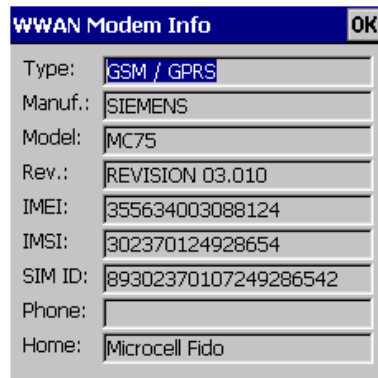


The fields in this dialog box cannot be edited, they only display information about the computer's modem. If the network operator has not programmed a user's phone number into his SIM, the *Phone:* field remains empty. If the main menu shows an error status, at least partial modem information may be available.

## User Interface
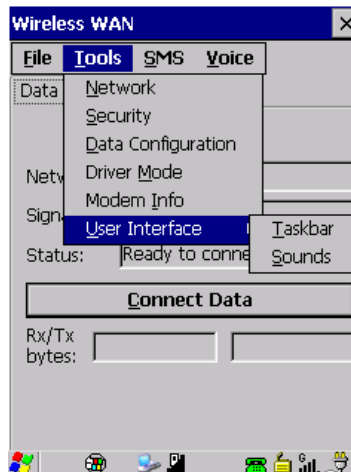


### Taskbar

Choosing *Taskbar* displays a dialog box in which you can determine which Wireless

WAN icons will be displayed in the taskbar.
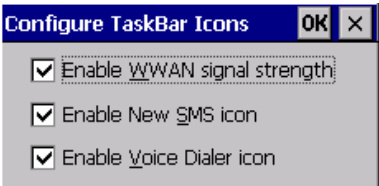


### Sounds

Tapping on the *Sounds* option displays a dialog box in which you can customize which sounds your hand-held will emit and when these sounds will be played.



## B.1.5  SMS  Menu

SMS (Short Message Service) functions are accessed through the *SMS* menu. For modems that support a SIM card, the SIM initialization typically takes longer than the network initialization, resulting in a noticeable delay before the SMS functions

become available.



### New
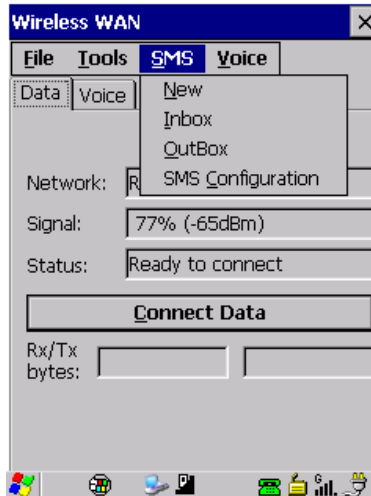
Tapping on the *New* button opens a dialog for sending a new SMS message. The recipient's phone number (to be entered in the *To:* field) can consist of the digits 0 through 9, as well as the * and # characters, optionally preceded by one + character, indicating an international number (i.e. the country code follows immediately after the + character).

By checking the *Store message in Outbox* field a new message can be stored in the Outbox before being sent. If no storage space is available, or the modem does not support the storage of outgoing messages, then this checkbox is disabled.

### Inbox

Tapping on the *Inbox* button opens the list of received messages. Reading 50 messages, for example, from the SIM can take about 30 seconds. By default the list of messages is sorted with the most recently received message first. The list can be sorted by any other column by clicking on the corresponding column heading. Clicking the same column heading twice reverses the sort order. Pressing any letter or digit moves the highlight to the next message whose address begins with that letter or number.

*Note: The date and time formats can be changed through the* Region and Language menu *in Control Panel. For a new date or time format to take effect the* Inbox *has to be closed and re-opened.*

The *Open* button opens the selected message in a new window such that the entire message can be read including the original formatting (line breaks are replaced by spaces in the Inbox message list). Pressing the **Reply** button opens the new message dialog as described above, except the destination phone number is filled in already.

### Outbox

Tapping on the *Outbox* button opens the list of sent messages. Otherwise the *Outbox* behaves exactly as the *Inbox* described above. The date and time when a message was sent is not available for GSM modems.

### SMS Configuration

Tapping on the *SMS Configuration* button opens the SMS configuration dialog. The SMS Centre address follows the same rules as the recipient's phone number in the *New* message dialog. The message validity period parameter is sent to the SMS Centre with each message sent subsequently and instructs the SMS Centre on how long it should attempt to deliver the message to the recipient (the SMS Centre may impose an upper limit on the validity period regardless of the setting).

*Note:*  *Only certain discrete validity period values can be sent and thus the validity period is rounded to the nearest allowed value. The next time the SMS configuration dialog is opened the rounded value is shown.*

The user interface tries to keep the SMS storage location available for a new incoming message if the *Delete oldest message when full* checkbox is checked. In this case, when a new message arrives and the SMS storage becomes full, the oldest received message is deleted. If any string is entered as the *Message Suppression Prefix,* then messages beginning with that string will not be shown in either the *Inbox* or *Outbox*. In this way messages intended for another application running on the same device can be hidden from the user, as long as those messages begin with the string configured here.

## B.1.6  Voice

The *Voice* tab is described in detail under "Voice – Using The Phone Dialer" on page 20.

## B.2  Power Mode

The power mode of the modem is controlled through the *Power* menu in the Control Panel (not through the Wireless WAN user interface).

For CF Card modems, the settings are found under the *Devices* tab. If the checkbox for a modem is unchecked then no power is applied to the modem and no driver is loaded (neither the serial port driver nor the Wireless WAN driver). If the checkbox is checked then power is applied to the modem and the drivers are loaded when the computer is turned on. Power is removed from the modem when the computer enters suspend mode.

# SUMMIT CLIENT UTILITY (SCU) FOR MODEL RA2041

This appendix provides details about each tab in the Summit Client Utility (SCU). For quick, step-by-step setup instructions, refer to "Configuring The Summit RA2041 802.11b/g" on page 13.

## C.1 SCU Tabs

This section provides a detailed description of each of the tabs available in the SCU—*Main* (below), *Config (*page 2*)*, *Global Settings (*page 7*), Status (*page 9*)*, and *Diags (*page 10*)*.

## C.1.1 Main Tab

The *Main* tab is displayed when you tap on the *Start>Programs>SCU* icon.



- **Enable/Disable Radio:** Enables or disables the radio. This is a toggle button; when the radio is enabled, this button reads *Disable Radio*, and when the radio is disabled, the button reads *Enable Radio*.
- **Active Config:** Lists the name(s) of the active configuration profile(s) which are referred to as "configs". When a *config* is chosen from the *Active Config* drop-down menu, the settings for that config become active.

If *ThirdPartyConfig* is selected, after the WORKABOUT PRO goes through a power cycle, WZC is used for configuration of the radio. See "ThirdPartyConfig" on page 6 for details.

- **Association Status:** Indicates if the radio is associated to an access point. If this is not the case, *Association Status* indicates the radio status.

- **Software Version:** This field displays the version of the device driver and the *SCU* that are running on the WORKABOUT PRO.

- **About Box:** This box provides information about the *SCU*.

## C.1.2   Config Tab

The *Config* tab allows you to define radio and security settings that are stored in the registry as part of the configuration profile or *config*.

The *config* you create and save is listed in the *Active Config* drop-down menu in the *Main* tab You can define up to 20 *configs*.
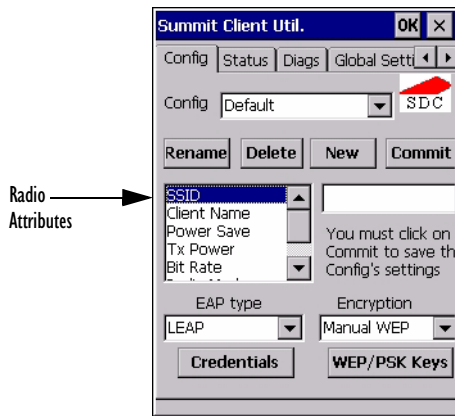


- **Config:** Used to choose the *config* to be viewed or edited. If *ThirdParty-Config* is chosen, after the WORKABOUT PRO goes through a power cycle, WZC is used for configuration of the radio.

- **Rename:** Allows you to assign a *config* name.

- **Delete:** Deletes the *config* unless it is currently active.

- **New:** Allows you to create a new *config* with default settings and assign it a name.

- **Commit:** Saves all changes.

- **Radio Attributes:** Lists radio attributes. These attributes can be individu-
  ally chosen from this menu. When an attribute is chosen, an associated
  list of options is displayed where you can assign new settings or view
  existing settings.

The following table describes the options in the *Radio Attributes* drop-down menu:

| Radio Attribute | Description | Value | Default |
|---|---|---|---|
| Config | Name of config (configuration profile). Use Rename button to change name. | Maximum of 32 characters. | None |
| SSID | Service set identifier (SSID) for WLAN to which the radio connects. | Maximum of 32 characters. | None |
| Client Name | Name assigned to radio & WORKABOUT PRO into which it is installed. | Maximum of 16 characters. | None |
| Power Save | Power save mode for radio. | CAM: Constantly awake. Maximum: Maximum power savings. Fast: Fast power save mode. | Fast |
| Tx Power | Maximum transmit power. | Max: Maximum defined for current regulatory domain. Measured in mW: 50,30,10, 1. | Max |
| Bit Rate | Used by radio when interacting with WLAN access point. | Auto: Rate automatically negotiated with access point. Rates in Mbps: 1, 2, 5.5, 6.9 11, 12, 18, 24, 36, 48, 54. | Auto |
| Radio Mode | Used by 802.11g when interacting with access point. | B rates only: 1, 2, 5.5, & 11 Mbps. G rates only: 6, 9, 12, 18, 24, 36, 48, and 54 Mbps. BG rates full: All B and G rates. BG rates optimized: 1, 2, 5.5, 6, 11, 24, 36 & 54 Mbps. | BG rates optimized |
| Auth Type | 802.11 authentication type used when associating with access point. | Open, shared-key, or LEAP (Network-EAP). | Open |

| Radio Attribute | Description | Value | Default |
|---|---|---|---|
| EAP Type | Extensible Authentication Protocol type used for 802.1X authentication to access point. | None, LEAP, EAP-FAST, PEAP-MSCHAP – To use EAP-TLS, you must use WZC. | None |
| Credentials | Authentication credentials for the selected EAP type. Refer to "EAP Credentials" on page 6. | User: Username or Domain/Username (up to 64 characters). Password: up to 64 characters. For PEAP: CA Cert–CA server certificate filename. | None |
| Encryption | Type of encryption used to protect transmitted data. | None, Manual WEP, Auto WEP (generated during EAP authentication), WPA PSK, WPA TKIP, WPA2 PSK, WPA2 TKIP, WPA2 AES, CCKM TKIP. For Manual WEP: Up to four static WEP keys. For PSK: ASCII passphrase or hex PSK. | None |

- **EAP-Type & Encryption:** Security settings. These settings allow you to enhance the security of data across the wireless LAN. Refer to "EAP Credentials" on page 6 and Section  below, for details about these settings.

## SCU Security Capabilities

The *SCU* provides integrated security to protect transmitted data as well as the hand-held and wireless WAN infrastructure that transmit and receive data.

A foundational element of the IEEE 802.11i WLAN security standard is IEEE 802.1X and a critical application on a mobile device is an 802.1X supplicant. This supplicant provides an interface between the radio and the operating system and supports the authentication and encryption elements required for 802.11i, also known as Wi-Fi Protected Access 2 (WPA2), as well as predecessors such as WPA and WEP. Summit software includes an integrated supplicant that supports a broad range of security capabilities, including:

- 802.1X authentication using pre-shared keys or an EAP type, required for WPA2 and WPA.
- Data encryption and decryption using WPA2 AES, WPA TKIP or WEP.

Common EAP types include:

- **EAP-TLS:** Uses the same technology as a follow-on to Secure Socket Layer (SSL). It provides strong security, but relies on client certificates for user authentication.

- **PEAP:** Provides secure user authentication by using a TLS tunnel to encrypt EAP traffic. Two different inner methods are used with PEAP:

  - EAP-MSCHAPV2, resulting in PEAP-MSCHAP: This is appropriate for use against Windows Active Directory and domains.
  - EAP-GTC, resulting in PEAP-GTC: This is for authentication with one-time passwords (OTPs) against OTP databases such as SecureID.

- **LEAP:** Is an authentication method for use with Cisco WLAN access points. LEAP does not require the use of server or client certificates. LEAP supports Windows Active Directory and domains but requires the use of strong passwords to avoid vulnerability to offline dictionary attacks.

- **EAP-FAST:** Is a successor to LEAP and does not require strong passwords to protect against offline dictionary attacks. Like LEAP, EAP-FAST does not require the use of server or client certificates and supports Windows Active Directory and domains.

*Note:* *PEAP and EAP-TLS require the use of Windows facilities for the configuration of digital certificates.*

## SCU EAP Types

The following EAP types are supported by the integrated supplicant and can be configured in SCU: PEAP-MSCHAP, PEAP-GTC, LEAP and EAP-FAST. With each of these four types, if authentication credentials are not stored in the *config*, you will be prompted to enter credentials the first time the radio attempts to associate to an access point that supports 802.1X (EAP).

Consider the following when configuring one of the EAP types:

- PEAP-GTC: SCU supports static (login) passwords only.
- LEAP: Strong passwords are recommended.
- EAP-FAST: SCU supports automatic, not manual, PAC provisioning.

EAP-TLS will work with a RA2041 radio module when *Windows Zero Config* (WZC) rather than the *SCU* is used to configure the type. With WZC, *the native Windows supplicant* instead of the *SCU* integrated supplicant is used.

## EAP Credentials

Keep the following in mind when defining security settings:

- If the credentials specified in the *config* are incorrect and that *config* is used, the authentication fails without an error message; you will not be prompted to enter correct credentials.

- If the credentials are not specified in the *config*, when the radio tries to associate using that config, you will be prompted to enter the credentials.

- When prompted, you can enter valid credentials, enter invalid credentials, or cancel the operation.

  - If you enter valid credentials and tap **OK**, the radio will associate and authenticate.
  - If you enter invalid credentials and tap on **OK**, the radio will associate but will not authenticate; you will be prompted again to enter credentials.
  - If you tap on **Cancel** or clear the credentials fields and tap on **OK**, the radio will not attempt to associate with that *config* until you perform one of the following actions (while the *config* is the *active config*):
  - Cause the WORKABOUT PRO to go through a power cycle or suspend/resume.
  - Disable and enable the radio, or tap the **Reconnect** button on the *Diags* windows.
  - Modify the *config,* and tap on **Commit**.

Alternatively, you can choose another *config* as the active *config* and then switch back to the *config* for which EAP authentication was cancelled.

## ThirdPartyConfig

If you choose to configure *ThirdPartyConfig*, the *SCU* will work with the operating system's *Windows Zero Config* (WZC) to configure radio and security settings for the CF radio installed in the unit.

Choosing this *config* means that *WZC* must be used to define the following radio and security options: SSID, Auth Type, EAP Type and Encryption. The *SCU* settings for *ThirdPartyConfig* include: Client Name, Power Save, Tx Power, Bit Rate and Radio Mode. These *SCU* settings along with SCU global settings and the WZC settings will be applied to the radio module.

# C.1.3  Global Settings Tab
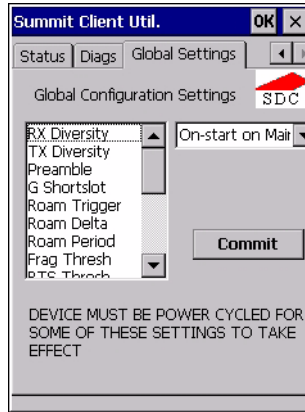


The *Global Settings* tab allows you to define radio and security settings that apply to all *configs* (profiles), along with settings that apply specifically to the *SCU*.

The *Global Settings* in the table below can be edited in the SCU:

| Global Setting | Description | Value | Default |
|---|---|---|---|
| CCX features | Activates three CCX features: AP-assisted roaming, AP-specified maximum transmit power & radio management. | On, Off | Off |
| Certs Path | Directory where certificates for EAP authentication are stored. | Valid directory path up to 64 characters. | Dependent on device. |
| Frag Thresh | Packet is fragmented when packet size (in bytes) exceeds threshold. | Integer from 256 to 2346. | 2346 |
| G Shortslot | 802.11g short slot timing mode. | Auto, Off, On | Auto |
| Admin Password | Password that must be specified when Admin Login button is pressed. | A string of up to 64 characters. | SUMMIT |
| Hide Passwords | On - SCU as well as EAP authentication dialog boxes hide passwords, WEP keys and other sensitive information. | On, Off | Off |
| LED | Available only with MCF10G. | On, Off | Off |

| Global Setting | Description | Value | Default |
|---|---|---|---|
| Preamble | Type of radio preamble or headers. | Auto, Short, Long | Auto |
| Ping Payload | Amount of data to be transmitted on a ping. | Bytes: 32, 64, 128, 256, 512 & 1024 | 32 |
| Ping Timeout ms | Amount of time in milliseconds that passes without a response before ping request is considered a failure. | Integer from 0 to 30000. | 5000 |
| Ping Delay ms | Amount of time in milliseconds between successive ping requests. | Integer from 0 to 7200000. | 1000 |
| Roam Delta | Amount by which second AP's RSSI must exceed the moving average RSSI for the current AP before the radio will attempt to roam to a second AP. | dBm: 5, 10, 15, 20, 25, 30, 35 | 15 |
| Roam Period | Following an association or roam scan (with no roam), the number of seconds the radio collects RSSI scan data before considering roaming. | Seconds: 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60 | 10 |
| Roam Trigger | If RSSI from AP is less than roam trigger value, radio performs roam scan or probes for an AP with stronger signal. | dBm: -50, -55, -60, -65, -70, -75 | -70 |
| RTS Thresh | Packet size above which RTS/CTS is required on link. | An integer from 0 to 2347. | 2347 |
| RX Diversity | Defines how to handle antenna diversity when receiving data from AP. | -On-Start on Main: On startup, use main antenna. -On-Start on Aux: On startup, use auxiliary antenna. -Main only: Use main antenna only. -Aux only: Use auxiliary antenna only. | On-Start on Main |

| Global Setting | Description | Value | Default |
|---|---|---|---|
| TX Diversity | Defines how to handle antenna diversity when transmitting data to AP. | -Main only: Use main antenna only. -Aux only: Use auxiliary antenna only. -On: Use diversity. | On |
| WMM | Use Wi-Fi Multimedia Extensions, also know as WMM. | On, Off | Off |

## C.1.4  Status  Tab
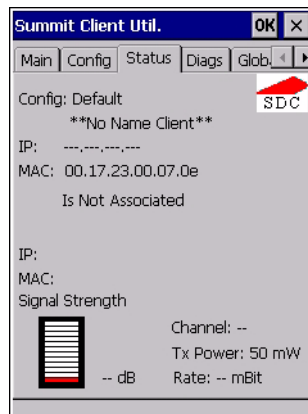


The *Status* tab provides status information including IP address and MAC address for the client radio, IP address and MAC address for the AP, signal strength, channel, transmit power and data rate.

## C.1.5  Diags Tab
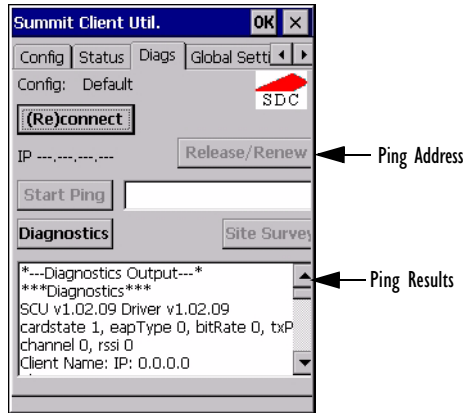


Use the *Diags* tab as a troubleshooting tool. The functions are as follows:

- **(Re)Connect:** Enables/Disables the radio, applies/reapplies current *config* and tries to associate and authenticate to the wireless LAN, logging all activity in the output area at bottom of the dialog box.

- **Release/Renew**: Obtains a new IP address through DHCP and logs all activity in the output area.

- **Start Ping**: Starts a continuous ping to the address in the text box next to this button. This is a toggle button so when you tap on it, it changes to *Stop Ping*. Closing this window or tapping on another button also stops the ping.

- **Diagnostics:** Attempts to connect or reconnect to an AP, and provides a more detailed dump of data than if you used *(Re)connect*. The dump includes the radio state, config settings, global settings and BSSID list of APs. The SCU is saved to a file called *_sdc_diag.txt* in the Windows directory.

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