

5

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5.1 Pistol Grips

There are a number of pistol grips available to you depending on the type of back cover and scanner/imager installed in your hand-held. Refer to Table 5.1 for a list of pistol grip model numbers and the types of back covers and scanners/imagers with which they are compatible.

Table 5.1 Pistol Grip Model Numbers

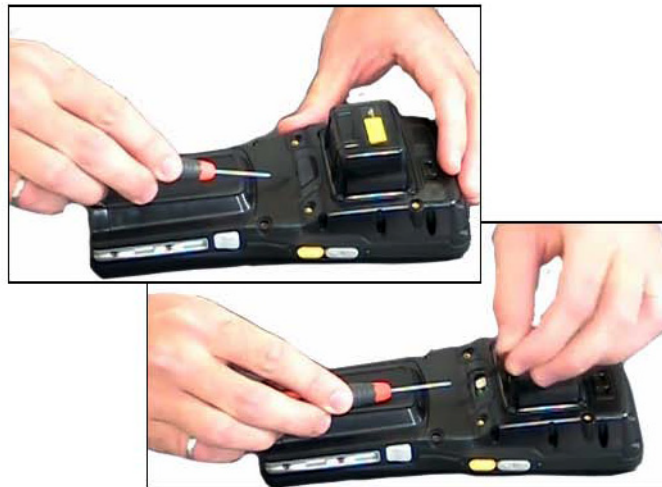
Pistol Grip Description	Model Number
Pistol Grip Standard Pod Kit	ST6000
Pistol Grip Standard Back A Kit	ST6100
Pistol Grip Standard Back B Kit	ST6400

5.1.1 Removing the Trigger Cover

Before installing the pistol grip, you need to remove the trigger cover.

Using a flathead screwdriver, gently and carefully pry the trigger cover off the hand-held.

Figure 5.1 Removing the Trigger Cover



5.1.2 Attaching the Pistol Grip



Note: Prior to installation, make sure the trigger mechanism is securely snapped into the pistol grip body and that the trigger operates properly.

The pistol grip is attached to the back of Omnii using the four threaded inserts in the upper part of the Omnii casing (see Figure 5.2). Four M3x6 Phillips head screws are provided.

- 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 hand-held.
- Using a Phillips screwdriver, tighten the screws to a torque of 3 lbs-in (3kgf-cm) to secure the pistol grip in place.

Figure 5.2 Attaching the Pistol Grip



5.2 Carrying and Protective Accessories



Note: Omnia Hand-Held Computer is a body worn device, and to maintain compliance with the FCC RF exposure guidelines, use a Pision approved carrying case. Use of non-approved accessories may violate FCC RF exposure guidelines.

There are a variety of carrying and protective accessories to help the operator work safely and comfortably with Omnia.

Attaching Carrying Accessories

If your Omnia is fitted with a hand strap, you can install it using the carrying accessory kit supplied. You'll need:

- A Phillips head screwdriver.



Important: *Do not use adhesives such as Loctite to secure screws on carrying accessories. These chemicals may damage the plastic casing.*

Table 5.2 Accessories Model Numbers

Accessory	Model Number
Wrist Strap	ST6040
Hand Strap	ST6025
Soft Shell Holster	ST6050
Hard Shell Holster	ST6055
Forklift Holster	ST6051
Carrying Case	ST6090

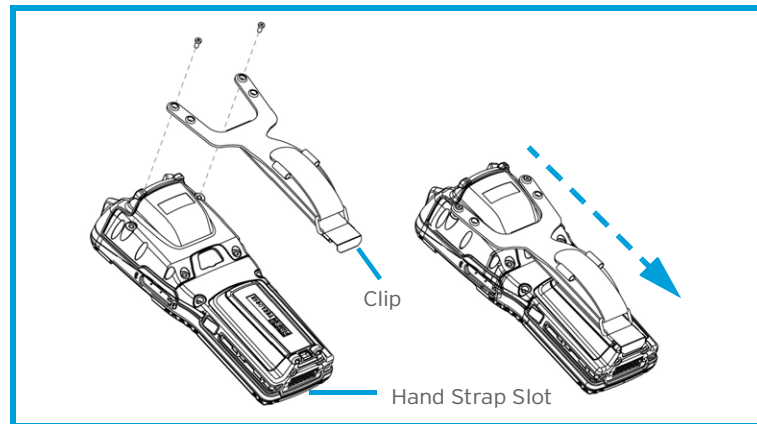
Table 5.2 Accessories Model Numbers

Accessory	Model Number
Pouch	ST6091
Screen Protector	ST6112

5.2.1 Attaching the Hand Strap - Model ST6025

- Attach the strap to the two threaded inserts located at the back of the hand-held near the top of the unit (see Figure 5.3), using the two Phillips head screws provided with this accessory.
- Stretch the handstrap toward the base of the hand-held, and hook the clip at the bottom of the handstrap into the slot near the base of the battery pack.

Figure 5.3 Attaching the Hand Strap



5.2.2 Protective Carrying Case - Model ST6090

A carrying case is available for Omnii 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.

5.2.3 Hard Shell Holster - Model ST6055

A hard shell holster can be used to hang Omnii with a pistol grip from your waist.

- Feed your belt through the top panel of the holster, and adjust the belt as needed.
- If using the leg tie-down strap, wrap it around your leg and snap the buckle closed. Adjust the tightness of the strap for security and comfort.
- Place Omnii into the holster with the grip extending back through the custom opening.

Figure 5.8 Hard Shell Holster



5.3 Power Adaptor Options

The following adaptors can be ordered for your Omnii:

Table 5.3 Power Adaptors

Adaptor Description	Model Number
AC Wall Adaptor	ST1050-1
Vehicle Power Outlet Adaptor	ST3113
Snap Module - Power/Charger Only	ST4000
Snap Module - USB Host/Client plus Power/Charger	ST4001
Snap Module - DE9M powered serial plus Charger	ST4005

5.3.1 Snap Modules

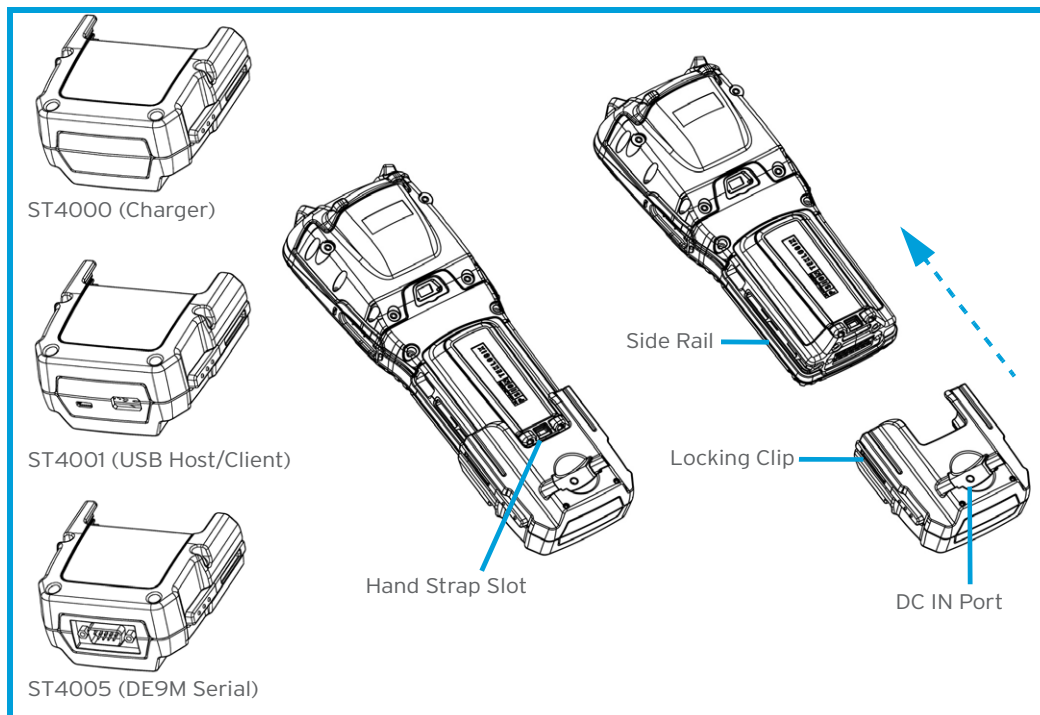
The Snap Module is a mobile power adaptor for Omnii. The Snap Module is compatible with the AC wall adaptor (Model ST1050-1) and the Vehicle Power Outlet Adaptor (Model ST3113)

Three types of Snap Modules are available:

- **Model ST4000** (Charger only variant): powers and charges the hand-held.
- **Model ST4001** (USB Host/Client variant): powers and charges the hand-held. It provides communications via USB 1.1/2.0 Host and USB 2.0 Client connectors and provides a DC IN port. When attached to Omnii, it allows ActiveSync or Windows Mobile Device Center connectivity with your PC, and the use of a USB device such as a USB memory key or supported USB scanner.

- **Model ST4005** (DE9M Serial variant): provides a powered DE9M serial connector. It powers and charges Omnii, and provides serial communications to tethered devices. The DE9M connector is capable of speeds up to 115,200 bps. Pin 9 is reserved for 5V power out and is defaulted to **off**. To enable power to this port, in your Omnii desktop, go to *Control Panel>Scanners*, which opens the *Scanner Settings* menus. In the *Ports* menu, select **on** for the *Power* parameter under the COM6 port.

Figure 5.9 Snap Module Models and Installation



To attach the adaptor to Omnii:

- Make sure that the adaptor connector and Omnii docking connector are free of dust or any other debris before connecting them.
- A slot in the side rail on each side of the hand-held accommodates the locking clips of the adaptor. To attach the adaptor, align it with the base of the hand-held and gently slide up until the locking clips snap into place (Refer to Figure 5.9).
- To remove the adaptor, press down on the base of the clip arms to release them from the Omnii side rails and slide the adaptor off.



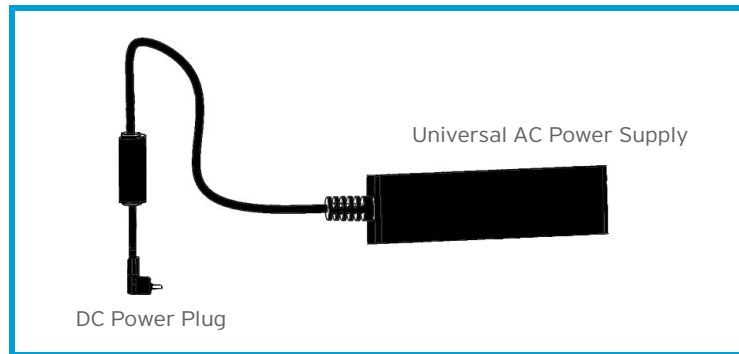
Note: If you are using a hand strap, there is no need to remove it before installing the Snap Module, since the Omnii hand strap slot will still be accessible.

5.3.2 AC Wall Adaptor - Model ST1050-1

The AC wall adaptor available for your docking station or Snap Module 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 regions are shipped with the AC wall adaptor: United Kingdom, Australia, Europe and North America.

Figure 5.10 AC Wall Adaptor Plugs



- 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 plug into the docking station or Snap Module jack.
- Plug the pronged end into an AC outlet.

5.3.3 Vehicle Power Outlet Adaptor - Model ST3113

The Vehicle Power Outlet Adaptor allows you to power your hand-held and recharge your battery using power drawn from your vehicle's automotive power outlet when used in conjunction with a Snap Module.

Figure 5.11 Vehicle Power Outlet Adaptor



- Attach the USB Adaptor to the base of the hand-held. Refer to "Snap Modules" on page 137 if you require further details.
- Insert the DC power plug on the Vehicle Power Outlet Adaptor into the DC IN port on the USB adaptor.
- Insert the Vehicle Power Outlet Adaptor plug into automotive power outlet in your vehicle.



Note: Battery charging continues whether the hand-held is switched on or off.

5.4 Chargers and Docking Stations: General Information

5.4.1 Important Charger Safety Instructions



Important: Before charging a battery with a desktop docking station, it is critical that you review the safety guidelines in the Omnii Hand-Held Computer Regulatory & Warranty Guide (PN 8000191).

5.4.2 Charging the Battery

Omnii Hand-Held Computer operates with a lithium-ion battery pack, Model ST3000. Preparing the unit for operation requires that the battery pack be charged and installed in the hand-held.

Batteries shipped from the factory are charged to approximately 40% of capacity. Lithium-ion battery packs must be fully charged before use. These batteries can be charged with a variety of chargers and docking stations. Currently the following are available:

- The Snap Module is a mobile adaptor for Omnii. Three models are available—see “Snap Modules” on page 137.
- The AC Wall Adaptor operates as an AC power source and also charges the battery installed in the unit—see “AC Wall Adaptor - Model ST1050-1” on page 138.
- The Vehicle Power Outlet Adaptor powers Omnii and recharges the battery using power drawn from your vehicle’s automotive power outlet—see “Vehicle Power Outlet Adaptor - Model ST3113” on page 139.
- The Desktop Docking Stations operate as both chargers and docking stations. Operating as a charger, both the battery installed in Omnii and a spare battery can be charged. Priority is given to charging the hand-held’s battery. See “Desktop Docking Stations - Models ST4002 and ST4003” on page 141.

Normally it takes 3 to 4 hours to charge a battery. The Omnii intelligent charging system protects the battery from over-charging by terminating the charge process when the battery is at maximum capacity.

Table 5.4 Omnii Internal Battery Charging Times

% Charge Completed	During Sleep Mode	While Operating
100%	4 hrs.	8 hrs.
75%	2 hrs.	6 hrs.



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).

5.4.3 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 40°C (32°F to 104°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.

5.4.4 Operator Controls

Omnii docking stations and chargers have no operator controls.

5.4.5 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.

5.5 Desktop Docking Stations - Models ST4002 and ST4003

Omnii can be inserted into two desktop docking stations which are designed to charge the battery installed in the hand-held along with a spare battery pack: Models ST4002 and ST4003.



Important: *These docking stations can only be used to charge Psion approved lithium-ion batteries.*

The ST4002 and ST4003 desktop docking stations feature:

- Fast charging of the internal battery.
- Fast charging of the spare battery pack.
- A Host USB port to connect peripherals such as a printer, keyboard, etc.
- A Client USB port to connect the docking station to a PC.



Note: The ST4002 desktop dock can be upgraded to include the DE9M and RJ45 interfaces by using the ST4100 Xmod (Expansion Module).

The ST4003 desktop docking station additionally provides:

- A DE9M serial port (unpowered) and an RJ45 10Base-T Ethernet interface. Both these interfaces are compatible with the USB to Ethernet/serial drivers included in Omnii (see Figure 5.13 on page 142).

Figure 5.12 Desktop Docking Station - Models ST4002 and ST4003

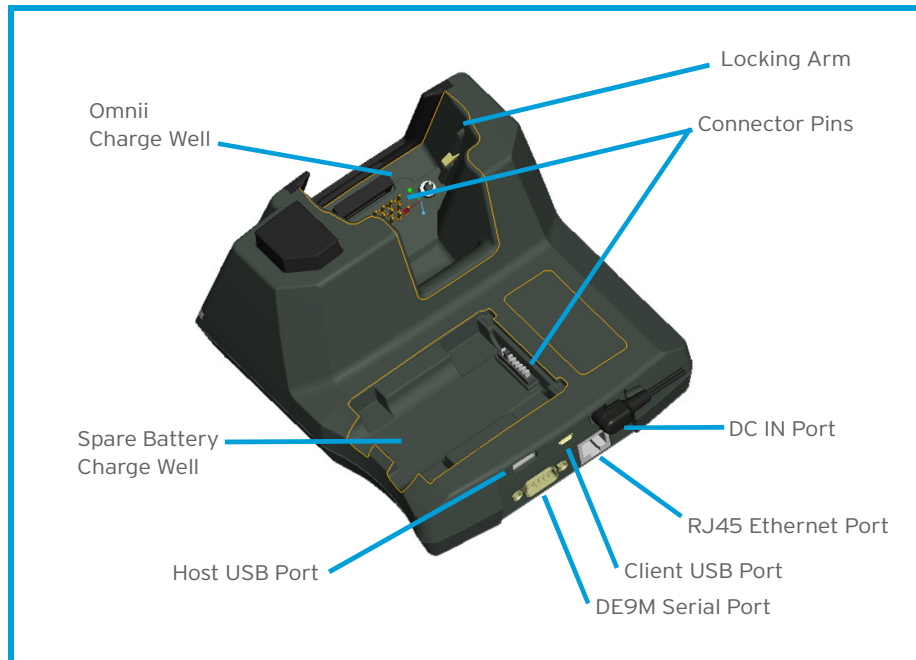


Note: The desktop docking station is shipped with its own quick start guide (ST4002 and ST4003 Desktop Docking Stations Quick Start Guide, PN 8000203). It is critical that it be reviewed for additional information and updates.

The desktop docking station storage temperature is -30°C to +60°C (-22°F to 140°F). Operating temperature and humidity are: 5 - 95% non-condensing and 0°C to 40°C (32°F to 104°F).

The desktop docking station uses careful charge algorithms designed to maximize battery life while ensuring the shortest possible charge time. The charger supports proprietary Psion Smart Batteries and handles a range of voltages and charge algorithms. See “Battery Details” on page 21 for more information regarding battery capacity, charge times and battery life. See “Charging the Spare Battery” on page 143 for spare battery charge information.

Figure 5.13 Back of ST4003 Desktop Docking Station



5.5.1 Charging a Battery Installed in Omnii

- Insert the DC power cable to the DC IN port 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 hand-held is securely seated on the docking station connector pins and engages the locking arms of the docking station. When the Omnii is switched on, a message is displayed briefly on the screen indicating that the unit is properly installed in the station and the docking station icon is displayed in the

taskbar.

The LED on Omnii 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 over-charged.

5.5.2 Indicators

The front-mounted LED on the desktop docking station indicates the spare battery charge status. The LED on Omnii is active even when the hand-held is inserted in a docking station (and in suspend mode) so that the charge status of the battery can be detected easily.

Table 5.5 Docking Station Battery Charge LED Behaviour

Charge LED Behaviour	Function
OFF	No battery detected.
Solid Green	Battery charging complete.
Flashing Green	Charge in progress.
Flashing Yellow	Battery is not charging due to out-of-temperature conditions.
Solid Red	Unable to read battery or non Psion battery.

5.5.3 Operation

5.5.3.1 Charging the Omnii Battery

The desktop docking station supplies DC power to enable the Omnii internal fast charger.

When installed in the dock, the Omnii battery charge LED will illuminate to indicate the unit has external power and can charge the internal battery. Omnii charge indication follows the same convention as the charger's spare battery indicator (Figure 5.12 on page 141).



Note: Battery charging continues whether Omnii is switched on or off.

5.5.3.2 Charging the Spare Battery



Important: Do not store spare batteries in a charger for more than 72 hours. Doing so may damage the battery or reduce its charge capacity.

- Install the battery in the battery charge well (rear slot of the desktop docking station). Place the battery contacts down to mate with the connector, and pivot the battery into place in the battery charge well.
- The desktop docking station spare battery LED lights up immediately. During charge the LED will be flashing green.
- When the battery has finished charging, the LED turns solid green.
- The charge stops when the battery is fully charged and the LED remains green.

A full charge will take 3 to 4 hours for a 5000 mAh battery.

5.5.4 Cleaning the Desktop Docking Station



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 on a slightly damp cloth to clean the desktop docking station. 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 label, use isopropyl alcohol.

5.5.5 Troubleshooting

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 Omnii—no applications are present on the docking station itself.

5.5.5.1 Docking station does not seem to power on.

- When first connected to the DC power supply, the charger LED should flash a sequence of red, yellow, and green.
- If not, the charger is defective and requires service.

5.5.5.2 Omnii charge indicator LED stays off.

When Omnii is docked into a powered desktop docking station and its charge indicator LED stays off, there could be a problem with the hand-held or with the docking station. Use a hand-held with a properly functioning charge indicator to isolate the problem.

5.5.5.3 Omnii charge indicator LED is red.

If the Omnii charge indicator is red when the hand-held is docked:

- Remove Omnii and disconnect the adaptor DC power cable.
- Wait at least 20 seconds, and then plug the cable in again.
- If the Omnii indicator still shows a fault, the hand-held requires service.

5.5.5.4 Spare battery LED is red with a battery installed.

- Try inserting a battery that is known to be working with another charger.
- If the charge slot LED continues to show red with the known working battery, the charger is defective and requires service.
- Your Psion battery and desktop docking station are carefully designed for safety and capacity performance in accordance with IEEE 1725. If the battery or charger are not Psion approved products, or the safety mechanism is faulty, the spare charge slot LED or the Omnii LED will display red.

5.5.5.5 Spare battery LED does not turn on when a battery is installed.

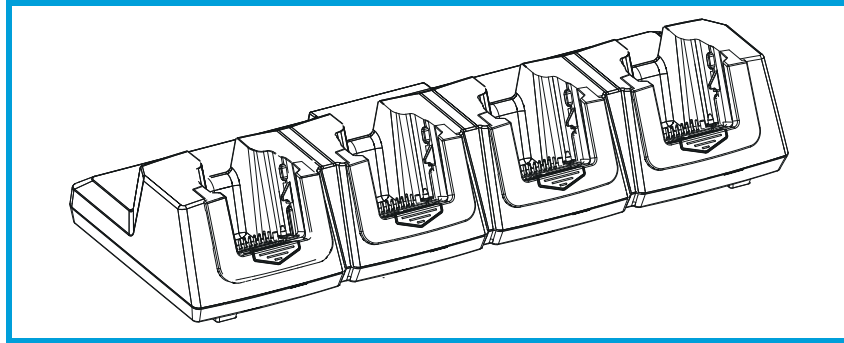
- Inspect the charge slot contacts for damage (are they bent, flattened, twisted or broken?).
- Reinstall the battery and check that it is fully seated in the slot.
- Try inserting a battery that you know to be working into the charger slot.
- Disconnect and reconnect the DC adaptor, and check that the spare battery LED indicator flashes at power-up.
- If the charge slot fails to charge the known working battery, it is defective and requires service.

5.6 Quad Docking Station - Model No. ST4004



Important: *The quad docking station is shipped with its own quick start guide—'Omni ST4004 Quad Docking Station Quick Start Guide' (PN 8000222). It is critical that it be reviewed for additional information and updates.*

Figure 5.14 Quad Docking Station - Model No. ST4004



The ST4004 Quad Docking Station is designed to accept up to four Omni hand-held computers. The docking station powers the units and their internal battery charger. The docking station also connects up to four of the hand-held computers to a 10/100 Base-T Ethernet network and allows for Ethernet data transfer.

5.6.1 Operator Controls

The ST4004 has no operator controls or power switch.

5.6.2 Indicators

The quad docking station is equipped with a Power Indicator LED.

5.6.3 Quad Docking Station Operation

5.6.3.1 Charging the Omni Battery

- Insert the DC power plug into the ST4004 rear DC input receptacle. The ST4004 supplies DC power to enable the Omni internal fast charger. Normally, a full charge of the battery will take from 3 to 4 hours.
- Insert up to four Omni computers into the docking station charge wells, pressing down gently but firmly to seat them securely.
- During the charge, the Omni LED slow flashes green.
- When the battery capacity reaches 95%, the LED turns solid green.



Note: Battery charging continues whether Omni is switched on or off.

5.6.3.2 Installation

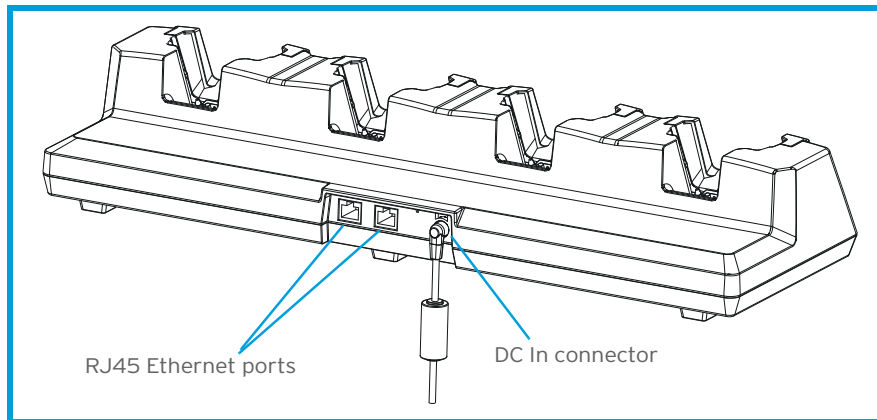
Place the charger in an area that is free from excessive dirt, dust and contaminants. The ambient temperature must be in the range 0° C and 40° C (32° F to 104° F). The docking station will not charge batteries outside of this temperature range. For maximum performance, it is recommended that the charger be operated at room temperature—a temperature range between 18°C to 25°C (64°F to 77°F).



Important: *Use IEC-320 C13 power cords approved by Psion, with the ground pin connected to a proper earth-grounded receptacle. Check with a qualified electrician if you are uncertain of your receptacle grounding.*

5.6.3.3 Connecting to the Ethernet Network

Figure 5.15 ST4004 Quad Docking Station Rear View



Network Access

Omnii automatically detects insertion into the docking station and loads the appropriate drivers to communicate with the network.

5.6.4 Cleaning the ST4004



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 on a slightly damp cloth to clean the ST4004. 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 label, use isopropyl alcohol.

5.6.5 Troubleshooting

5.6.5.1 Omnii Charge Indicator LED Stays Off

When Omnii is docked in a powered ST4004 and the hand-held charge indicator LED stays off, there may be a problem with Omnii or with the docking station. Use an Omnii with a properly functioning charge indicator to isolate the problem.

5.6.5.2 Power LED Does Not Light Up

- Remove all Omnii units, and unplug the docking station.
- 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.

5.6.5.3 Omnii Charge LED Flashes Yellow

A flashing yellow Omnii charge LED (the left-most LED on the hand-held) indicates that the battery is not within the allowable charging temperature range - 0° C and 40° C (32° F to 104° F). Allow the battery to come to an acceptable range before reinserting Omnii in the docking station.

5.6.5.4 Omnii Charge Indicator LED Flashes Red

If the Omnii charge indicator flashes red when Omnii is in any of the four sites, the quad dock cannot read the battery or it is not a Psion battery.

- Remove the computers and disconnect the adaptor DC power cable.
- Wait at least 20 seconds, and then plug the cable in again.
- If the Omnii indicator still shows a fault, Omnii requires service.

5.6.5.5 Powered Adaptor LED Stays Off

- Check the AC cable. Replace with the same type if the cable is suspect.
- If the adaptor LED stays OFF, the adaptor is defective and requires service.

5.7 Vehicle Cradles - Models ST1000 and ST1002

The Omnii vehicle cradles are highly ruggedized, single station docks. Although they provide quick insertion and removal, the cradles hold Omnii securely even when operated in high vibration environments (such as vehicles not equipped with suspensions).

The Omnii vehicle cradle is available in two models:

- Model ST1000 - Unpowered cradle.
- Model ST1002 - Powered cradle with communications ports. A DE9M serial port (powered) and two USB Host interfaces.

Figure 5.16 Front and Back of ST1002 with Omnii



Psion also supplies a range of standard mounts for the hand-held vehicle cradles, and the Omnii vehicle cradles are compatible with all of them.

5.7.1 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 improperly 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 strongly recommends that you seek professional mounting advice from the vehicle manufacturer.*

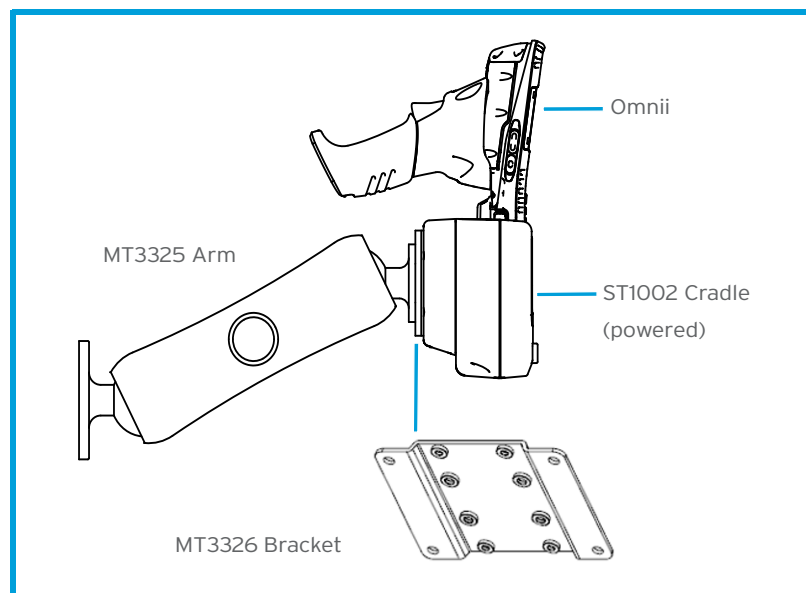
Cable routing within a vehicle cab also requires careful consideration, especially for devices with loose cables. If you are unable to obtain suitable advice, contact Psion for assistance. Note also that for better protection, the equipment should be mounted inside the vehicle roll cage.

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 MT3326 or MT3327 brackets with the MT3324 (short arm) or MT3325 (standard arm) kit, using one of the following bases to secure the vehicle cradle/arm assembly to the vehicle:

- VESA Plate - MT3501.
- Circular Plate - MT3502.
- Clamp Base (two sizes) - MT3505 and MT3507.
- Rail Base (two sizes) - MT3509 and MT3510.

Figure 5.17 MT3325 Standard Arm Kit with Omnii Vehicle 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. Refer to the detailed assembly instructions that are packaged with the cradle when selecting a mounting location (*Omnii Vehicle Cradles Quick Start Guide PN 8000221*).

5.7.2 Wiring Guidelines

Before installing the cables between the cradle and other devices, consider 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.

5.7.3 Using the Vehicle Cradle

If your Omnii is equipped with a cover, this accessory needs to be removed before installing the unit in a vehicle cradle. There is no need to remove handstraps or pistol grips from the unit.

- Slide Omnii into the cradle, and press firmly downward until it locks into place. On a vehicle, it's a good idea to pull up on Omnii to be certain that it is secure.
- To remove Omnii, press firmly on one of the knobs on either side of the cradle until it releases. You do not need to press both knobs.

5.7.4 Maintaining the Vehicle Cradle

Two latches in the cradle hold Omnii firmly in place. Although these latches are designed for at least 100,000 insertion and removal cycles, they will wear over time and will no longer lock Omnii securely in the cradle. For replacement parts and instructions contact Psion. Partial disassembly is required.

5.7.5 Powered Vehicle Cradle Installation in High Voltage Vehicles



Warning: *Voltages exceeding 30VDC are considered hazardous. Installation of powered cradles in vehicles that operate above 30VDC require special consideration, as listed below.*

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. **Exposing an accessible power connector to water or other liquids could create a hazardous situation resulting in serious injury or death.** Avoiding this hazard can be accomplished in the following way.

- Use the PS1300 or PS1350 pre-regulator.
- Ensure the power connector is wrapped securely with a waterproof electrical tape and 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 (see Section 5.7.5.1: "Extreme Wet Environments" for additional details).

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.

5.7.5.1 Extreme Wet Environments

For extreme wet environments, or environments where it is difficult to restrict vehicle operator access to the power connector, Psion offers a waterproof heat shrink kit (P/N 1030022). The kit contains 3 pieces of waterproof, high shrink ratio heat shrink tubing which can be used to encapsulate the entire connector assembly. If using this kit, please ensure that you order sufficient material to cover installation and service, remembering that heat shrink is one-time use, and must be replaced if it is removed from the connector for any reason.

5.7.6 Powered Cradle Installation

The powered cradle option is designed to allow Omnii to be powered by a vehicle battery. The battery installed in Omnii is also recharged by the vehicle battery. This option accepts DC power sources over the range 12V to 24V, voltages above that require the use of the preregulator (Model No. PS1350).



Warning: *Applying a voltage greater than that specified, or reversing polarity, may result in permanent damage to the cradle power option and will void the product warranty.*

The Omnii vehicle cradle can be ordered with the powered cradle option installed, or it can be retrofitted later at an authorized Psion service depot.

The Omnii charging LED (see “Battery Charge Status LED” on page 28) indicates that external power is available, and it also indicates the charging status of the internal battery.

5.7.7 Wiring Vehicle Power to the Cradle

An optional 1.8 meter (6 foot) extension power cable (P/N 13985-301 with motion detect or 13985-302) is available for 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 4A (less if the accessory supply is greater than 12V). Any additional wiring, connectors or disconnects used should be rated for at least 10A.



Note: *When connecting P/N 13985-301 (Screen Blanking version), ensure that the screen blanking wires (clearly labelled) and the power wires (red/black leads) are reliably secured away from each other, or are separated with reliably secured certified insulation. A minimum 2.8mm distance, or 0.4mm distance through insulation, is required for the separation.*

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 Omnii 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 (P/N 19440-300) 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.

5.8 Battery Charger (6-Slot) - Model ST3006

The ST3006 is designed to charge up to six Omnii lithium-ion batteries at one time.



Important: *Keep in mind when ordering a charger, you must also order an IEC-320 C13 power cord separately.*

Figure 5.18 ST3006 Battery Charger



5.8.1 Installation

The charger can be wall mounted using the wall mount kit (MT2031) or it can be operated on a flat surface. Install the charger in an area that is free from excessive dirt, dust and contaminants. The ambient temperature must be in the range 5°C to 39°C (41°F to 102°F). The charger will not charge batteries outside of this temperature range. For maximum performance, it is recommended that the charger be operated at room temperature—a temperature range between 18°C to 25°C (64°F to 77°F).

The charger can consume up to 6 A at 120 VAC, 3A at 240 VAC. Check to ensure the mains circuit supplying the charger is adequate for this loading (especially if several chargers are being powered from the same circuit). After unpacking the unit:

- Visually check the charger for damage.
- Install the IEC power cord and apply power.



Important: *Use IEC-320 C13 power cords approved by Psion, with the ground pin connected to a proper earth-grounded receptacle. Check with a qualified electrician if you are uncertain of your receptacle grounding.*

All charge indicators flash momentarily at power up to indicate that the charger is ready for operation.

If you choose to wall mount the charger, detailed installation instructions are included in the *Omnii 6-Slot Battery Charger ST3006 Quick Start Guide (PN 8000204)* included with the charger kit. Be sure to locate the charger in an area where there is no risk of injury to persons walking in the vicinity.

5.8.2 Operator Controls

The gang charger does not have operator controls or a power switch. There is no dedicated indicator light to show that the charger is powered, but the charge slot LEDs will light.

5.8.3 Charge Indicators

Each battery charge slot is equipped with four LEDs to indicate the charge status of the battery. When the Omnii batteries are inserted in the charger, the colour and behaviour of the LEDs associated with the charge wells in use indicate the status of the charge.

Table 5.6 Charge Status Indicator LEDs

Charge LED Behaviour	Function
OFF	No battery detected.
Solid Green	Battery charging complete. Each LED represents 25% battery capacity.
Flashing Green	Charge in progress. Each LED represents 25% battery capacity.
Flashing Yellow	Battery is not charging due to out-of-temperature conditions.
Solid Red	Unable to read battery or non Psion battery.

5.8.4 Charging Batteries

- Install the battery with the battery contacts facing the charger. Slide the battery between the guide rails until it lightly latches in place.

The 4-LED bar for the battery bay shows 25% charger per LED. A flashing green LED shows charging is under way. The LED directly below the slot in which a battery is inserted lights up immediately. If the battery temperature is outside 5°C to 39°C (41°F to 102°F), the LED flashes yellow until the temperature is acceptable. A fully discharged battery will normally take from 3 to 4 hours to charge. At full capacity, it turns solid green.

When the battery is fully charged, the charger stops applying power; the battery cannot be overcharged if left in the charger slot.

5.8.5 Troubleshooting

5.8.5.1 Improper Battery Storage

Storing batteries in the gang charger for extended periods (more than a week or two) is not recommended. Lithium-ion batteries lose capacity if they are maintained at full charge for long periods of time. See the battery handling recommendations in "The Battery" on page 14.

5.8.5.2 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.

5.8.5.3 Indicator Does Not Light When Battery Installed

- Remove the battery, and clean the contacts on the battery and the charge slot.
- Reinstall the battery, and check that it is fully seated in the slot.
- Inspect the charge slot contacts for damage (are they bent, flattened, twisted or broken).
- Try inserting a battery that you know to be working in the charger slot.
- Reconnect the mains power cable, and check that the slot indicator flashes at power up.

A

APPENDIX: PORT PINOUTS

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A.1 Omni Docking Connector

The docking interface on the base of Omni is custom-designed to dock with a device via an array of spring-mounted pins.



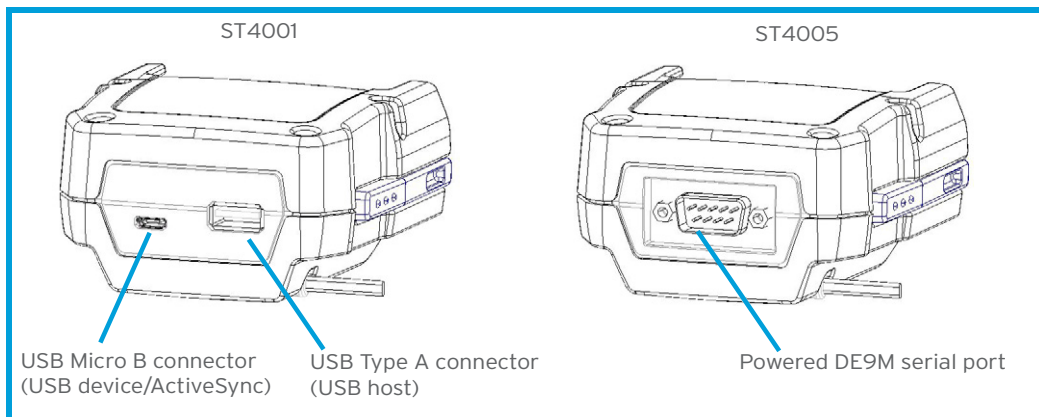
The following are the pin assignments of the interface.

Table A.1 Docking Connector Pinout

Pin #	Signal	Pin #	Signal
1	GROUND	11	USB_OTG_P
2	DC_IN	12	USB_OTG_M
3	DOCK_LOW_PWR	13	CHARGE_IN
4	GROUND	14	GROUND
5	USB_OTG_VBUS	15	DC_IN
6	CHARGE_IN	16	UART_RX
7	GROUND	17	GROUND
8	DC_IN	18	UART_TX
9	USBH_P	19	CHARGE_DATA
10	USBH_M	20	GROUND

A.2 Snap Modules Connectors

- **Model ST4000** (Charger only variant): power and charge.
- **Model ST4001** (USB Host/Client variant): power, charge, communications via USB 1.1/2.0 Host and USB 2.0 Client connectors, DC IN port.
- **Model ST4005** (DE9M Serial variant): powered DE9M serial connector, power, charge, serial communications. Pin 9 is reserved for 5V 1A max power out and is defaulted to **off**.



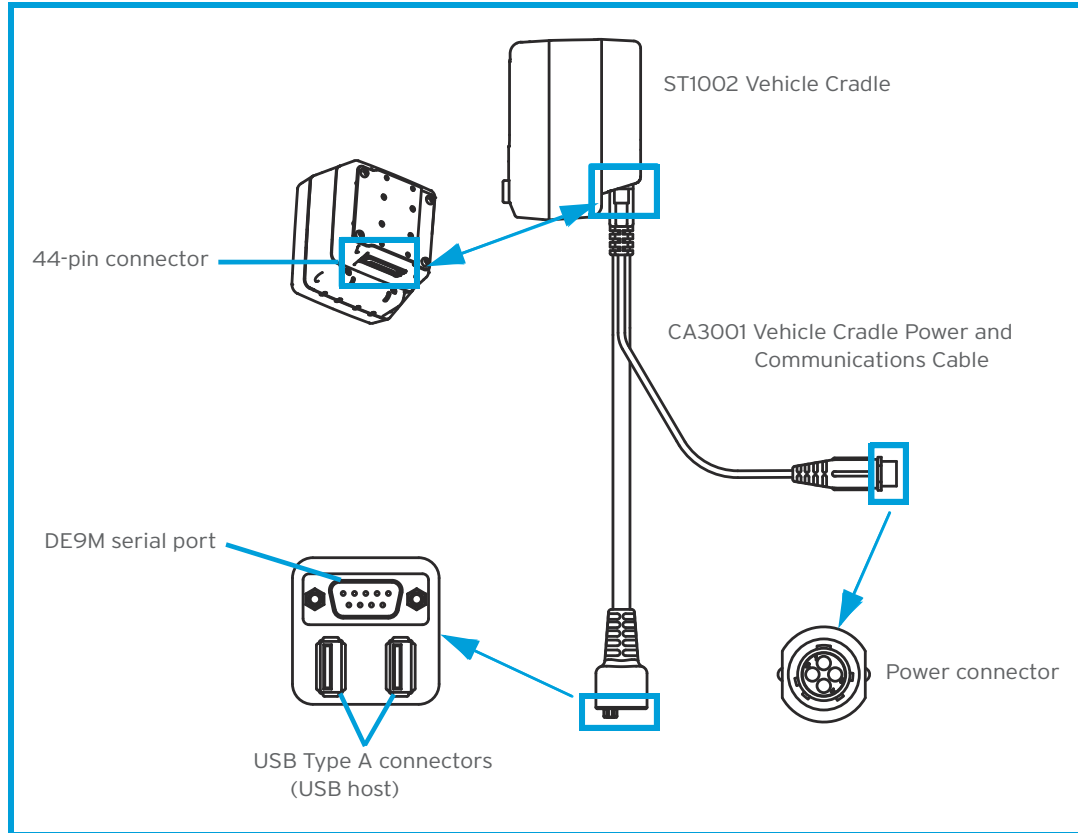
The following are the pin assignments of the interfaces.

Table A.2 Snap Modules Connectors Pinout

ST4001				ST4005	
USB Micro B Connector		USB Type A Connector		DE9M Serial Connector	
Pin #	Signal	Pin #	Signal	Pin #	Signal
1	VCC	1	VBus	1	DCD
2	D-	2	D-	2	RXD
3	D+	3	D+	3	TXD
4	ID	4	GROUND	4	DTR
5	GROUND	5	SHIELD	5	GROUND
		6	SHIELD	6	DSR
				7	RTS
				8	CTS
				9	5Vdc 1A power out

A.3 Cable Connectors for Vehicle Cradle Model ST1002

The ST1002 Vehicle Cradle has a 44-pin connector that allows connection with either the CA3001 Vehicle Cradle Power and Communications Cable (DE9M serial port, 2 USB Host interfaces, and power cable) or the power-only CA3000 Vehicle Cradle Power Cable. For installation details, see “Powered Cradle Installation” on page 150.



The following are the pin assignments of the interfaces.

Table A.3 CA3001 Vehicle Cradle Cable Connectors Pinout

USB Type A		DE9M Serial		Power	
Pin #	Signal	Pin #	Signal	Pin #	Signal
1	VBus	1	VIN	1	VIN (1.5 to 30Vdc)
2	D-	2	GND (not chassis ground)	2	GND (not chassis ground)
3	D+	3	MOTION DETECT	3	MOTION DETECT
4	DGROUND	4	MOTION DETECT RETURN (not ground)	4	MOTION DETECT RETURN (not ground)

A.4 Omni Battery Contacts

Figure A.1 Battery Contact Pinout



Table A.4 Battery Contact Pinout

Pin #	Signal Name	Description
1	BATT-RAW	Positive lead of battery.
-		Plastic Rip - provides mechanical polarity.
2	BATT-RAW	Positive lead of battery.
3	BATT-CLK	SMBus data clock.
4	BATT-ID	0 to NEG.
5	BATT-DATA	SMBus bi-directional data line.
6	GND	Negative lead of battery.
7	GND	Negative lead of battery.

B

APPENDIX: IMAGER & CAMERA SETTINGS

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The *Imagers* applet is used to create, modify, delete, and activate imager settings. The principal uses of the application are to decode barcodes and to capture images. This imager services application is used for cameras and imagers to configure linear (1D), stacked linear, matrix (true 2D) and postal barcodes. A *Demonstration Application* is provided to demonstrate how the imager works. Refer to “Demo” on page 37 for details.

B.1 Required Applets

In order to configure imaging, the *Manage Triggers* applet must be present in the Control Panel, along with the *Imagers* applet.



Note: The Imagers icon is only displayed when the appropriate imager is installed in your Omnii. If there is an imager installed but this icon is not present, additional software (ICS) may need to be installed.

To enable a newly-installed imager, press and hold down the [FN] key and the [ENTER/Power] key simultaneously for a minimum of three seconds.

B.2 Presets

There are two methods that can be used to configure an imager using the *Imagers* applet:

- Use a predefined preset.
- Create a custom preset based on a predefined preset.



Important: It is strongly recommended that a predefined preset is used whenever possible. Each predefined preset contains a coherent group of settings that are known to work together in the intended environment. In almost all situations, at least one of the predefined presets results in a satisfactory outcome.

A *preset* is a group of exposure and image correction settings. Each preset configures the imager for a specific purpose such as barcode decoding or image capture.

Presets also allow easier and faster configuration of the imager after power-on or resume from suspend.

The predefined presets are generic and satisfy most user requirements. A custom preset can be created for a specific user application, such as: include only specified barcodes, read only a specified number of barcodes or for reading unusual media.

Every preset belongs to a preset type. The following preset types are available:

- Imaging for photo capture.
- Imaging for barcode decoding.
- Symbology selection.

At any time, only one preset of each type can be designated as the user-selected *active* preset.

B.2.1 Predefined Presets

Predefined presets are built into the imaging software and cannot be changed. The predefined presets allow you to use the imager to perform specified tasks without having to understand and set numerous variables. In almost all cases these predefined presets are sufficient.

B.2.2 Barcode Predefined Presets (Barcoding Menu)

These presets encompass the majority of the most popular barcodes and their subtypes. The *barcode decoding symbology* predefined presets define which barcodes can be decoded. The *barcode decoding camera* predefined presets determine how the barcode images are captured.

B.2.2.1 Barcode Decoding Symbology Predefined Presets

The following presets select groups of similar barcodes for decoding.



Note: It is recommended that the default preset be used whenever possible.

My Default

This preset uses the *Symbology Settings* menu to define the preset. For details about the *Symbology Settings* menu, refer to “Barcoding Menu - Configuring Symbologies” on page B-13.

Factory Default

This preset enables the decoding of frequently used barcodes.

All

This preset enables the decoding of all barcodes that the imager can decode.

Linear

This preset enables the decoding of all the 1D symbologies that the imager can decode.

Linear and PDF417

This preset enables the decoding of all the 1D and PDF symbologies that the imager can decode.

Matrix

This preset enables the decoding of all 2D symbologies that the imager can decode.

Postal

This preset enables the decoding of all the postal symbologies that the imager can decode.

B.2.2.2 Barcode Decoding Camera Predefined Presets

The following presets enable successful barcode image capture in almost all conditions.



Note: It is recommended that the default preset be used whenever possible.

Default

This preset works in a wide range of conditions. It is optimized for a normal office lighting (about 300 Lux).

Low Light

This preset is designed for very dark conditions such as inside a warehouse where the lights are kept low, or inside an unlit truck. This preset increases either the exposure time or the gain.

Low Power

This preset minimizes the use of the flash so as to conserve the battery power on the hand-held.

Glossy Surface

This preset minimizes the use of the flash so as to reduce reflection. This preset is used to read barcodes that are behind glass, or inside the plastic window of an envelope.

B.2.3 Image Capture Predefined Presets (Imaging Menu)

The following presets enable successful image capture in almost all conditions.



Note: It is recommended that the default preset be used whenever possible.

Default

This preset works in a wide range of conditions. It is optimized for a normal office lighting (about 300 Lux).

Motion

This preset uses a shorter exposure time so as to freeze motion.

Low Light Near

This preset is designed for dark conditions, it uses a longer exposure time and includes the flash.

B.3 Using the Imagers Applet**B.3.1 Configuring the Image Capture Presets (Imaging Menu)**

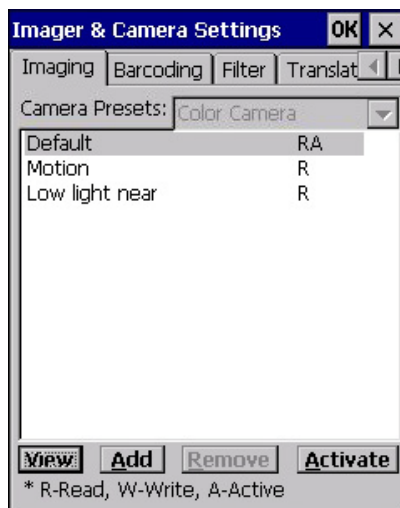
To configure the image capture presets, open the dialog box as follows:

- Tap on **Start>Settings>Control Panel**.
- Tap on the **Imagers** icon, and if it's not already selected, tap on the **Imaging** tab.



The following screen is displayed.

Figure B.1 Imaging Menu



This window lists all the presets, both predefined and custom. Presets are identified as follows:

- Predefined presets are marked as 'R' *read-only*.
- Custom presets are marked as 'RW' *read and write*.
- One preset—either predefined or custom—is marked as 'A' *active*.

B.3.1.1 Selecting a Camera

To select a camera:

- Tap on the **Camera Presets** drop-down menu to view the camera options.
- Choose a **camera**—specifically, *Front Imager* which is located at the top of the unit.

B.3.1.2 Setting the Active Preset

An active preset has an A to the right. To set an active preset:

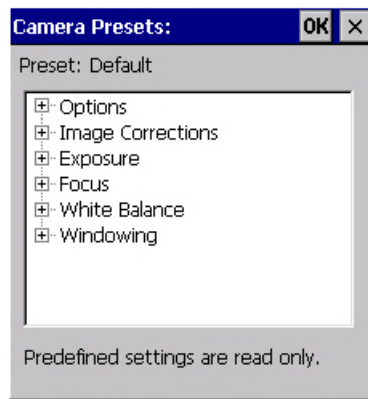
- Highlight the preset, and tap on the **Activate** button.

B.3.1.3 Viewing a Preset

To view the parameter settings in a preset:

- Highlight a preset, and double-tap on the **View** button.

The associated preset window is displayed.



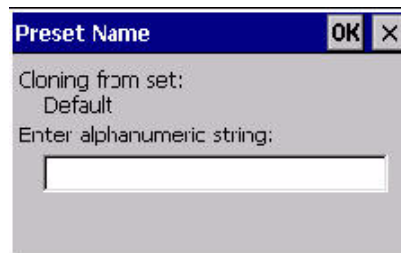
- Tap on the + sign to expand the lists so that you can view the parameter settings.

B.3.1.4 Creating a Custom Preset

A new custom preset is created by modifying a preset—either a predefined preset or an existing custom preset. To create a custom preset:

- Highlight a preset, and tap on the **Add** button.

A screen like the sample below is displayed.



- Type the **name** of the new preset in the dialog box.
- Tap on **OK** to save your changes.

The preset list is displayed; the new custom preset appears at the end of the list. It is marked as read and write.

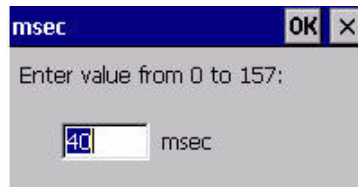
B.3.1.5 Modifying a Custom Preset

The parameter values in a custom preset can be modified. It is recommended that very few changes be made to a custom preset. To ensure that it will work reliably, it should be as close as possible to the original predefined preset. To change a parameter value:

- Highlight the custom preset, and double-tap on the **Edit** button.



- Tap on the + symbols to expand the lists so that you can view the parameter settings.
- Scroll through the parameter list until you reach the parameter that you want to change.
- For a parameter that can take a *range* of values:
 - Highlight the parameter, and then press the **[SPACE]** key or double-click on the parameter.
 - An associated dialog box containing the valid range of values for the parameter and the current setting like the sample screen following is displayed.



- Type a value in the field provided.
- For a parameter that toggles between two values such as *on* or *off* and *enabled* or *disabled*:
 - Highlight the parameter and then press the **[SPACE]** key, or double-click on the parameter. Either method toggles between the two available values.
- When you've completed your edits, tap on **OK**.

The parameter list is displayed; the new value for the changed parameter is shown.

- Tap on **OK** to exit to the preset list and save the changes.

B.3.1.6 Removing a Custom Preset

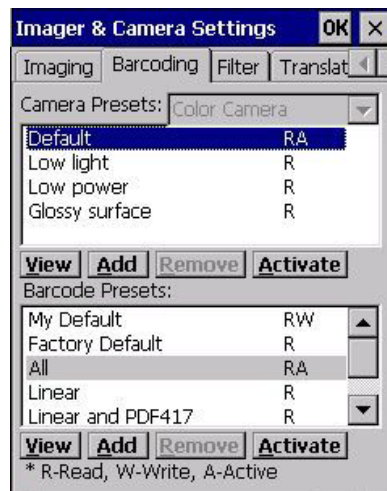
- Highlight the custom preset you want to delete, and tap on the **Remove** button. A window is displayed warning you that you are about to remove a preset.
- Tap on **Yes** to remove the preset or **No** to cancel the operation.

B.3.2 Configuring the Barcode Decoding Camera Presets (Barcoding Menu)

To configure the barcode decoding camera presets:

- Tap on **Start>Settings>Control Panel>Imagers**.
- Tap on the **Barcoding** tab.

Figure B.2 Camera Presets



Note: The top portion of the window displays the barcode decoding camera presets.

This window lists all the presets, both predefined and the custom. Presets are identified as follows:

- Predefined presets are marked as read-only. For a description, review “Predefined Presets” on page B-3.
- Predefined presets are marked as ‘R’ *read-only*.
- Custom presets are marked as ‘RW’ *read and write*.
- One preset—either predefined or custom—is marked as ‘A’ *active*.

B.3.2.1 Selecting a Camera

To select a camera:

- Tap on the **Camera Presets** drop-down menu to view the camera options.
- Choose a **camera**—specifically, *Front Imager* which is located at the top of the unit.

B.3.2.2 Setting the Active Preset

An active preset has an A to the right; in Figure B.3 on page B-11, the active preset is *Default*. To set an active preset:

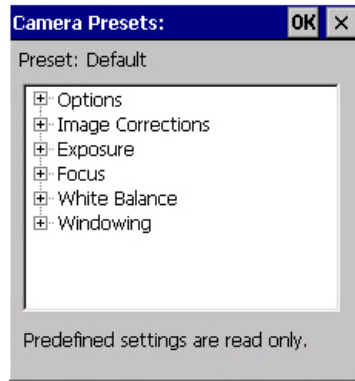
- Highlight the preset, and tap on the **Activate** button.

B.3.2.3 Viewing a Preset

To view the parameter settings in a preset:

- Highlight a preset, and double-tap on the **View** button.

The associated preset window is displayed.



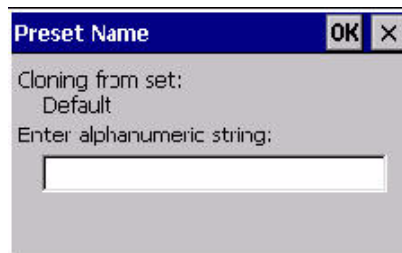
- Tap on the + sign to expand one of the lists so that you can view the parameter settings.

B.3.2.4 Creating a Custom Preset

A new custom preset is created by modifying a preset—either a predefined preset or an existing custom preset. To create a custom preset:

- Highlight a preset, and tap on the **Add** button.

A screen like the sample following is displayed.



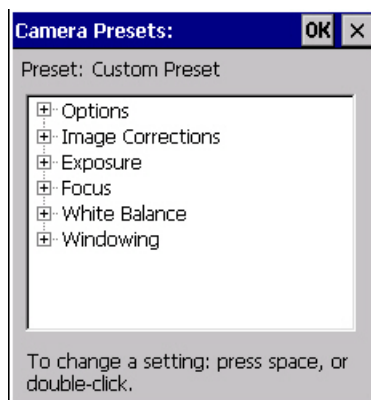
- Type the **name** of the new preset in the dialog box.
- Tap on **OK** to save your changes.

The preset list is displayed; the new custom preset appears at the end of the list. It is marked as read and write.

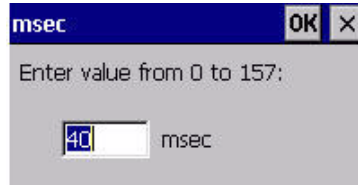
B.3.2.5 Modifying a Custom Preset

The parameter values in a custom preset can be modified. It is recommended that very few changes be made to a custom preset. To ensure that it will work reliably, it should be as close as possible to the original predefined preset. To change a parameter value:

- Highlight the custom preset, and double-tap on the **Edit** button.



- Tap on the **+** symbols to expand the lists and view the parameter settings.
- Scroll through the parameter list until you reach the parameter that you want to change.
- For a parameter that can take a *range* of values:
 - Highlight the parameter, and then press the **[SPACE]** key or double-click the parameter.
 - An associated dialog box containing the valid range of values for the parameter and the current setting like the sample screen following is displayed.



- Type a value in the field provided.
- For a parameter that toggles between two values such as *on* or *off* and *enabled* or *disabled*:
 - Highlight the parameter and then press the **[SPACE]** key, or double-click on the parameter. Either method toggles between the two available values.
- When you've completed your edits, tap on **OK**.
The parameter list is displayed; the new value for the changed parameter is shown.
- Tap on **OK** to exit to the preset list and save the changes.

B.3.2.6 Removing a Custom Preset

- Highlight the custom preset you want to delete, and tap on the **Remove** button. A window is displayed warning you that you are about to remove a preset.
- Tap on **Yes** to remove the preset or **No** to cancel the operation.

B.3.3 Configuring the Barcode Decoding Symbologies (Barcoding Menu)

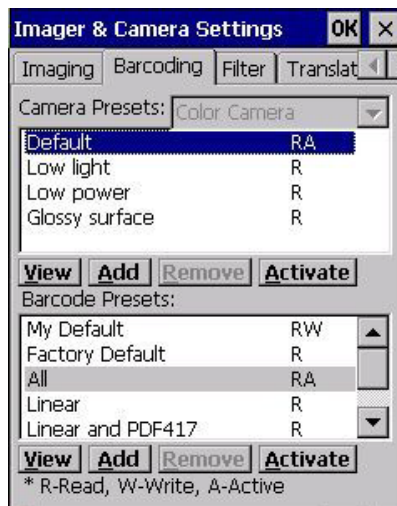
To configure the barcode decoding camera presets:

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



- Tap on the **Barcoding** tab.

Figure B.3 Viewing Barcode Decoding Symbologies



Note: The bottom portion of the window displays the barcode decoding barcode presets.

B.3.3.1 Setting the Active Preset

An active preset has an A to the right; in Figure B.3 on page 11, the active preset is *Default*. To set an active preset:

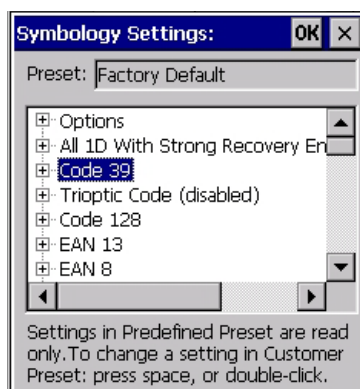
- Highlight the preset, and tap on the **Activate** button.

B.3.3.2 Viewing a Preset

To view the parameter settings in a preset:

- Highlight a preset, and double-tap on the **View** button.

The associated preset window is displayed.



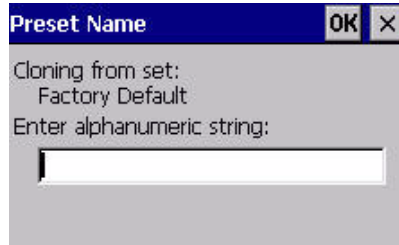
- Tap on the + sign to expand one of the lists so that you can view the parameter settings.

B.3.3.3 Creating a Custom Preset

A new custom preset is created by modifying a preset—either a predefined preset or an existing custom preset. To create a custom preset:

- Highlight a preset, and tap on the **Add** button.

A screen like the sample following is displayed.



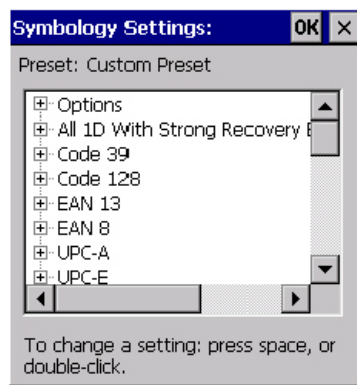
- Type the **name** of the new preset in the dialog box.
- Tap on **OK** to save your changes.

The preset list is displayed; the new custom preset appears at the end of the list. It is marked as read and write.

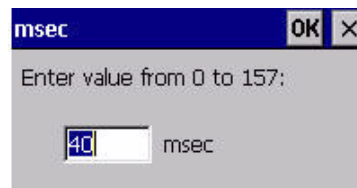
B.3.3.4 Modifying a Custom Preset

The parameter values in a custom preset can be modified. It is recommended that very few changes be made to a custom preset. To ensure that it will work reliably, it should be as close as possible to the original predefined preset. To change a parameter value:

- Highlight the custom preset, and double-tap on the **Edit** button.



- Tap on the **+** symbols to expand the lists and view the parameter settings.
- Scroll through the parameter list until you reach the parameter that you want to change.
- For a parameter that can take a *range* of values:
 - Highlight the parameter, and then press the **[SPACE]** key or double-click the parameter.
 - An associated dialog box containing the valid range of values for the parameter and the current setting like the sample screen following is displayed.



- Type a value in the field provided.
 - For a parameter that toggles between two values such as *on* or *off* and *enabled* or *disabled*:
 - Highlight the parameter and then press the **[SPACE]** key, or double-click on the parameter. Either method toggles between the two available values.
 - When you've completed your edits, tap on **OK**.
- The parameter list is displayed; the new value for the changed parameter is shown.
- Tap on **OK** to exit to the preset list and save the changes.

B.3.3.5 Removing a Custom Preset

- Highlight the custom preset you want to delete, and tap on the **Remove** button. A window is displayed warning you that you are about to remove a preset.
- Tap on **Yes** to remove the preset or **No** to cancel the operation.

B.3.4 Barcoding Menu - Configuring Symbolologies

To view the *Symbology Settings* options:

- Tap on the **Barcoding** tab, highlight **All** and then double-tap the **View** button.

To edit a default preset, you must first *activate* it:

- Tap on **My Default**, and tap on the **Activate** button - an A appears to the right of *My Default*. Once the preset is activated, you can enable or disable the barcodes the imager will read.

- Highlight **My Default** in the *Barcoding* tab.

- Double-tap on the **Edit** button.

None of the other barcode decoding predefined presets are changed.

B.3.4.1 Symbology Settings

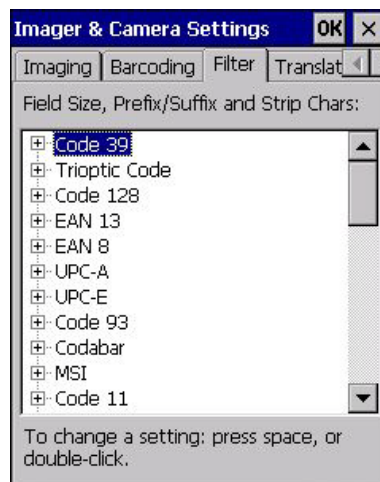


Note: For descriptions of the barcode symbolologies, review "Barcode Symbolologies" on page B-16.

B.3.5 Filter Menu - Manipulating Barcode Data

To configure rules for manipulating barcode data:

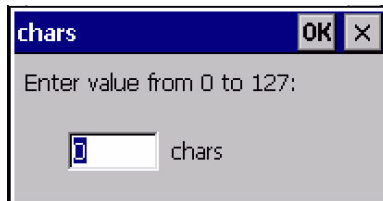
- Tap on **Start>Settings>Control Panel**.
- Tap on the **Imagers** icon, and then tap on the **Filter** tab.



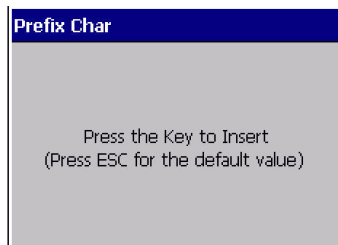
B.3.5.1 Modifying a Barcode Setting

The rules for manipulating data from selected barcode symbolologies can be modified. To change the settings for a symbology:

- Tap on the **+** symbols to expand the lists and view the parameter settings.
- Scroll through the parameter list until you reach the parameter that you want to change.
- For a parameter that can take a *range* of values:
 - Highlight the parameter, and then press the **[SPACE]** key or double-click the parameter.
 - An associated dialog box containing the valid range of values for the parameter and the current setting like the sample screen following is displayed.



- Type a value in the field provided.
- For a parameter that takes a single character:
 - Highlight the parameter and then press the **[SPACE]** key, or double-click the parameter. The following screen is displayed:



- When you've completed your edits, tap on **OK**.

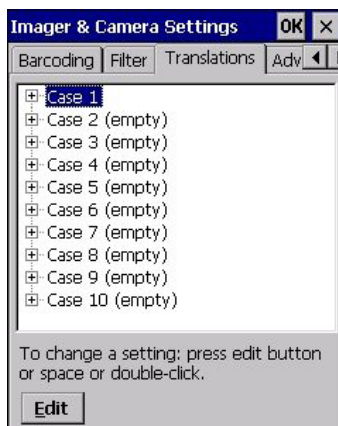
B.3.6 Translation Menu - Configuring Rules

Translation rules enable the automatic processing of barcode data. Up to 10 cases can be defined, each consisting of up to 10 sequential rules.



Note: Changes made to the translations configuration using the Scanner Control Panel program are synchronized with changes made here. Changes made in either place affect both translation tables.

- Tap on **Start>Settings>Control Panel**.
- Tap on the **Imagers** icon, and then tap on the **Translations** tab.

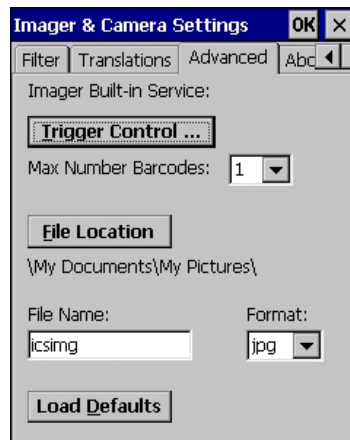


For instructions on adding, editing, and removing translation rules, refer to "Translations" on page 102.

B.3.7 Advanced Menu**B.3.7.1 File Locations for Captured Images**

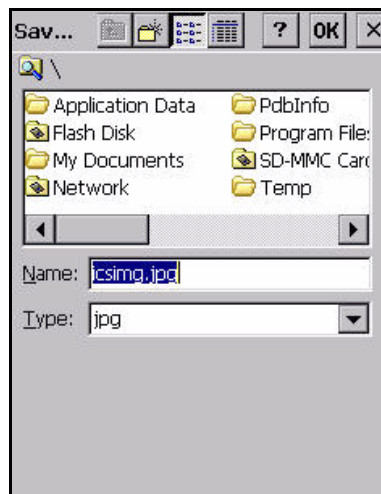
To configure the location for saved images, open the dialog box as follows:

- Tap on **Start>Settings>Control Panel**.
- Tap on the **Imagers** icon, and then tap on the **Advanced** tab.



To define the location where imager files will be stored:

- Tap on the **File Location** button.

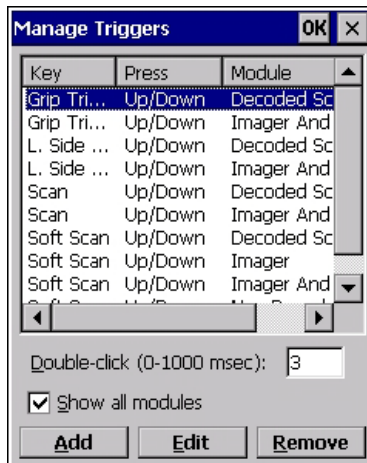


- Type the file **Name**, choose the **Folder** and file **Type**.
- Choose the **Location** in which your files will be saved.
- When you have completed all the changes, tap on the **Save** button.

B.3.7.2 Configuring Triggers**Viewing the Trigger Configuration**

The trigger on Omnii is configured using the *Manage Triggers* applet. The *Imagers* applet provides a shortcut to the *Manage Triggers* applet.

- In the *Advanced* tab, tap on the **Trigger Control** button.
- To view all the triggers and the hardware devices that are configured to use them, tap in the checkbox next to **Show all modules**.



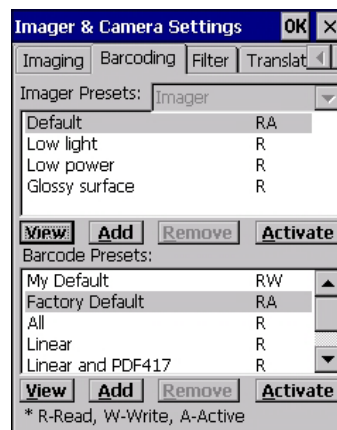
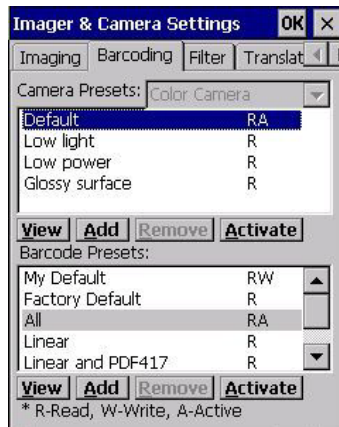
Adding, Editing and Removing Triggers

For instruction about adding, editing and removing triggers, refer to “Manage Triggers” on page 81.

B.4 Barcode Symbolologies

There are two sets of barcode symbolologies, one for *Imager* and one for *Color Camera*. To display the barcodes available:

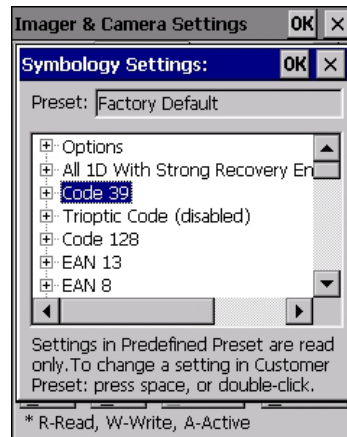
- In the *Imager & Camera Settings* screen, go to the **Barcoding** tab.
- In the *Camera Presets*: drop-down menu at the top of the *Imager & Camera Settings* screen, choose **Imager** or **Color Camera** depending on which set of barcodes you want to work with.



- Go to the **Barcode Presets**.



- Tap on an **Barcode Preset** to display the barcode symbolgies.



B.4.1 Imager Barcode Symbolgies

The barcode symbolgies for the *Imager* are listed in this section.

Table B.1

Imager Barcode Symbolgies
All 1D With Strong Recovery Enabled
Code 39
Code 128
EAN 13
EAN 8
UPC-E
UPC-A
UPC/EAN Sharing Settings
Code 93 (disabled)
MSI Plessey (disabled)

Table B.1

Imager Barcode Symbolologies
Code 11 (disabled)
Interleaved 2 of 5 (disabled)
Matrix 2 of 5 (disabled)
Discrete 2 f 5 (disabled)
Telepen (disabled)
Gs1 DataBar (disabled)
TLC-39 (disabled)
2D PDF-417
2D micro PDF-417
CodaBlock F (disabled)
CodaBlock A (disabled)
2D Data Matrix
2D QR Code
2D Maxicode (disabled)
2D Aztec (disabled)
Postal: PlanNET (disabled)
Postal: PostNET (disabled)
Postal: China (disabled)
Postal: Japanese (disabled)
Postal: Kix (disabled)
Postal: Royal (disabled)
Gs1

B.4.2 Color Camera Barcode Symbolologies

The barcode symbolologies for the *Color Camera* are listed in this section.

Table B.2

Color Camera Barcode Symbolologies
All 1D With Strong Recovery Enabled
Code 39
Code 128
EAN 13
EAN 8
UPC-E
UPC-A
Code 93 (disabled)
Codabar
Interleaved 2 of 5 (disabled)
Gs1 DataBar (disabled)

Table B.2

Color Camera Barcode Symbologies
Gs1 Composite
2D PDF-417
2D micro PDF-417
2D Data Matrix
2D QR Code
2D Maxicode (disabled)
2D Aztec (disabled)
Postal: PlanNET (disabled)
Postal: PostNET (disabled)
Postal: Australia (disabled)
Postal: Canadian (disabled)
Postal: Japanese (disabled)
Postal: Kix (disabled)
Postal: Korean (disabled)
Postal: Royal (disabled)

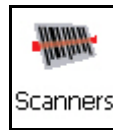


APPENDIX: SCANNER SETTINGS

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C.1 Barcode Settings

The *Scanners* icon in the *Control Panel* provides dialog boxes in which you can tailor barcode scanner configurations and choose the barcodes your scanner will recognize.



The parameters are preset with the default settings of the decoded scanner installed in the unit. For a listing of available scanners and their specifications, please refer to Chapter E: "Omni Specifications".

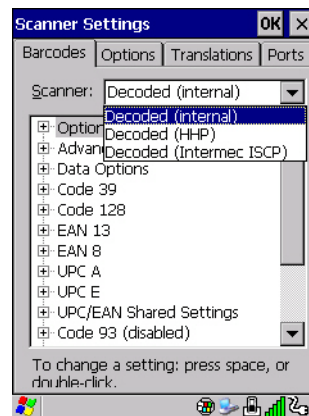


Important: To enable a newly-installed scanner, press and hold down the [FN] key and the [ENTER/Power] key simultaneously for a minimum of three seconds.

For information on configuring the Options, Translations, and Ports settings, see "Scanners" on page 98.

C.1.1 Scanner Options

The drop-down menu to the right of the *Scanner* option allows you to choose configurations for one of the following scanner types, depending on what is installed in/on your hand-held: *Decoded (internal)*, *Decoded (HHP)*, *Decoded (Intermec ISCP)*, and *Non-decoded Scanners*.



The symbologies listed change to reflect the scanner you choose and the barcodes it supports. Always defer to your barcode scanner's programming manual when in doubt about the availability or settings for any parameter.



Note: Your Omni comes preconfigured from the factory for internal scanner types. The type of scanner installed can be determined from the **System** icon in the *Control Panel*, under the *System Properties* tab.



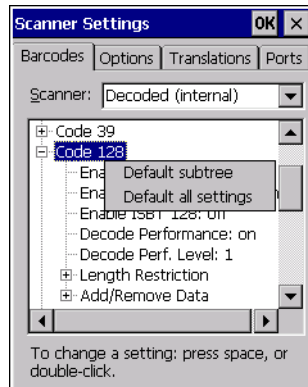
Important: To improve the decode speed and performance, enable (set to 'on') only those codes that are required by the application.

Keep in mind that some barcode types are only available when an internal imaging scanner is installed. All internal scanners can be configured using these dialog boxes.

C.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.

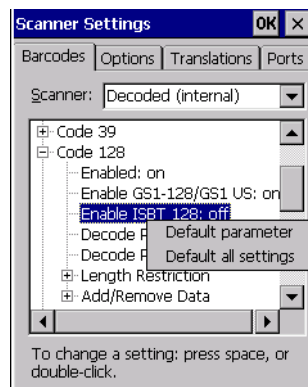
- Press and hold on a symbology (e.g., Code 128) to display a pop up a menu.



- 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.

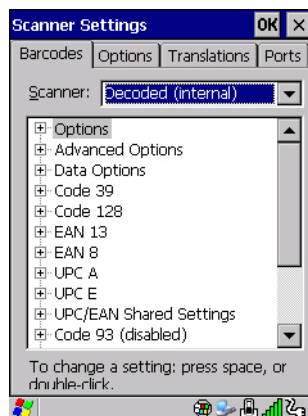
To reset a single parameter to its default setting:

- Press and hold on the parameter you want to reset.



- Choose **Default parameter** to reset the parameter to the default setting.

C.2 Decoded (Internal) Scanners



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

C.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.

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. The value is measured in tenths of seconds.

C.2.2 Decoded (Internal) Advanced Options

Scan Mode

You can set the method of scanning by setting this parameter to *Scan beam only*, *Aim with Scan: 1 trigger pull*, *Aim with Scan: 2 trigger pulls*, *Aim with Scan on trigger release*, and *Continuous Scan Mode*. Default is *Scan beam only*.

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.

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 you quickly trigger on/off.

Power Mode

This parameter is a power-saving option. Tapping on it displays a screen listing two power mode options: *Continuous Power* and *Low Power*.

In *Continuous Power* mode, the scanner is always on, waiting for a trigger pull or serial communication.

In *Low Power* mode, the scanner is in a standby state, drawing minimal power until a trigger pull or serial communication wakes it. Keep in mind that while this option is more suitable for battery powered applications, there will be a slight delay while the scanner powers up to scan a barcode.

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 barcode is scanned—a successful decode restores normal flashing.

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.*



Note: This parameter is only used if the Trigger Mode has been set to Continuous On and Omnii is mounted in a fixed position; otherwise, 'Low Power Timeout' is not used.

Parameter Scanning

Setting this parameter to **on** enables decoding of parameter barcodes.

Linear Security Level

This parameter allows you to select the security level appropriate for your barcode 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 barcode 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 barcode must be successfully scanned in both directions (forward and reverse) before being decoded.

C.2.3 Decoded (Internal) Data Options**Transmit Code ID Char**

A code ID character identifies the scanned barcode 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, dialog boxes are 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 barcodes 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 uninterpreted data.

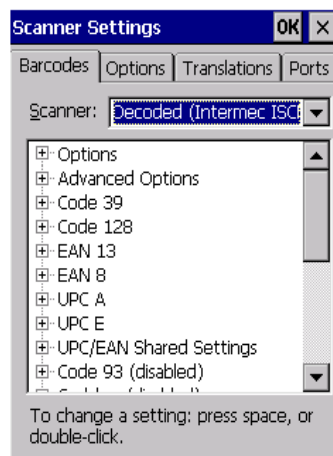
The barcode symbologies for the scanner are listed in Table C.1.

Table C.1

Decoded (Internal) Barcode Symbologies	
Code 39	UPC/EAN Shared Settings
Trioptic Code (disabled)	Code 93 (disabled)
Code 128	Codabar (disabled)
EAN 13	MSI Plessey (disabled)
EAN 8	Interleaved 2 of 5 (disabled)
UPC-A	Discrete 2 f 5 (disabled)
UPC-E	Gs1 DataBar (disabled)

C.3 Decoded (HHP)

To configure imagers, please see Appendix B: "Imager & Camera Settings".

C.4 Decoded (Intermec ISCP)

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

C.4.1 Decoded (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.

C.4.2 Decoded (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 you quickly trigger 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 barcode is scanned—a successful decode restores normal flashing.

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 unit is mounted in a fixed position; otherwise, 'Low Power Timeout' is not used.*

Parameter Scanning

Setting this parameter to **Enabled** allows decoding of parameter barcodes.

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 barcode 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 barcodes on the same label. The value assigned determines after what time period the scanner will timeout, from *0* to *2550 msec*.

Add AIM ID Prefix

The *AIM ID* (Association for Automatic Identification and Mobility) is an international barcode identifier. When this parameter is enabled, the *AIM ID* is inserted at the beginning of the decoded barcode.

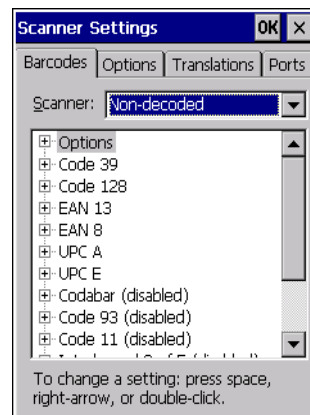
The barcode symbologies for the scanner are listed in Table C.2.

Table C.2

Decoded (Intermec ISCP) Barcode Symbologies	
Code 39	TLC-39 (disabled)
Code 128	2D PDF-417
EAN 13	2D micro PDF-417
EAN 8	Discrete 2 of 5 (disabled)
UPC-A	Telepen (disabled)
UPC-E	Gs1 DataBar (disabled)
UPC/EAN Shared Settings	Composite
Code 93 (disabled)	TLC-39 (disabled)
Codabar (disabled)	PDF-417
MSI Plessey (disabled)	micro PDF-417 (disabled)
Code 11 (disabled)	CodaBlock F (disabled)
Interleaved 2 of 5 (disabled)	CodaBlock A (disabled)
Matrix 2 of 5 (disabled)	

C.5 Non-Decoded Scanners

Figure C.1 Non-Decoded Scanner Options



- Tap on the **Scanner** drop-down menu, and choose *Non-decoded*.

All the available barcode symbologies for this type of scanner can be selected in this tab.

A 'plus' sign (+) to the left of the menu item indicates that a sub-menu of parameters is attached.

- Tap on the **+** sign to display the sub-menu.
- To change a parameter value, double-tap on the parameter. If you need to type a value, a dialog box is displayed in which you can type a new value. If you need to change a *yes* or *no* value, double-tapping on the parameter toggles between *yes* and *no*.

If you're using the keyboard:

- Highlight the barcode you want to work with, and press the [RIGHT] arrow key to display the sub-menu.
- Use the [UP] and [DOWN] arrow keys to highlight a parameter.
- To change a parameter value, press [SPACE] or the [RIGHT] arrow key. If a field requires text entry, a text box is displayed in which you can enter the appropriate value.

C.5.1 Options

- Tap on the + sign next to *Options* to display these parameters.

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 from 0 to 3000. A value of 0 (zero) disables the target dot.

Short Code

When enabled, this parameter allows scanning of short 1 2 of 5 barcodes (2 characters). When disabled, these short barcodes are rejected.

Enabling “Short Code” may reduce the robustness of the decoding since the hand-held must decode more potential barcodes; it is therefore not recommended for general-purpose barcodes with 4 or more characters.

Verify

The value entered for this parameter determines the number of correct additional decodes required after the initial decode, prior to a barcode being accepted. Higher values significantly increase the time it takes to decode a barcode but also improve the reliability of the decoded barcode.

Security

This parameter controls the tolerance for decoding edge-to-edge barcodes (Code 93, Code 128, UPC/EAN). Lower values have a lower tolerance for misreads, but they also increase the time it takes to decode the barcode. The default value of 30 is generally a good compromise setting.

The barcode symbologies for the scanner are listed in Table C.3.

Table C.3

Non-Decoded Barcode Symbologies	
Code 39	Code 93 (disabled)
Code 128	Code 11 (disabled)
EAN 13	Interleaved 2 of 5 (disabled)
EAN 8	MSI Plessey (disabled)
UPC-A	Discrete 2 of 5 (disabled)
UPC-E	IATA 2 of 5 (disabled)
Codabar (disabled)	



INTERNAL IMAGER & SCANNER SPECIFICATIONS

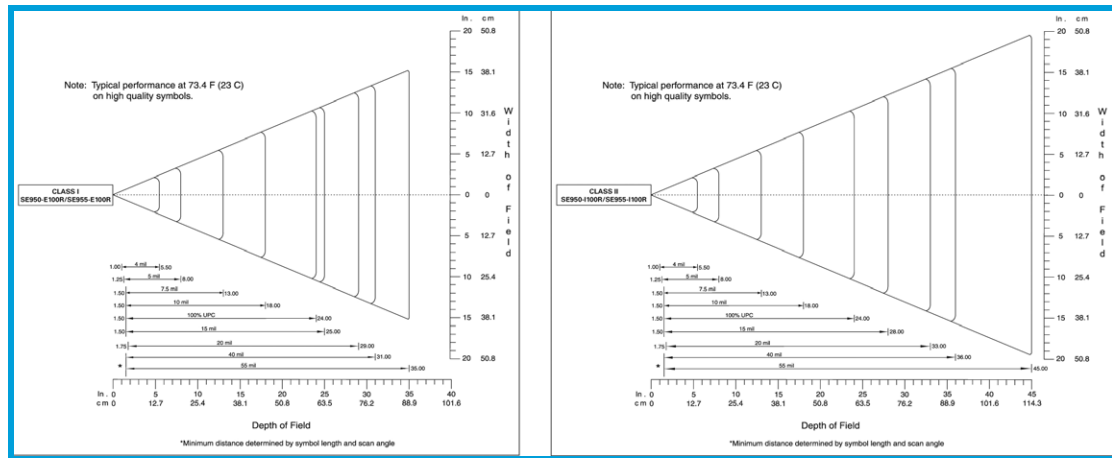
D.1	SE955 Scanner	D-3
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This appendix lists specifications for the following internal scanners. For a current list of model numbers and descriptions for Omnii scanner pod and back cover kits, please contact your Psion representative or go to http://www.pSION.com/us/products/handheld/omniit10_accessories.htm.

D.1 SE955 Scanner

Parameter	SE955
Configuration	Decoded
Scan Rate	104 (+ 12) scans/sec (bidirectional)
Scan Angle	47° ± 3° default / 35° ± 3° reduced
Voltage	3.0-3.6 V ± 10%; 5 V ± 10%
Ambient Light:	10,000 ft. candles
Laser Safety	IEC 60825
Electrical Safety	UL 60950, EN/IEC 60950
EMI/RFI	FCC Part 15 Class B, EN 55024/CISPR 22, AS 3548, VCCI
Environmental	RoHS Compliant

D.1.1 SE955 Decode Zones



D.2 SE1223LR - Long Range (Decoded) Scanner

Parameter	SE1223LR
Light Source	Visible Laser Diode 650 nm
Scan Rate	35 (+ 5) scans/sec (bi-directional)
Scan Angle	23° + 2°
Scan Patterns	Linear
Minimum Print Contrast	Minimum 40% absolute dark/light reflectance measured at 650 nm.
Symbologies Supported	UPC/EAN, Code 128, Code 39, Code 93, I 2 of 5, Discrete 2 of 5, Codabar, MSI, UCC/EAN 128, TriOptic Code 39.
Programmable Parameters	Laser On Time, Aim Duration, Power Mode, Trigger Mode, Bi-directional Redundancy, Symbology types/lengths, Data formatting, Serial Parameters, Beeper Tone.
Ambient Light	Artificial: 450 ft. candles (4,844 Lux). Sunlight: 8,000 ft. candles (86,112 Lux).
Power	Input Voltage: 5.0 VDC + 10% Input Current: 115 mA typical Standby Current: 70 mA max.
Laser Classification	Intended for use in CDRH Class II and IEC Class 2 devices
Electrical Safety	UL, VDE, and CUL recognized component laser
Environmental	RoHS-compliant

D.2.1 SE 1223LR Decode Zone

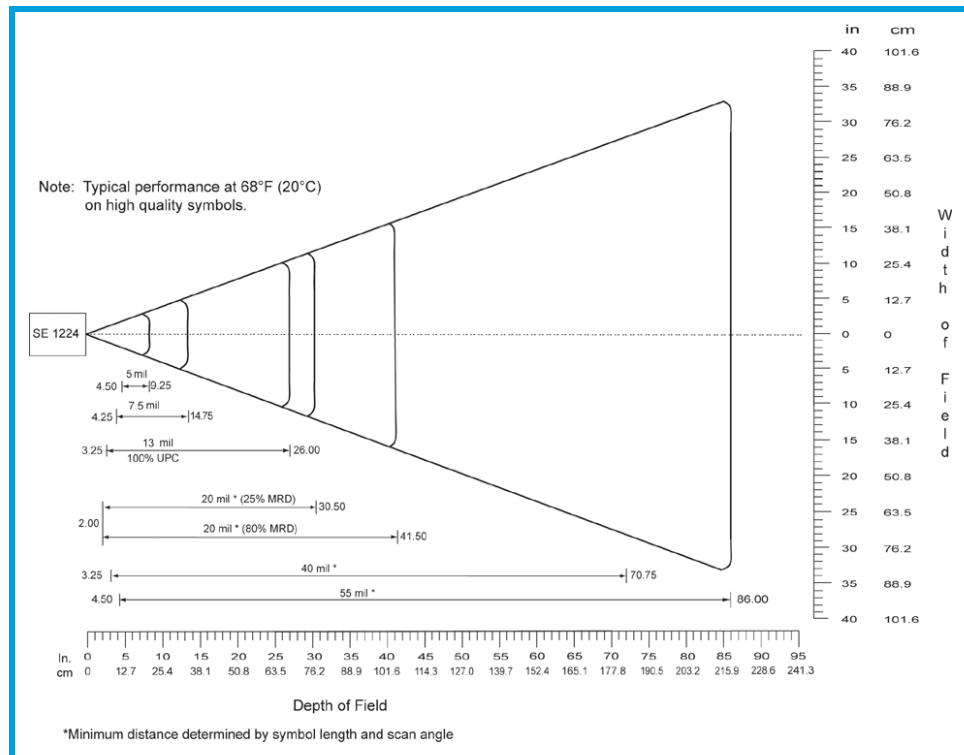
Table D.1

4,844 Lux to 86,112 Lux				
Mil Size	Minimum Range Inches	Width of Field Inches	Maximum Range Inches	Width of Field 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.				

D.3 SE1224HP - High Performance Scanner

Parameter	SE1224HP
Type	Laser Class 2
Light Source	Visible Laser Diode 650 nm
Scan Rate	35 (+ 5) scans/sec (bi-directional)
Scan Angle/Field of View	42° (typical), 30° (narrow)
Scan Patterns	Linear
Minimum Print Contrast	Minimum 25% absolute dark/light reflectance measured at 650 nm.
Symbologies	UPC/EAN, Code 128, UCC/EAN 128, RSS, Code 39, Code 93, I 2 of 5, Discrete 2 of 5, Codabar, MSI.
Programmable Parameters	Laser On Time, Aim Duration, Power Mode, Trigger Mode, Bi-directional Redundancy, Symbology types/lengths, Data formatting.
Ambient Light	Artificial: 450 ft. candles (4844 Lux). Sunlight: 8000 ft. candles (86112 Lux).
Laser Output Power (peak)	1.35 mW

D.3.1 SE1224HP Decode Zones

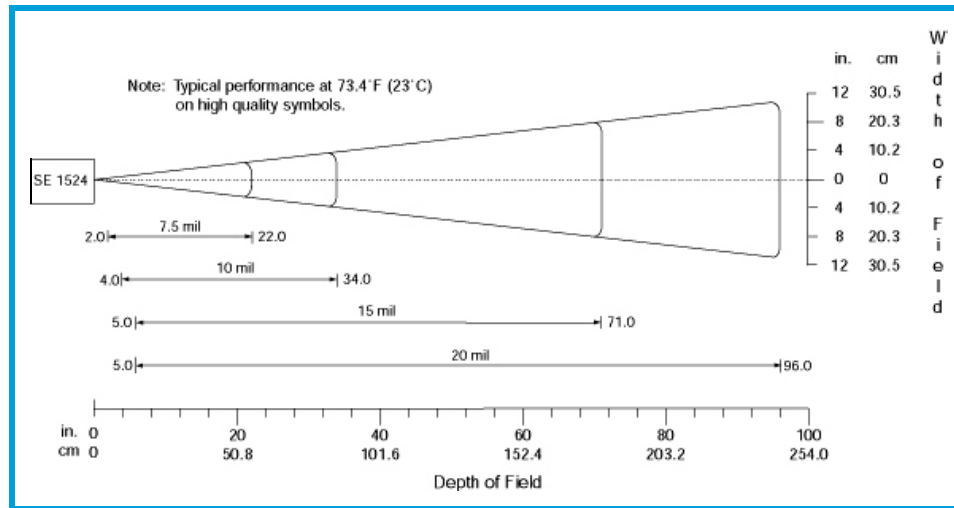


D.4 SE1524ER - Extended Range Scanner

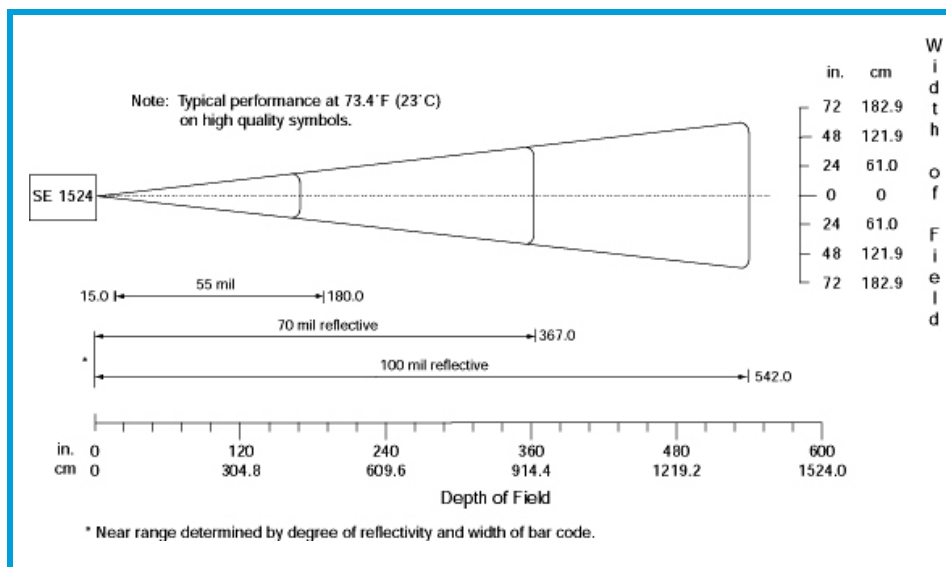
Parameter	Specification
Type	Laser Class 2
Light Source	Visible Laser Diode 650 nm
Scan Rate	35 (+5) scans/sec (bi-directional).
Scan Angle/Field of View	13.5° ±0.7°
Scan Patterns	Linear
Minimum Print Contrast	Minimum 25% absolute dark/light reflectance measured at 650 nm.
Symbologies	UPC/EAN, Code 128, UCC.EAN128, RSS, Code 39, Code 93, I 2 of 5, Discrete 2 of 5, Codabar, MSI.
Programmable Parameters	Laser On Time, Aim Duration, Power Mode, Trigger Mode, Bi-directional Redundancy, Symbology types/lengths, Data formatting.
Ambient Light	Artificial: 450 ft. candles (4,844 Lux) Sunlight: 4,000 ft. candles (86,112 Lux).
Laser Output Power (peak)	1.26 mW

D.4.1 SE1524ER Decode Zones

SE1524ER Decode Zone A (Short Range, Small Codes)



SE1524ER Decode Zone B (Long Range, Large Codes)



D.5 EV15 Imager

Parameter	Specification
Light Source	617 nm highly visible LED
Scan Angle	40°
Minimum Print Contrast	Minimum 25%
Minimum X. Dimension	0.1 mm (4 mils)
Reading Distance	Up to 90 cm (35 in)
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

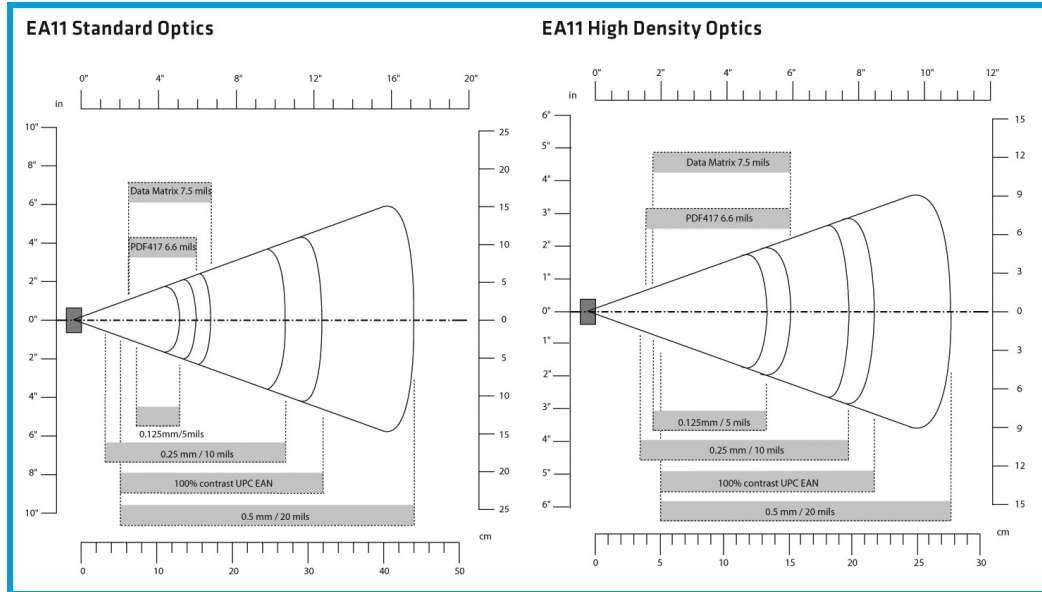
D.5.1 EV15 Imager Decode Zone

0 Lux to 100,000 Lux		
Mil Size	Minimum Range Inches	Maximum Range 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.		

D.6 EA11 Decoded 2D Imager

Parameter	Specification
Scan Rate	2D mode: 56 images/s auto adaptive
Linear Emulation Mode	200 scans/s auto adaptive
Scan Angle	38.9° (horizontal), 25.4° (vertical)
Optical Resolution	752 (H) x 480 (V) pixels, 256 gray levels
Print Contrast	down to 25%
Versions	Standard range and high density
Symbologies - 1D	EAN/UPC, GS1 Databar (limited expanded & omni-directional), 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, postal codes (Australian Post, BPO, Canada Post, Dutch Post, Japan Post, PostNet, Sweden Post)
Symbologies - 2D	Data Matrix, PDF417, Micro PDF 417, Codablock Maxicode, QR, Aztec GS1 composite codes
Voltage (optics)	3.3V -5% / +10% (typical values)
Operating Current	170mA - 310mA (lighting condition dependent)
Power Saving Mode	2mA
Ambient Light	Works in any lighting conditions, from 0 to 100,000 lux
Regulatory Approvals	UL, VDE certified, RoHS compliant

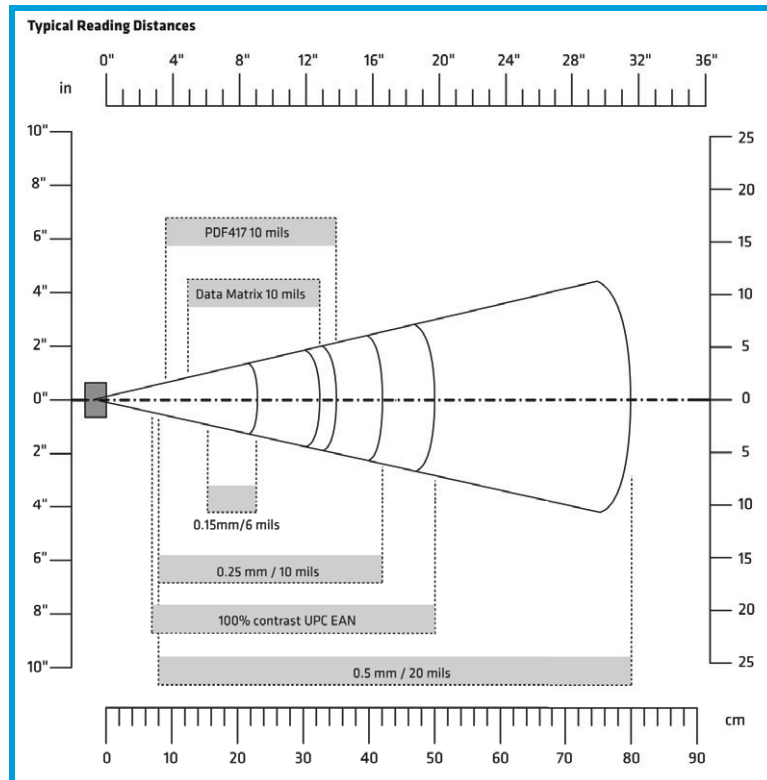
D.6.1 EA11 Typical Reading Distances



D.7 EA20X Imager

Parameter	Specification
Light Source	617nm highly visible LED, 650nm laser framing/aiming
Scan Rate	2D mode: 60 images/s auto adaptive
Linear Emulation Mode	200 scans/s auto adaptive
Scan Angle	26.0° (horizontal), 16.8° (vertical)
Framing Angles	25.0° (horizontal), 16.0° (vertical)
Optical Resolution	752 (H) x 480 (V) pixels, 256 gray levels
Print Contrast	down to 30% on 1D, 35% on 2D
Minimum Resolution	1D symbologies 0.15 mm (6 mil), Stacked (PDF417) 0.17 (6.6 mil) and 2D matrix 0.18 (7mil)
Symbologies - 1D	EAN/UPC, GS1 Databar (limited expanded & omni-directional), 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, postal codes (Australian Post, BPO, Canada Post, Dutch Post, Japan Post, PostNet, Sweden Post)
Symbologies - 2D	Data Matrix, PDF417, Micro PDF 417, Codablock Maxicode, QR, Aztec GS1 composite codes
Voltage	3.3V± 5%
Operating Current	410mA @ 3.3V scanning with power save
Power Saving Mode	7mA
Ambient Light	From 0 to 100,000 lux
Regulatory Approvals	UL, cUL, VDE certified, RoHS compliant, Class 2 Laser

D.7.1 EA20X Typical Reading Distances



D.8 HHP 5080 Imager/Decoder

Parameter	Specification
Focal Point - SR	7 inches (17.8 cm) from lens plate
Focal Point - SF	4.5 inches (11.4 cm) from lens plate
Image Sensor	752 x 480 CMOS sensor
Motion Tolerance	4 inches per second
Rotational Sensitivity	360°
Viewing Angle	±40°
Ambient Light	Total darkness to 100,000 lux (full sunlight)
Illumination LEDs	626 nm ± 30 nm
Aiming	LEDs: 526 nm ± 30 nm Laser: 650 nm ± 10 nm
Input Voltage - Imager	3.3 VDC ± 5% (23°C)
Input Voltage - HHP 5080	3.0 VDC to 5.5 VDC (23°C)
Current Draw - Imager	Max. Operating Current: 100 mA; Standby Current: 100 →A
Current Draw - HHP 5080	Average Current (Interlaced Mode): 510 mA; Standby Current: 120 →A ; Peak: 600 mA
Symbologies: 2 Dimensional	PDF417, MicroPDF417, MaxiCode, Data Matrix, QR Code, Aztec, Aztec Mesa, Code 49, UCC Composite
Linear	Code 39, Code 128, Codabar, UPC, EAN, Interleaved 2 of 5, Reduced Space Symbology, Code 93, Codablock
Postal	Postnet (US), Planet Code, BPO 4 State, Canadian Post, Japanese Post, KIX (Netherlands) Post

D.8.1 HHP 5080 Working Range

Data is characterized at 23°C (73.4°F) and 0 lux ambient light.

Symbology	Size (mil)	Near	Far
SR			
Linear	8.3 (.020cm)	3.5 in. (8.9cm)	7.6 in. (19.3cm)
PDF417	10 (.025cm)	3.1 in. (7.9cm)	9 in. (22.9cm)
UPC	13 (.033cm)	2.1 in. (5.3cm)	13.2 in. (33.5cm)
Data Matrix	15 (.038cm)	2.3 in. (5.8cm)	10.2 in. (25.9cm)
QR	15 (.038cm)	3.1 in. (7.9cm)	8.8 in. (22.4cm)
MaxiCode	35 (.089cm)	2.0 in. (5.1cm)	13.0 in. (33cm)
SF			
PDF417	6.6 (.017cm)	2.8 in. (7.1cm)	6 in. (15.2cm)
Linear	7.5 (.019cm)	2.5 in. (6.4cm)	6.5 in. (16.5cm)
Data Matrix	12.5 (.021cm)	3.4 in. (8.6cm)	5.7 in. (14.5cm)
QR	8.3 (.021cm)	3.4 in. (8.6cm)	5.4 in. (13.7cm)
Linear	10 Linear	2.2 in. (5.6cm)	7.6 in. (19.3cm)
UPC	13 (.033cm)	2.0 in. (5.1cm)	8.9 in. (22.6cm)



APPENDIX: OMNII SPECIFICATIONS

E.1	The Omnii Hand-Held Computer (Model 7545)	E-3
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E.1 The Omnii Hand-Held Computer (Model 7545)



Note: Performance specifications are nominal and subject to change without notice.

E.1.1 Hardware

Physical Dimensions

- Overall: 100 mm width x 42 mm depth x 230 mm length (3.9 in x 1.6 in x 9 in).
- Keypad area: 75 mm width x 32 mm depth (2.9 in x 1.3 in).

Weight

- With battery pack, EV15 imager, and high impact display 760 g (26.8 oz.)

Processor and Memory

- Texas Instruments® OMAP3® Processor 800 MHz
- RAM: 256 MB RAM.
- Flash Memory: configurable from 512 MB to 16 GB.

User Interface

- Colour Touch Display: 9.4 cm (3.7 in.) diagonal.
VGA/QVGA, 480 x 640 resolution.
High visibility version: superior sunlight visibility.
High Impact version: withstands 1.25 Joule impact.
- Keyboards: Backlit, high durability hard-capped keys.
Large selection of both alpha and numeric formats. For a list of currently available keyboard configurations, see the Keyboard and Keypads Kits list in the Accessories chapter.
- Indicators And Controls: Four multi-colour LEDs indicate the status of the battery, application, radio, and scanner.
- Side Buttons: Volume, Scan, Enter, Vertical Scroll.
- Audio: High volume beeper: 95 dBA
Integrated Microphone/Speaker.
Optional PTT Speaker.
Walkie-talkie style Push-to-Talk: VoIP over Wi-Fi
- Vibration: You can set Omnii to vibrate as a result of a successful or unsuccessful barcode scan.

Power Management

- Rated Voltage: 5 VDC
- Rated Current: 3 A.
- **Battery Pack:** lithium-ion 5000 mAh capacity with 9-hour life under normal operating conditions (for battery specifications, see "Lithium-ion Smart Battery 5000 mAh (ST3000)" on page E-5).
- Advanced Smart Battery with gas gauge.
- 3 power source options: Runs off battery, AC power, or automotive power supplies.
- Backup power: 5 minutes.

Communication

- Expansion Ports: MicroSD slot for Flash expansion.
- Multiple Internal Multi-Function Expansion Interfaces with:
 - 3v3 TTL serial
 - USB host
 - GPIO
- SIM Card slot.

Camera

The optional camera has the following features:

- Colour.
- 3 Megapixel.
- Autofocus.
- Manual digital 4x zoom.
- 2xLED flash.
- Video capable (optional with or without PTT speaker).

Environmental

- Standard Operating Temperature: -20°C to +50°C (-4°F to 122°F)
- Storage Temperature: -40°C to +60°C (-40°F to 140°F)
Long exposure to temperatures below -40°C (-40°F) may damage the screen and main battery. Prolonged exposure to temperatures above +60°C (+140°F) will damage the main battery, and temperatures above +70°C (+158°F) may damage the unit.
- Rain And Dust Resistance: IEC 60529, classification IP65.
- Humidity: 5% - 95% RH non-condensing
- ESD: +/- 8 kV contact, +/- 15 kV air discharge.
- Omnii RT15 Drop Durability: 1.5 m (5 ft.), 26 drops to polished concrete (powered on, with accessories); multiple 1.8 m (6 ft.) drops to polished concrete.
- Omnii XT15 Drop Durability: 1.7 m (5.6 ft.), 26 drops to polished concrete (powered on, with accessories); multiple 2.0 m (6.5 ft.) drops to polished concrete.

E.1.2 Approvals

- Safety: IEC 60950-1
- EMC: FCC Part 15 Class B
EN 55022
EN 55024
EN 301 489
- Laser: IEC 60825-1 Ed. 2.0, Class 1, Class 2
FDA 21 CFR 1040.10
1040.11 Class I, Class II
- *Bluetooth*: 2.0
- RF: *Bluetooth* and 802.11a/b/g/n: EN300 328, Part 15.247
- RoHS compliant: EU Directive 2002/95/EC

E.2 Lithium-ion Smart Battery 5000 mAh (ST3000)

For safety instructions, please see "Lithium-ion Battery Safety Precautions" in the *Omnii Hand-Held Computer Regulatory & Warranty Guide (PN 8000191)*.

Parameter	Specification
Model Number	ST3000
Chemistry	lithium-ion (Li-Ion)
Capacity	5000 mAh nominal at 1000 mA discharge 20°C to 3.0 V (min)
Battery Life	9 hours, under normal operating conditions.
Voltage	3.7 V nominal (3.0 V min. to 4.2 V max.)
Cell Configuration	2 P1S (2 parallel connected cells)
Max. Charge Voltage	4.2 V +/- 1%
Recommended Charge Termination Timeout	5.0 hr - charging must stop.
Charge Temperature	0°C to +40°C (32°F to +104°F)
Discharge Temperature	-20°C to +50°C (-4°F to +122°F)
Storage Temperature	-20°C to +50°C (-4°F to +122 °F). Storage at elevated temperatures not recommended. 25°C (77 °F)—recommended storage temperature.
Cycle Life	300 cycles minimum with no degradation below 70% of nominal capacity based on 0.5C charge / 0.5C discharge rates (to 3.0 V) @ 23°C (73.4 °F).

E.3 Wireless Radios

E.3.1 Cinterion MC75i GSM/GPRS/EDGE Radio

Parameter	Specification
Manufacturer	Cinterion, Model MC75i
Form Factor	Quad-Band GSM 850/900/1800/1900 MHz EDGE (E-GPRS) multi-slot class 12 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
Supply Voltage Range	3.2 to 4.3 V
EDGE Data Transmission	EDGE class 12: 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
SMS	Point-to-point MO and MT Text and PDU mode
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 Serial interface (ITU-T V.24 protocol) SIM card interface 3 V, 1.8 V

E.3.2 Cinterion PH8-P GSM/GPRS/EDGE Radio

Table E.1

Feature	Specifications
General	
Frequency bands	GSM/GPRS/EDGE: Quad band, 850/900/1800/1900MHz UMTS/HSPA+: Five band, 800/850/AWS/1900/2100MHz
GSM class	Small MS
Output power (according to Release 99)	Class 4 (+33dBm +2dB) for EGSM850 Class 4 (+33dBm +2dB) for EGSM900 Class 1 (+30dBm +2dB) for GSM1800 Class 1 (+30dBm +2dB) for GSM1900 Class E2 (+27dBm + 3dB) for GSM 850 8-PSK Class E2 (+27dBm + 3dB) for GSM 900 8-PSK Class E2 (+26dBm +3 /-4dB) for GSM 1800 8-PSK Class E2 (+26dBm +3 /-4dB) for GSM 1900 8-PSK Class 3 (+24dBm +1/-3dB) for UMTS 2100, WCDMA FDD Bd I Class 3 (+24dBm +1/-3dB) for UMTS 1900,WCDMA FDD Bd II Class 3 (+24dBm +1/-3dB) for UMTS AWS, WCDMA FDD Bd IV Class 3 (+24dBm +1/-3dB) for UMTS 850, WCDMA FDD Bd V Class 3 (+24dBm +1/-3dB) for UMTS 800, WCDMA FDD Bd VI
HSPA features	
3GPP Release 6, 7	DL 14.4Mbps, UL 5.7Mbps UE CAT. [1-6], 11, 12 supported Compressed mode (CM) supported according to 3GPP TS25.212
UMTS features	
3GPP Release 4	PS data rate - 384 kbps DL / 384 kbps UL CS data rate - 64 kbps DL / 64 kbps UL
GSM/GPRS/EGPRS features	
Data transfer	GPRS: <ul style="list-style-type: none"> • Multislot Class 10 • Full PBCCH support • Mobile Station Class B • Coding Scheme 1 - 4 EGPRS: <ul style="list-style-type: none"> • Multislot Class 10 • EDGE E2 power class for 8 PSK • Downlink coding schemes - CS 1-4, MCS 1-9 • Uplink coding schemes - CS 1-4, MCS 1-9 • SRB loopback and test mode B • 8-bit, 11-bit RACH • PBCCH support • 1 phase/2 phase access procedures • Link adaptation and IR • NACC, extended UL TBF • Mobile Station Class B CSD: <ul style="list-style-type: none"> • V.110, RLP, non-transparent • 14.4kbps • USSD
SMS	Point-to-point MT and MO
GPS features	
Protocol	NMEA
Modes	Assisted GPS (control plane AGPS, E911)
General	Power saving modes GPS tracking in parallel to 2G/3G diversity operation
Software	
AT commands	Hayes, 3GPP TS 27.007 and 27.005, and proprietary Cinterion Wireless Modules commands

Table E.1

Feature	Specifications
SIM Application Toolkit SAT Release 99	SIM Application Toolkit SAT Release 99
Audio	Audio speech codecs GSM: AMR, EFR, FR, HR 3GPP: AMR Speakerphone operation, echo cancellation, noise suppression
Interfaces	
Antenna	500ohms. Main GSM/UMTS antenna, UMTS diversity antenna, GPS antenna (active/passive)
USB	USB 2.0 High Speed (480Mbit/s) device interface
UICC interface	Supported chip cards: UICC/SIM/USIM 3V, 1.8V
Special features	
Phonebook	SIM and phone
Antenna	SAIC (Single Antenna Interference Cancellation) / DARP (Downlink Advanced Receiver Performance) RX diversity type 3i

E.3.3 802.11a/b/g/n Radio

Parameter	Sub-parameter	Specification
Manufacturer		Murata, Model LBEH1Z9PFC
Form Factor		Embedded surface mount module, 11.4 x 9.4 mm * This is a combo module containing both Wi-Fi 802.11a/b/g/n and <i>Bluetooth</i> V2.1+EDR radio
Antenna Port	802.11b/g/n	U.FL jack. Non-diversity. Multiplexed between 802.11b/g/n (2.4GHz) and <i>Bluetooth</i> radio
	802.11a/n	U.FL jack. Non-diversity.
Antenna Type	802.11b/g/n	PCB substrate patch antenna. Covers 2400-2484 MHz @ <2.5:1 VSWR
	802.11a/n	PCB substrate patch antenna. Covers 5150-5860 MHz @ <2.5:1 VSWR
Antenna Gain	802.11b/g/n	1.9 dBi
	802.11a/n	1.9 dBi
Transmit Power	802.11b	+18 dBm typical, +19.5 dBm max
	802.11g	+13 dBm typical, +14.5 dBm max
	802.11a	+12 dBm typical, +13.5 dBm max
	802.11n (2.4 GHz)	+12 dBm typical, +13.5 dBm max
	802.11n (5 GHz)	+12 dBm typical, +13.5 dBm max
Frequency Range	802.11b/g/n	2400-2483.5 MHz
	802.11a/n	5150-5350 MHz, 5480-5720 MHz and 5725-5845 MHz
Channels	802.11b/g/n	1 to 14. Up to 14 channels (depending on country). Only 3 channels are non-overlapping.
	802.11a/n	36, 40, 44, 48, 52, 56, 60, 64 100, 104, 108, 112, 116, 120, 124, 128, 132, 136, 140 149, 153, 157, 161, 165 Up to 24 channels (depending on country). All channels are non-overlapping.
RX Sensitivity	802.11b	-78 dBm @ 11 Mbps
	802.11g	-67 dBm @ 54 Mbps
	802.11a	-67 dBm @ 54 Mbps
	802.11n (2.4 GHz)	-66 dBm @ 65 Mbps
	802.11n (5 GHz)	-66 dBm @ 65 Mbps
Data Rates	802.11b	1,2,5,5,11 Mbps
	802.11a/g	6,9,12,18,24,36,48,54 Mbps
	802.11n	6.5,13,19.5,26,39,52,58.5,65 Mbps
EVM	802.11b	32% max
	802.11g	-26 dB max
	802.11a	-26 dB max
	802.11n (2.4 GHz)	-29 dB max
	802.11n (5 GHz)	-29 dB max
<i>Bluetooth</i> Coexistence		TI Wink6 proprietary WiFi-BT co-existent scheme.

E.3.4 Bluetooth Radio

Parameter	Specification
Manufacturer	Murata, Model LBEH1Z9PFC
Form Factor	Embedded surface mount module, 11.4 x 9.4 mm * This is a combo module containing both Wi-Fi 802.11a/b/g/n and <i>Bluetooth</i> V2.1+EDR radio
Antenna Port	U.FL jack (shared with Wi-Fi 802.11b/g/n radio)
Antenna Type	PCB substrate patch antenna. Covers 2400-2484 MHz @ <2.5:1 VSWR
Antenna Gain	1.9 dBi
Transmit Power	6.5 dBm typical, 8.5 dBm max
Frequency Range	2.400-2.4835 GHz
Channels	79
RX Sensitivity	-90 dBm typical, -70 dBm max
Data Rates	V1.2=732.2 kbps and 57.6 kbps asymmetric, 433.9 kbps symmetric V2.0=2 & 3 Mbps
802.11 Coexistence	TI Wilink6 proprietary WiFi-BT co-existent scheme.



APPENDIX: WIRELESS WIDE AREA NETWORK (WWAN) SETTINGS

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F.1 Wireless WAN

The Omnii is available with one of the following Wireless WAN (WWAN) radio options: the MC75i GSM/GPRS/EDGE and Cinterion PH8-P GSM/GPRS/EDGE. An Omnii Hand-Held Computer equipped with a GSM/GPRS radio has wide area networking capabilities. With either of these radios and a SIM card, you can wirelessly transfer data, and you use the Omnii voice option to place phone calls.

F.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 following taskbar icons are used:

- G - GSM/GPRS

- E - GSM/EDGE



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%.

Once the modem detects that a packet data service is available, a letter is added to the signal strength icon indicating the kind of packet data service. 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.

For example:



The modem has found a network, 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:



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.

F.1.2 Establishing a Connection

To display the main *Wireless WAN dialog* box:

- Double-tap on the **Wireless WAN** icon in the taskbar.

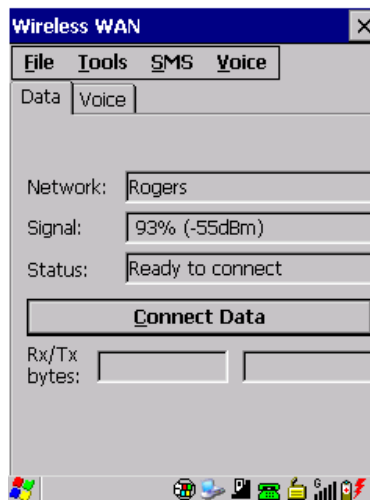
If the icon is not visible in the taskbar, the radio interface has been shut down or the modem has been removed:

- In the *Control Panel*, choose the **Wireless WAN** icon.



The main *Wireless WAN* dialog box is displayed.

Figure F.1 Establishing a Connection



Note: If you are prompted to enter a PIN, refer to "Entering a PIN Number" on page F-5 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.

- Connecting.
- 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*.

F.1.2.1 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.

F.1.2.2 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.

F.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 F-3 to make a connection. The information in this section is for advanced setup purposes.

F.1.3.1 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 network*, *Searching for packet data*, and *Ready to connect*.

F.1.3.2 Error States

The following temporary error states (i.e., these states may disappear without interaction) 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.

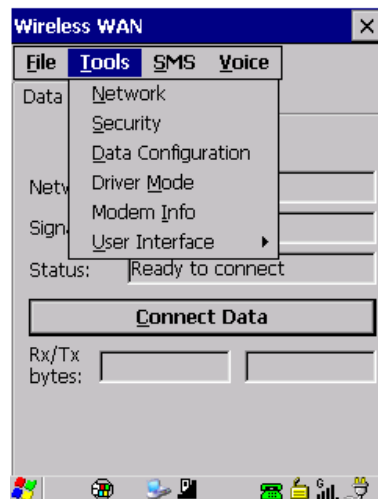
The modem did not respond to commands as expected. If a warm boot does not clear this condition, the modem may need to be replaced.

- NDIS error.

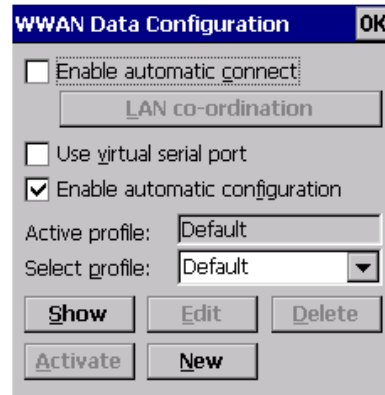
An internal software error has occurred. If a warm boot does not clear this condition, Psion technical support may need to investigate further.

F.1.4 Tools Menu

The Tools menu in the main *Wireless WAN* dialog box offers some additional, advanced setup features.



F.1.4.1 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).



Note: 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 interaction 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 its 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.
- An operator may use a different APN for certain groups of customers. Since the automatic configuration can configure only one APN per operator such connections have to 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 *Searching for network*).

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. Activation 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 F.2 Creating a New Profile



The screenshot shows a dialog box titled "New Data Profile" with "OK" and "X" buttons in the top right corner. The dialog contains the following fields and options:

- Name:** Microcell (1)
- APN:** internet.fido.ca
- User name:** (empty)
- Password:** (empty)
- Prompt user for password
- Force PAP authentication
- Reset** button

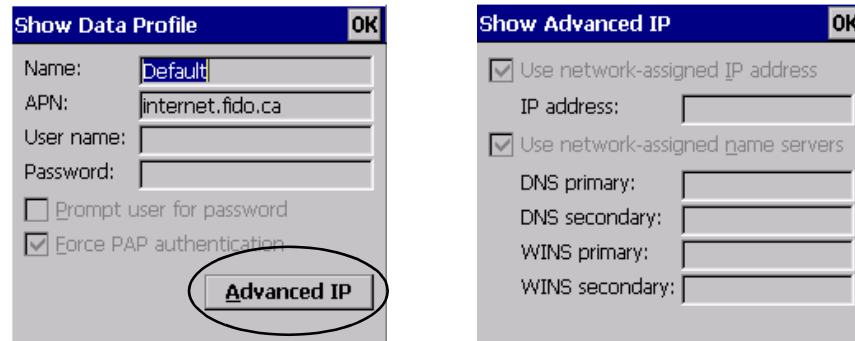
The name of the newly created profile must be different from all existing profiles. Also, the name cannot be *Default*. When the *New Data Profile* dialog box is opened, a proposal for a unique name is filled in the corresponding entry field. If a manually configured profile has a secret password and 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

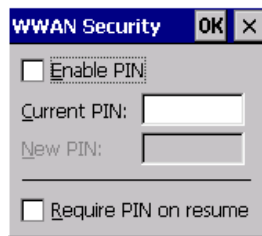
The *Reset* button in the *New Profile* and *Edit Profile* dialog boxes resets all entry fields to the values they had when the dialog box was opened.

Advanced IP

Figure F.3 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.

F.1.4.2 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.

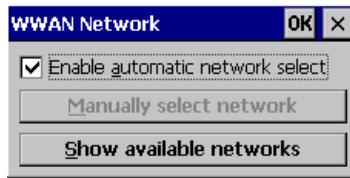
The *Require PIN on resume* checkbox is independent of the aforementioned settings. By default, this checkbox is unchecked. While this option remains unchecked, any PIN entered on startup or through the *Security Configuration* dialog box and submitted successfully to the modem is stored in memory for 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.

F.1.4.3 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.

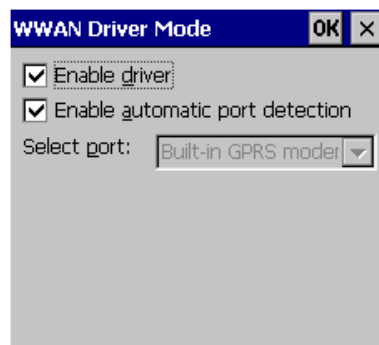
Available networks can also be viewed without changing any settings. Scanning for available networks is a lengthy operation—a progress bar is shown while the scan is active. For every network that is found, the network name, country, status and numeric network identifier (MCC/MNC, Mobile Country Code followed by the Mobile Network Code) is displayed.



Note: 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'.

F.1.4.4 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 115.2 kbit/s, 8bit, no parity and hardware flow control.

F.1.4.5 Modem Information

WWAN Modem Info		OK
Type:	GSM / GPRS	
Manuf.:	SIEMENS	
Model:	MC75	
Rev.:	REVISION 03.010	
IMEI:	355634003088124	
IMSI:	302370124928654	
SIM ID:	89302370107249286542	
Phone:		
Home:	Microcell Fido	

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.

F.1.4.6 User Interface

Taskbar

Choosing *Taskbar* displays a dialog box in which you can determine which Wireless WAN icons will be displayed in the taskbar.

Configure TaskBar Icons		OK	X
<input checked="" type="checkbox"/>	Enable WWAN signal strength		
<input checked="" type="checkbox"/>	Enable New SMS icon		
<input checked="" type="checkbox"/>	Enable Voice Dialer icon		

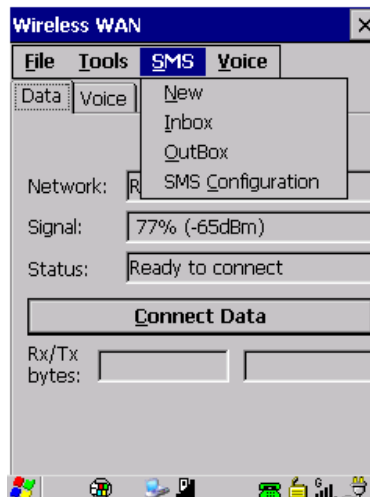
Sounds

Tapping on the *Sounds* option displays a dialog box in which you can customize which sounds your Omnia will emit and when these sounds will be played.



F.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.



F.1.5.1 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.

F.1.5.2 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. Tapping on 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.

F.1.5.3 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.

F.1.5.4 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.

F.1.6 Voice

The *Voice* tab is described in detail under "Voice Communication" on page 17.

F.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). See "WWAN Power Mode" on page 88.

For *PC Card* and *CF Card modems*, the settings are found under the *Card Slots* tab. If the checkbox for a modem is unchecked, 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, 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.



APPENDIX: WIRELESS ZERO CONFIG SETTINGS

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G.1 Wireless Information

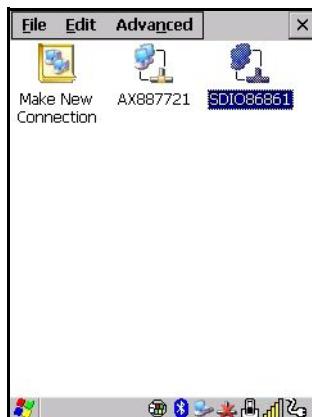
Wireless Zero Config, the Windows native supplicant, can be used to configure the radio. To ensure that *Wireless Zero Config* is activated, refer to “Wi-Fi Config: Advanced” on page 128.

- Tap on **Start>Settings>Network and Dial-up Connections**.



- Choose the **radio icon** representing the radio you want to set up—in the sample screen in Figure G.4, this is labelled as *SDIO86861*

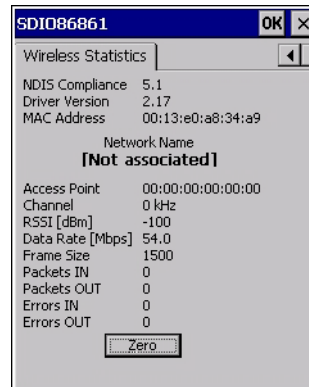
Figure G.4 802.11 Wireless LAN Settings Window



G.1.1 Wireless Statistics

When you choose the **Wireless LAN** icon, an **802.11 Wireless LAN Settings** window is displayed. This tab lists your radio statistics. Choosing the *Zero* button resets the statistics of the last four items—Packets IN, Packets OUT, IN errors and OUT errors.

Figure G.5 Wireless Statistics

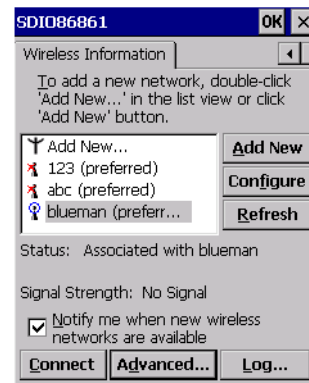


G.1.2 Wireless Information

This tab displays existing networks to which you can connect, and it allows you to add a new network or modify the settings for an existing network.

- **Configure** button: To change the settings in an existing network, highlight the network you want to modify, and tap on the Configure button to display the Wireless Properties dialog box.
- **Connect** button: To force connection to a specific, existing network, highlight the network to which you want Omnii to connect, and tap on the **Connect** button.

Figure G.6 Wireless Information



This tab lists available networks—any access points that are broadcasting an SSID, and it lists preferred networks—networks that you have configured. Since access points are generally secure, they will most likely not be listed here. By default, Omnii attempts to connect to preferred networks. This behaviour can be changed by enabling *Automatically connect to non-preferred networks* in the *Advanced* dialog box (see Figure G.9).

- To add a new configuration, tap on the **Add New** button. A blank *Wireless Properties* dialog box is displayed.

Wireless Properties

Figure G.7 Wireless Properties



- Type the appropriate SSID (Service Set Identifier) in the **Network name (SSID):** dialog box. The *Network name* field can contain a maximum of 32 characters. The name assigned here is listed as a preferred network.



Important: Keep in mind that Omii will only communicate with access points that are configured with the same SSID.

- **Ad Hoc And Infrastructure:** If you are using an *Infrastructure* network—one in which the hand-helds must pass data through an access point—leave the checkbox next to *This is an ad hoc network* blank. If you are using an *Ad Hoc* network—a network in which the hand-helds pass data directly to other Ad Hoc devices without an access point—add a checkmark in the checkbox next to *This is an ad hoc network* to enable Ad Hoc.
- **Encryption:** WEP (Wired-Equivalent Privacy) encryption prevents others from accidentally accessing your network. If you are not using encryption, you can choose *Disabled* from the drop-down encryption menu. Otherwise, leave this field as is.

AES (Advanced Encryption Standard) is a standard for protecting data through encryption. AES supports key sizes of 128 bits, 192 bits and 256 bits and will serve as a replacement for the Data Encryption Standard (DES), which has a key size of 56 bits. In addition to the increased security that comes with larger key sizes, the AES algorithm is a symmetrical block cipher that can encrypt (encipher) and decrypt (decipher) information.
- **Authentication:** 802.11 supports several subtypes of network authentication services: *Open*, *Shared*, *WPA*, and *WPA-PSK*. Under *Open* authentication, any wireless station can request authentication. The station that needs to authenticate with another wireless station sends an authentication management frame that contains the identity of the sending station. The receiving station then sends back a frame that indicates whether it recognizes the identity of the sending station.

Under *Shared* authentication, each wireless station is assumed to have received a secret shared key over a secure channel that is independent from the 802.11 wireless network communications channel. Under *WPA* and *WPA-PSK* authentication, the use of 802.1x authentication is required. For wireless networks *without* a Remote Authentication Dial-In User Service (RADIUS) infrastructure, WPA supports the use of a preshared key. For wireless networks *with* a RADIUS infrastructure, Extensible Authentication Protocol (EAP) and RADIUS is supported.
- **Network Key:** This text box is used to specify a 5 or 13 ASCII character sequence or an equivalent 10 or 26 Hexadecimal digit sequence that matches the active WEP key on the access point.

To assign a *Network key*, highlight **The key is provided automatically**, and *uncheck* the checkbox to disable this option.

Figure G.8 Network Key and Key Index



- **Key Index:** This field is used to identify the WEP key. Enter a value from **1** to **4**.
- **Enable 802.1x authentication:** *802.1X* is the IEEE standard that offers additional security for local area networks. It provides authentication for user devices attached to an Ethernet network, whether wired or wireless. A security protocol packet such as TLS or MD5 encapsulated in an *EAP* is used in conjunction with the 802.1X standard to authenticate users at the MAC layer. Available EAPs are listed in the drop-down menu next to the *EAP* option.
To activate 802.1X, highlight **802.1x authentication**, and check the checkbox.
- **EAP Type (Extensible Authentication Protocol):** This drop-down menu lists the EAP types available on your system. The items in this drop-down menu will vary depending on your network setup. Keep in mind also that some authentication protocols require that you select a Certificate. By selecting the *Properties* button, you will be able to select a *Certificate*. "Certificates" on page 63 provides a website that outlines how to create certificates for your network.
- **Saving and exiting the radio setup:** Once you've completed the configuration, press **[ENTER]**, or tap on **OK**.

The connection you created will be listed in the *Wireless Information* tab as a preferred network. The radio will search for the SSID and compare the WEP and authentication information you specified. If there is a match between the hand-held settings and the access point settings, the hand-held will communicate on the network through the access point.

G.2 Assigning An IP Address

If your network is not using a DHCP server, you will need to assign an IP address. Refer to "IP Address" on page 126 for details about assigning an IP address.

G.2.1 Name Server

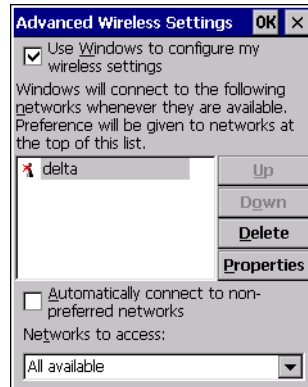
Refer to "Name Server" on page 128 for details about this option.

G.3 Advanced Features

To display the *Advanced Wireless Settings* dialog box:

- Tap on the **Advanced** button in the *Wireless Information* tab. (Refer to Figure G.6.) This window lists the available preferred networks.

Figure G.9 Advanced Wireless Settings



G.3.1 Rearranging Preferred Networks

Omnii attempts to connect with the networks listed in this dialog box in sequence, beginning at the top of the list. If you need to rearrange this list of networks—move networks up and down in the list:

- Tap in the *Networks List*, and highlight the **network** that you want to move up or down in the list.
- To move the highlighted item in the list upward or downward, tap on the **Up** or **Down** button.

G.3.2 Deleting A Preferred Network

To delete a network from this list:

- In the *preferred networks* list, highlight the **network** you want to remove.
- Tap on the **Delete** button.

G.3.3 Changing Network Properties

To change the properties of an existing preferred network:

- Highlight the **network** that you want to modify.
- Tap on the **Properties** button.
- Make any necessary changes in the *Wireless Properties* dialog box, and press **[ENTER]** to save the changes.

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