Intermec

User's Guide

CT60 Rugged Tablet PC

Intermec

User Guide

CT60 Rugged Tablet PC

Intermec Technologies Corporation

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Before You Begin

This section provides you with safety information, technical support information, and sources for additional product information.

Safety Summary

Your safety is extremely important. Read and follow all warnings and cautions in this document before handling and operating Intermec equipment. You can be seriously injured, and equipment and data can be damaged if you do not follow the safety warnings and cautions.

Do not repair or adjust alone

Do not repair or adjust energized equipment alone under any circumstances. Someone capable of providing first aid must always be present for your safety.

First aid

Always obtain first aid or medical attention immediately after an injury. Never neglect an injury, no matter how slight it seems.

Resuscitation

Begin resuscitation immediately if someone is injured and stops breathing. Any delay could result in death. To work on or near high voltage, you should be familiar with approved industrial first aid methods.

Energized equipment

Never work on energized equipment unless authorized by a responsible authority. Energized electrical equipment is dangerous. Electrical shock from energized equipment can cause death. If you must perform authorized emergency work on energized equipment, be sure that you comply strictly with approved safety regulations.

Safety Icons

This section explains how to identify and understand dangers, warnings, cautions, and notes that are in this guide. You may also see icons that tell you when to follow ESD procedures and when to take special precautions for handling optical parts.

A warning alerts you of an operating procedure, practice, condition, or statement that must be strictly observed to avoid death or serious injury to the persons working on the equipment.

Avertissement: Un avertissement vous avertit d'une procédure de fonctionnement, d'une méthode, d'un état ou d'un rapport qui doit être strictement respecté pour éviter l'occurrence de mort ou de blessures graves aux personnes manupulant l'équipement.

A caution alerts you to an operating procedure, practice, condition, or statement that must be strictly observed to prevent equipment damage or destruction, or corruption or loss of data.

Attention: Une précaution vous avertit d'une procédure de fonctionnement, d'une méthode, d'un état ou d'un rapport qui doit être strictement respecté pour empêcher l'endommagement ou la destruction de l'équipement, ou l'altération ou la perte de données.

Note: Notes either provide extra information about a topic or contain special instructions for handling a particular condition or set of circumstances.

Global Services and Support

Warranty Information

To understand the warranty for your Intermec product, visit the Intermec web site at http://www.intermec.com, click Support, and then click Warranty.

Disclaimer of warranties: The sample code included in this document is presented for reference only. The code does not necessarily represent complete, tested programs. The code is provided "as is with all faults." All warranties are expressly disclaimed, including the implied warranties of merchantability and fitness for a particular purpose.

Web Support

Visit the Intermec web site at http://www.intermec.com to download many of our current manuals in PDF format. To order printed versions of the Intermec manuals, contact your local Intermec representative or distributor.

Visit the Intermec technical knowledge base (Knowledge Central) at http://intermec.custhelp.com to review technical information or to request technical support for your Intermec product.

Telephone Support

These services are available from Intermec Technologies Corporation.

Service	Description	Call 1-800-755-5505 and choose this option
Factory Repair and On-site Repair	Request a return authorization number for authorized service center repair, or request an on-site repair technician.	1
Technical Support	Get technical support on your Intermec product.	2
Service Contract Status	Inquire about an existing contract, renew a contract, or ask invoicing questions.	3
Schedule Site Surveys or Installations	Schedule a site survey, or request a product or system installation.	4
Ordering Products	Talk to sales administration, place an order, or check the status of your order.	5

Who Should Read this Guide?

This guide provides you with information about the features of the CT60, and how to install, operate and maintain it.

Before you configure the CT60, you should be familiar with basic Windows-based PC operation, and how it relates to pen computing.

Related Documents

This table contains a list of related Intermec documents and their part numbers.

Document Title	Part Number
CT Rugged Tablet PC Quick Start Guide	962-054-066A
CT60 Vehicle Mount Installation Guide	962-040-012A

The Intermec web site at http://www.intermec.com contains many of our documents that you can download in PDF format.

To order printed versions of the Intermec manuals, contact your local Intermec representative or distributor.

1 Introduction

The CT60 Rugged Tablet PC gives you the power of a desktop computer, yet it is designed for use on foot, in a vehicle, or in an office. It is ideal for highly mobile applications in the most demanding environments.

Standard Features

Your CT60 Data Collection Tablet PC includes the following features at a minimum:

- Fully sealed aluminum housing with lifetime warranty
- 933 MHz Mobile Intel® Pentium® III MHz processor-M
- 256 MB main memory
- 512 KB L2 cache
- 4 MB dedicated video memory
- 10.4” 800 x 600 TFT active matrix color display
- Removable shock-mounted 20 GB or larger hard disk drive
- Type III Cardbus/PCMCIA expansion slot (two Type II devices)
- Long-lasting Li-Ion battery (dual battery option)
- Built-in light sensor for automatic backlight control
- Phoenix BIOS
- Microsoft Windows XP Tablet PC Edition (Windows 98, 2000, XP Professional optional)
- Pen stylus for use with electromagnetic proximity sensing digitizer
- One year warranty on all parts and labor
- Direct line technical support by Intermec Technologies technical support staff

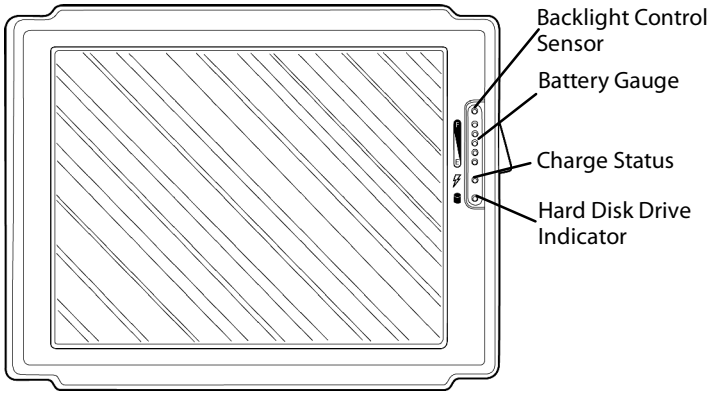
Accessories and Options

The following options and accessories are available for the CT60:

- Shock absorbing, dockable carrying case
- Universal AC power adapter 110-250 volts, 50-60 Hz
- Port replicator
- Vehicle cradle and mounting options
- Desktop docking station with communications options
- Additional batteries
- Battery charger
- GPS, Wired LAN, Wireless LAN and various public and cellular radio modem(s)
- Additional antenna
- External CD ROM (USB)
- External 1.44 MB 3.5” bootable floppy disk drive
- (USB) Keyboard(s)

Note: A GPS option is sold for the sole purpose of providing and accurate and easily obtainable signal for location of equipment for time or signal synchronization.

Exterior Features



Front View

Battery Gauge:

The battery gauge consists of five LEDs, which indicate the approximate charge remaining on your computer. When all five lights are lit, the battery charge is full. As you use the battery, the lights will turn off from top to bottom, indicating the amount of charge that remains. Each light represents approximately 20% of the full charge. See Chapter 2 "*Batteries and Charging Procedures*" for more detailed information on the battery gauge.

Charging status LED:

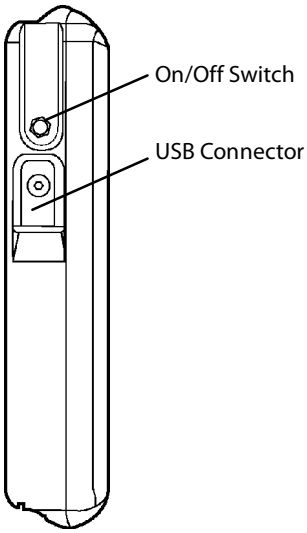
The charge status indicator is lit whenever external power is available. It blinks as the battery charges and remains a constant green when the batteries are fully charged. The indicator identifies a positive connection when the CT60 is in the docking station with an external power source. The indicator will be green when external power is connected.

Hard disk Drive Indicator:

The indicator flashes as the internal hard disk drive is accessed.

Backlight Control Sensor:

The backlight control sensor automatically turns the backlight off when adequate external light is available. Make sure you keep this sensor uncovered.



On/Off Switch:

Turn the computer on by quickly depressing the yellow on/off button on the upper right-hand side of the computer (approximately ½ to 1 second). After the computer boots up, pressing the on/off switch again will automatically start proper Windows shutdown procedures.

Pressing the on/off button twice in rapid succession replicates <CTRL>< ALT ><DEL> keystrokes. Holding the on/off button down for a longer period of time (four to five seconds) causes an emergency forced shut down of the computer.

When the CT60 is operating, the side switch will function according to the selection on the **Advanced** tab of the Power Options. To see the current setting, go to **Start**, **Control Panel**, **Performance and Maintenance**, **Power Options** and click on the **Advanced** tab.

USB Connector:

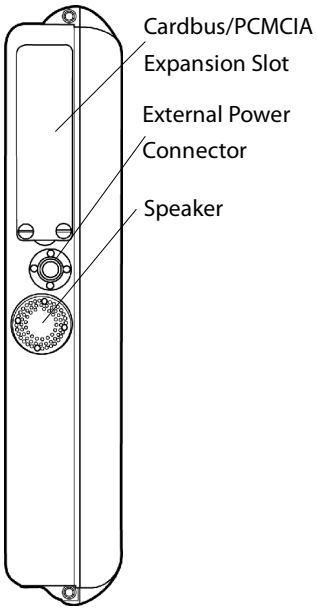
The Universal Serial Bus is a hot swappable, chainable serial port with a maximum speed of 12 Mbps. It can be used for devices like keyboards, mice, floppy drives, CD-ROM or DVD drives,

cameras, modems, scanners, etc. The CT60 supports booting from bootable USB devices such as floppy drives and CD-ROM drives. Devices can be connected to the CT60 with the computer turned on, without requiring a reboot.

There is a limit of 128 concurrent devices per USB port. The CT60 can supply up to 0.5 amps of current through the USB port. External USB hubs are available that will supply power to external devices without using the CT60's power supply.

Cardbus/PCMCIA Expansion Slot:

The Cardbus/PCMCIA expansion slot is sealed behind a hatch plate held in place by two Phillips head screws. The hatch plate must be removed to access the slot. Several hatch plates are available that will accommodate various Cardbus/PCMCIA devices with features that extend beyond the housing of the computer. These hatch plates keep the unit as sealed as possible.



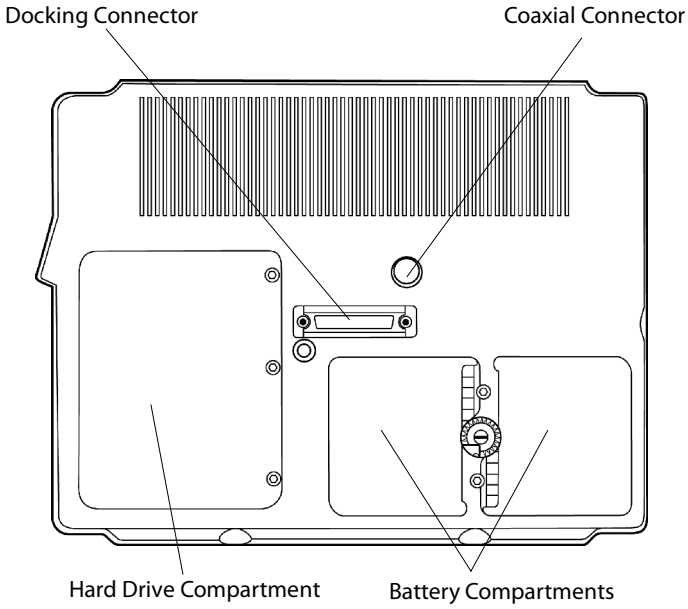
Speaker:

The monaural speaker in located in the left side of the housing. The speaker will play Windows sounds as well as PC audio information.

External Power Connector (15 VDC input):

This connector allows the user to plug the power supply directly into the CT60 for operation and battery charge.

The CT60 may also be charged through a port replicator or docking station.



Do not connect the CT60 to more than one power source at a time when charging, or permanent damage may occur.

Coaxial Connector:

Depending on the machine configuration, there may be a coaxial antenna connection near the center of the housing. The coaxial connector will allow you to connect an external antenna to an internal radio or GPS solution.

Docking Connector:

The docking connector provides for all external communications with the computer. It connects to a port replicator or docking station.

Battery Compartments:

There are two battery compartments designed for convenient, hot swappable battery replacement while in the field. See the Batteries and Charging Procedures section of *"Chapter 2, Hardware Operation"* for instructions on changing batteries.

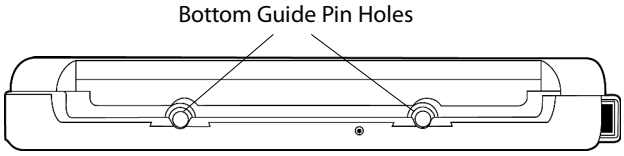
Hard Drive Compartment:

The hard drive compartment allows field upgrades or repairs without opening the CT60. Some customers may have IT Departments trained to replace hard drives at the customer location.

You should not open the hard drive compartment without proper service training from Intermec Technologies. Any tampering of the hard drive will void the warranty.

Bottom Guide Pin Holes:

The bottom guide pin holes are used to align the computer when placed in either a vehicle, desktop, or wall-mount docking station. Simply insert the computer onto the gauge ball guide pins and tilt the computer back until the docking connectors engage.



Tips for Proper Use and Care

The CT60 is a hardened field computer, but it is an electronic device and reasonable precautions should be taken:

- Do not subject the computer to extreme heat by placing it on the dashboard of a vehicle with the display facing the sun.
- Do not leave the computer in temperatures below -25° F (-31.7° C).
- Do not pile tools or heavy objects on top of the computer.
- Avoid severe impacts, especially on the display glass.
- Do not place the unit on the hood or roof of any vehicle, as it might be left behind.
- Do not try to take the computer apart. Special tools are required to disassemble the computer.
- Do not use excessive force when inserting PC cards in the PC card slots, as they may break.

2 Hardware Operation

This chapter outlines pen operation, battery care and use, and connectivity options for the CT60.

Turning on the CT60

Turn the computer on by quickly depressing the yellow on/off button on the upper right-hand side of the computer (press for ½ to 1 second).

Note: When turning on the computer, *do not* press the On/Off button twice in rapid succession. A double press replicates <CTRL> <ALT> <DEL> keystrokes. Holding the on/off button down for a longer period of time (four to five seconds) causes an emergency-forced shut down of the computer.

The **On/Off** button is recessed to prevent accidentally turning the Tablet PC on or off. The CT60 performs its self-check routines during the start up process. All units are configured at the factory to automatically boot to the Microsoft Windows Desktop unless a custom-configuration has been requested.

Pen Operations

The pen is the primary screen navigation and data entry tool for the CT60. *Without a keyboard attached, the pen is the only means of communicating with the computer. Do not lose or misplace the pen*. The pen is usually tethered to its carrying case. Attaching the tether to one of the zippers on the carrying case with a split ring anchors the tether on either side of the computer. By shifting the position of the zipper, the tethered pen is convenient for right or left-handed users. All users are encouraged to purchase a spare pen as a backup.

The pen functions as a two-button mouse. There are two switches in the pen, one in the pen tip and another on the barrel of the pen. The tip switch performs the same functions as the left button on a mouse and the barrel switch performs like the right mouse button.

Few applications require the use of the pen's barrel button. *Do not depress the barrel switch when writing on the display; it will adversely affect handwriting recognition*. To activate the tip switch, press the tip of the pen against the display. This is similar to clicking the left mouse button.

Double-clicking is accomplished by double tapping with the pen. Move an icon by pressing the pen directly overhead and dragging it to the desired destination, keeping the pen in constant contact with the display.

Tapping the pen requires only light to moderate pressure. It is possible to damage the pen by pounding the tip against the display with force. Most problems using the pen are related to tapping speed and the tapping area size. When using XP Tablet PC Edition, attributes related to use of the pen (such as tap speed) can be adjusted by clicking on **Control Panel → Tablet and Pen Settings**, and then the **Pen Options** tab. You can also improve handwriting recognition accuracy by indicating is you are right or left handed on the Settings tab.

The CT60 utilizes a proximity-sensing electromagnetic digitizer. This component tells the computer the pen's exact position. The computer senses the pen as it nears the display and the cursor appears when the pen is approximately an inch away. This allows visibility of the exact location of input before making actual contact with the display.

The location of the cursor on the display is the location of input regardless of the location of the pen tip. The cursor and the pen tip should be closely aligned when the pen is in contact with the display. If the pen and the cursor are out of alignment, tap on **Control Panel → Tablet and Pen Settings** and go to the **Settings** tab where you can calibrate the screen for both landscape and Portrait orientations.

Battery Use and Care

The Li-Ion batteries used in your CT60 Computer offer the best technology available today. These "Smart Batteries" provide CT60 users with the greatest power density and the most accurate gas-gauge possible. To achieve the best possible performance from your batteries, follow the instructions provided below.

New Batteries

Your unit was shipped ready for operation with a Li-Ion battery freshly installed at the factory. Due to current regulations regarding shipment of Li-Ion batteries, your batteries will arrive in a partially charged condition, typically with a maximum charge of 30%. We recommend that you fully charge your batteries before using them.

If you do not plan to deploy your computer immediately, be aware that the batteries self-discharge at a slow rate, typically less than 10% per month at normal temperatures.

How to Install New Batteries

The CT60 has the capability to run on one or two batteries in the field. It does not require both batteries to run. The two-battery design allows users to hot swap batteries without turning the computer off.

To install or replace a new battery, turn the round knob on the back of the unit. The knob holds the batteries in place and is designed so the batteries cannot be taken simultaneously. Turn the knob until the quarter piece exposes the corner of the battery that is to be replaced. A lip on the battery aids for easy removal. Install the new battery by placing it into the compartment and turning the knob to cover the edges of both batteries.

When to Recharge Batteries

The green LEDs on the upper right front of the unit indicate the power status of the battery. At full charge, all five LED indicators will light a solid green. Each LED represents approximately 20% of the total charge.

As the battery power availability decreases, the LEDs will turn off from top to bottom. For example, when the top light begins to flash, the computer has approximately 90% charge remaining.

If four LEDs are lit a solid green, an estimated 80% of the total battery charge remains. If three are lit a solid green and the fourth one begins flashing, the computer has approximately 70% charge remaining.

The last LED indicator flashes when approximately 10% of battery power remains. When the remaining battery power becomes critical, all data should be saved. Failure to do so may result in lost data! Replace one of the batteries with a fresh battery or recharge the unit.

When the CT60 is turned off, the battery status indicators will also turn off after a delay of a few seconds. When the computer is placed in standby mode, the battery status indicators will flash as a reminder the unit is on standby.

How to Recharge Your Batteries

The CT60 batteries automatically fast-charge any time the CT60 is connected to an external power source (AC or DC). This is accomplished using either the CT60 internal battery charger or an approved Intermec power source/battery charger.

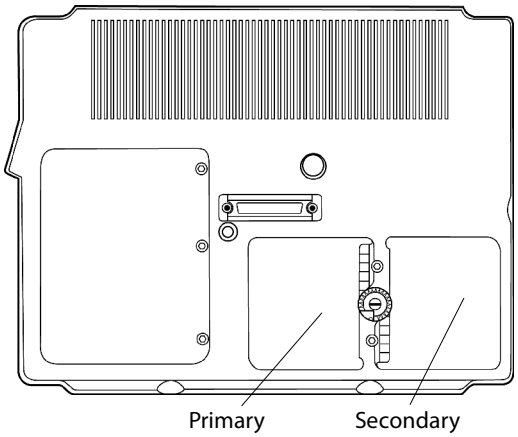
To recharge the battery using the AC adapter, plug the circular connector of the AC adapter into the AC connector in the CT60 or in the power supply port on the replicator. Charging begins automatically as the unit is docked when using a vehicle-docking mount, desktop docking station, or a wall mount docking station. The CT60 is fully functional as it charges. Using the computer as it charges will only slightly lengthen the recharging process. The batteries may feel warm to the touch during this process. It is normal for a battery to become warm during charging and discharging.

The CT60 requires at least 14.5 v DC for fast charging. Do not use any external power source other than the AC or DC adapters provided with the CT60; permanent damage to the battery or computer may occur.

Do not connect more than one power source at a time, such as an AC power supply and a docking station, when charging the CT60 or permanent damage to the battery or computer may occur.

How to Tell When Batteries Have Finished Charging

When charging, the green charge indicator light will flash while the unit is recharging. When charging two batteries, the first battery will charge to 80% of full charge, then the second battery will charge to 80%. After both batteries reach 80%, the first battery will then charge the remaining 20%, after which the second battery will complete its recharging process. This method provides the best ratio of charge time to run time for short battery charge cycles. When batteries are fully charged, the charge indicator light will stop flashing and remain lit.



Battery Compartments

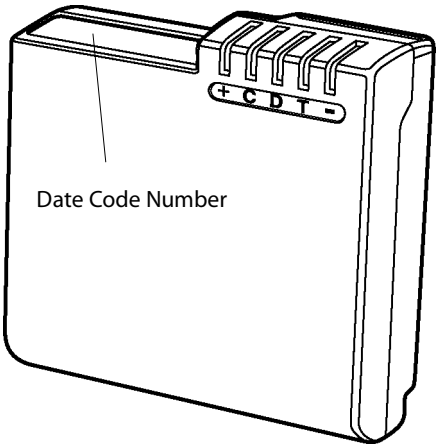
How to Increase Battery Run Time

The total run-time of the battery is dependent on a variety of factors including temperature, backlight requirements, and computer usage.

To ensure maximum performance of the battery, optimize your computer's power management features. Settings for the display and the hard drive shutdown, as well as the use of suspend, stand-by and hibernate mode, result in lower overall drain on the battery, effectively increasing the computer's operating time.

When to Replace Your Battery

Battery life is dependent on battery usage. Every time a battery is fully charged and discharged, it decreases the amount of energy stored in the battery. To determine if the battery is past its prime, first check the date code on your battery.



Batteries beyond one year of service may experience shorter run times. Intermec recommends replacing your batteries once a year or every 400-500 charge/discharge cycles for optimal battery performance.

Where to Purchase Replacement Batteries

The CT60 uses long lasting Li-Ion batteries that are custom made for Intermec Technologies Corporation. If you need to purchase replacement batteries for your CT60 Computer, contact your Intermec representative. Do not substitute any other batteries. Substituting batteries may result in a void warranty.

The following storage tips will help you optimize the capacity and performance of your batteries.

- If the battery will not be in use for a month or longer, remove it from the computer for storage.
- Store batteries in a cool, dry place.
- Do not leave batteries in direct sunlight during the summer months or any other unusually hot location.

- Do not expose battery terminals to metal objects or moisture, which may short-circuit your battery.
- For long-term storage, store batteries below 50% state of charge because the deterioration of battery capacity is slower at the lower state of charge. However, do not store batteries in a *fully discharged state*.

Safety and Handling Considerations for Batteries

To make the batteries as safe as possible, Intermec, along with approved vendors, have incorporated several built in safety features to protect the pack. The safety circuit built in your battery cannot protect against handling abuse.

Please use the following safety rules when handling and using Li-Ion batteries:

- Do not expose the batteries to extremely high temperatures. Do not dispose of batteries in fire.
- Do not short-circuit the battery or reverse polarity. Avoid placing batteries around metal objects such as keys, pocket change, paper clips, and jewelry.
- Do not let children play with batteries.
- Do not crush, dent, or allow any deformation of the battery.
- Do not disassemble or open the batteries or try to alter or bypass the safety circuit.
- Do not allow the battery to get wet.
- Avoid exposing the battery to extremely humid environments.
- Avoid exposing the batteries to electrostatic discharge.
- Avoid extreme shock and vibration to the battery. Avoid dropping the battery.
- Do not use or connect the battery to any other devices.
- Do not allow batteries to remain discharged for long periods of time.

Disposing of Batteries

The batteries used in the Intermec CT60 Computers are not considered hazardous waste by EPA regulations, however local regulations may require specific methods of disposal.

We strongly encourage recycling.

Tips for Best Battery Performance

- Fully discharge your battery before recharging.
- Fully charge within 24 hours of discharge.
- Battery charging should be done at temperatures between 0°C to 45°C (32°F to 113°F), preferably room temperature.
- Discharging should be done at temperatures between -30°C to 55°C (-22°F to 131°F), preferably room temperature.
- Store your battery at temperatures between -20°C to 45°C (-4°F to 113°F). Do not store batteries in fully discharged states.

Removable Hard Drive

The hard drive compartment allows field upgrades or repairs without opening the CT60. Some customers may have IT Departments trained to replace hard drives at the customer location. **You should not open the hard drive compartment without the proper service training from Intermec.**

Note: Please contact Intermec technical support before removing the cover plate of the hard drive compartment. Any tampering of the hard drive will result in a void warranty.

Connectivity

Connectivity with the CT60 is via the docking connector on the backside of the unit.

Most units ship with a port replicator, desk dock, or vehicle dock that provides standard ports for communications, keyboard, and power supply.

Port replicators and docking stations may be customized to your requirements and may not be configured exactly as described in the following pages.

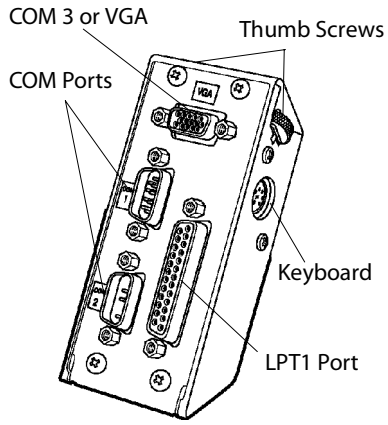
Port Replicators

There are several variations of port replicators (flat, angled, custom, etc.) The following features are available on the standard port replicator.

Port Replicator Features

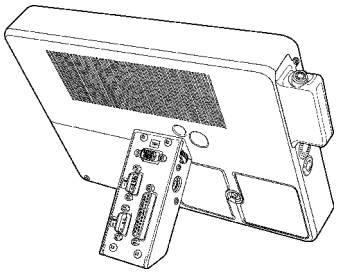
Term	Description
Male Docking Connector:	The male docking connector is inserted into the female docking connector on the back of the computer to activate all ports in the port replicator.
External Power:	Use only the approved power supplies provided especially for the CT60, which supply the required DC power from a standard AC outlet.
Keyboard:	Industry standard 5 DIN PS2 style keyboard connector.
COM 1:	Industry standard DB-9 serial connector.
COM 2:	COM 2 on most docking solutions is a full, 9-pin DB-9 serial connector though only a subset of standard signals are supported.
Thumb Screws:	Thumbscrews secure a positive connection. Insert the port replicator fully before engaging thumbscrews. Be careful not to over tighten.
LPT1:	Industry standard 25-pin Centronics compatible parallel connector.

The standard port replicator also doubles as a desktop stand for the CT60. Simply press the male docking connector on the port replicator into the female docking connector on the back of the unit.



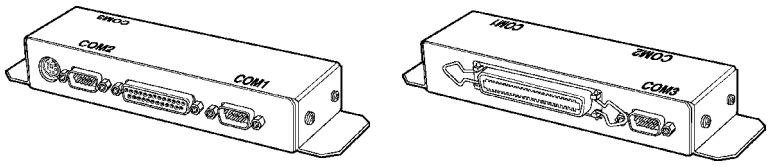
Standard Port Replicator

The connectors are correctly oriented and only fit in one direction. It is impossible to join them incorrectly. Make sure the connector is fully inserted, confirming the port replicator fits snuggly against the back of the computer. Turn the thumbscrews in a clockwise direction to insure a reliable, positive connection. Do not over tighten.



Do not connect the port replicator to the computer while power is attached to the port replicator. Attach the port replicator and then connect the power to the port replicator.

Flat port replicators and custom cable sets are available when connectivity is needed while the unit is mobile. External power should be connected to the port replicators after being firmly connected to the CT60. Some custom configurations provide access to ports in the computer housing.

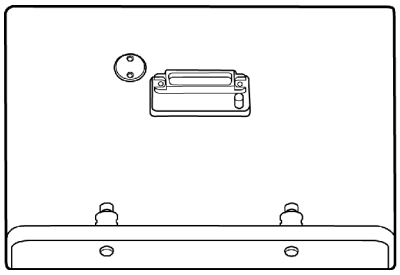


Flat Port Replicator

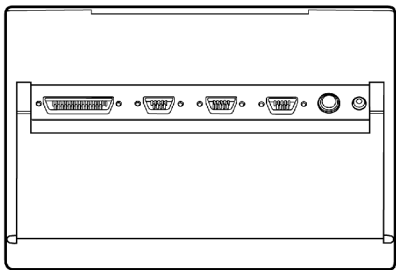
Desktop Docking Station

The desktop docking station (desk dock) provides complete connectivity and integrated options (such as LAN adapter, fax/modem, etc.) for using the CT60 on a desktop.

The desk dock offers the following connectors for the connection of external devices:



Front View



Rear View

The desk dock offers the following connectors for the connection of external devices:

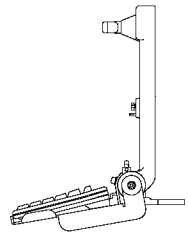
- Two RS-232 serial ports (COM1 and COM2-3-wire serial)
- One compatible parallel port/floppy interface
- One keyboard port
- Power connector
- One USB port
- One SVGA video port

If the CT60 is configured with video output capabilities, one COM port can be used as a VGA port.

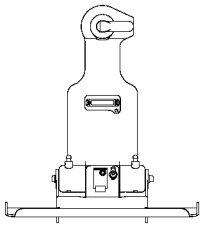
Note: If a desk dock is equipped for network communication, the connection is made through the USB port.

Vehicle Docking

The vehicle dock offers compact versatile mounting for a variety of transport. The one-piece aluminum body ensures sturdy docking with no adjustments. The vehicle dock has tilt swivel functionality, a built-in keyboard tray, and a push button key lock. A break-out box with a 3-foot or 6-foot cable provides convenient installation for permanent connections.



SIDE VIEW



FRONT VIEW

Noise reduction circuitry, surge protection, reverse polarity protection, and power conditioning circuitry are built into the vehicle dock. In some cases a GPS receiver may also be included. Connectivity at the rear of the vehicle dock includes power, keyboard, and USB connector. Connectors in the "break-out box" at the end of a 3' or 6' cable include: 1 keyboard, 2 COM ports, 1 USB and 1 parallel port.

The tilt/swivel function and keyboard tray angle are the only adjustments available on the vehicle dock. All tension adjustments are made at the time of installation with an Allen key provided with the docking system. The keyboard tray is removable.

The computer can be secured in position by turning down the spring-loaded red retention latch. Once the latch is turned completely down, the push button lock can be depressed to prevent unauthorized removal. Security keys for fleet users are identical to eliminate logistic problems.

Note: The vehicle dock cannot be installed without a base to mount it in the vehicle. Contact your Intermec Representative for a current list of vehicle mount providers.

Cardbus/PC Cards

Cardbus and PC Cards are two alternative types of PCMCIA interfaces (or slots) on laptops, desktops, and PDAs.

PC cards are based on a 16-bit interface, while CardBus is a 32-bit interface. This allows the CardBus card to transfer data at speeds exceeding 100 Mbps, while a 16-bit PCMCIA card transfers data at approximately 20 Mbps.

CardBus also offers lower power consumption: CardBus Cards are all 3.3-volt cards, while 16-bit PC cards can be 5-volt or 3.3-volt.

The Type III slot in the CT60 will support both Cardbus or PC cards. To insert a card, take off the hatch plate by removing the two screws that hold the hatch cover. Cards should be inserted face up (i.e. the up arrow on the card should point toward the front of the CT60).

Do not apply excessive pressure when loading cards. They should slide in easily. Remove the card in the same manner.

Many PC card devices require connections for communications (RJ-11 or RJ-45) or antenna for wireless activity (wireless modems, GPS) or some other external function. Most PC card devices are too fragile for direct connections in field environments.

In response, Intermec provides a variety of hatch plates with a milled cavity or “lump” containing combinations of connectors and the cable assemblies needed to connect to common PC card devices.

For example, a “lump” to accommodate a PC card fax/modem and network connection includes a RJ-11 and RJ-45 connector. A “lump” for a CDPD modem and wire-line fax/modem would include an antenna mount and RJ-11.

The “lumps” serve two purposes:

- they provide for a sturdy and reliable connection not possible when connecting directly to a PC card device, and
- they maintain the environmental integrity of the CT60 by fully sealing the PC card compartment while providing the needed connectivity. “Lumps” are available only for those PCMCIA devices that have been tested and recommended by Intermec. Custom “lumps” may be available for large purchases.

Internal Flex Space for OEM Modules

In addition to a Type III Cardbus/PC card slot, the computer has an internal “flex space” that will accommodate optional GPS and GSM modules. The antenna for the internal module is mounted on the top right hand side of the computer and does not interfere with the Cardbus/PC card door and antenna options, which is located on the upper left-hand side of the computer.

3 Software Operation

This section describes some of the features of Microsoft's XP Tablet PC Edition software.

Your screens may appear differently, depending on the software load and configuration.

Windows XP Tablet PC Edition

Tablet and Pen Settings

Windows XP Tablet PC Edition lets you customize the tablet and the tablet pen to suit the way you work. Not all users have to use the same Tablet and Pen Settings. Individual users can save their own settings. Attributes related to use of the pen can be adjusted by tapping on **Control Panel**, **Tablet and Pen Settings**.

In this section you can:

- Change the screen orientation between landscape and portrait modes.
- Set the pen for left- or right-hand use.
- Calibrate the display based on how you hold the digital pen.
- Change the default settings of the hardware buttons on Tablet PC.
- Change how a pen matches mouse movements, such as single-click, double-click, right-click, and hover.
- Set handwriting-recognition language.
- You can also customize features of Microsoft Windows Journal, Input Panel, and Sticky Notes to get the most from your Tablet PC.

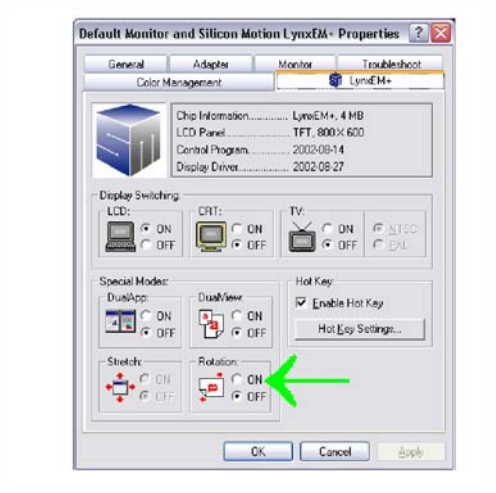
Screen Rotation

Tablet PC supports rapid display rotation between portrait and landscape modes without requiring the user to restart the computer. That makes it easy for you to work in either mode according to their preferences. For example, when annotating PowerPoint slides, it may be preferable to work in landscape mode—the same orientation as most PowerPoint slides. However, when taking notes in Windows Journal, it is more natural to do so in portrait mode—just like taking notes in a paper notebook. The Tablet PC screen display rotates almost instantly, so you can go back and forth as often as desired or needed for a specific task.

How Do I Rotate the Screen on My CT60?

In the system tray, tap on the display settings icon; this will open the display properties menu. See figure below.

1 Tap **Settings→Advanced→LynxEM+6** tab.



2 Tap **ON** under Rotation, then tap **OK**.

3 The system will prompt a degree of rotation.

4 Select a degree; tap **OK**.

Note: The pen may need to be calibrated after rotating the screen. See *How Do I Calibrate the Tablet PC Pen?* pen calibration on the following page.

Adjusting Screen Brightness

The screen brightness is often the number one consumer of power, so you can conserve battery power by turning down the brightness on your CT60. You can adjust the default settings for both AC and DC power. When you are plugged into AC power, your screen can be at its brightest, and when you unplug your computer, your screen will automatically dim to conserve power.

How do I Adjust the Screen Brightness on My CT60?

1. Go to **Start→Control Panel→Tablet and Pen Settings**.
2. Tap the **Display** tab.
3. Under Screen Brightness, in the **Settings for** list, tap the name of the power scheme to which you want your settings to apply.
4. To make the screen darker or brighter, drag the slider to the left or the right.
5. Tap **OK**.

Note: You can conserve battery power by turning down the screen brightness on your CT60.

When Should I Calibrate the Pen?

If you change screen srientations or sitting positions, etc. it may be necessary to recalibrate the pen settings. The pen should be calibrated any time options in the tablet and pen settings are changed.

How Do I Calibrate the Tablet PC Pen?

1. Go to **Start→Control Panel→Tablet and Pen Settings**.
2. Tap the **Settings** tab.
3. Under Calibration, tap the name of the screen orientation for which you would like to calibrate your tablet screen.
4. Tap **Calibrate**.
5. Follow the on-screen instructions for calibrating the screen.

Note: You must calibrate the screen for each screen orientation separately.

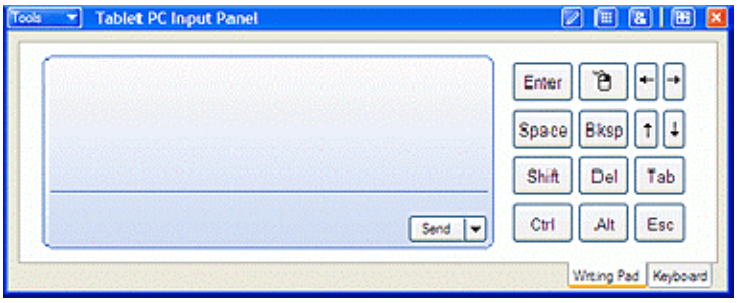
Handwriting Using the Input Panel

One way to write with the digital pen when you are not using your keyboard and mouse is by going to the Input Panel. The Input Panel has two views; the writing pad and the keyboard. You can input text into applications using your own handwriting on the writing pad or tap in characters using your pen with the on-screen keyboard.

By default, the Tablet PC Input Panel is hidden when you first start, but is easily opened.

How to Open the Input Panel

Tap the **Input Panel** button on the task bar. The Tablet PC Input Panel opens. The Writing Pad and on-screen Keyboard are shown below. To hide the Input Panel, tap the **Input Panel** button again.



The Writing Pad

On-Screen Keyboard

How to Convert Handwriting to Text Using the Input Panel

The Input Panel has a tool (called Text Preview) that helps convert your handwritten text into typed text by identifying words that may have been recognized incorrectly and by giving you a list of alternative words.

To Preview and Convert to Typed Text:

1. Tap Tools→Text Preview.
2. Write in the writing pad, and the text appears as typed text above the Input Panel.
3. Correct any mistakes in recognition.
4. Tap the **Send** button in the right of the preview pane to insert your text in the current application.
5. To send the text to a different application, tap the open application so that it becomes the current window. This can be any application, including a simple command line.

Handwriting Using Microsoft Windows Journal

Microsoft Windows Journal allows you to take notes in your own handwriting, just like on a piece of paper. You can later convert those notes to text if you wish or leave them as "ink." In either case, they are completely searchable. You can also create drawings or graphics that can be saved or sent to other applications from Windows Journal.

How to Access Windows Journal

To access Windows Journal, tap **Start→All Programs→Windows Journal**.

How to Convert Handwriting to Text in Windows Journal

1. Tap the **Selection Tool** icon on the toolbar.
2. Tap **Actions→Convert handwriting** from the menu bar.

How to Restore Default Settings in Windows Journal

You can restore all Windows Journal settings to their defaults such as Pen settings, Highlighter settings, Menu and tool bar positions, Find pane, and note list pane positions and Stationery settings.

To Restore all Windows Journal Settings:

1. Tap **Tools →Options** in the menu bar.
2. Tap on the **Other** tab.
3. Under Restore, tap the **Restore** button.

Journal Note Writer Has Appeared in Printers. Is this Normal?

Yes. Journal Note Writer is the virtual printer for the Journal application.

How to Reinstall the Journal Note Writer Printer

If you have accidentally deleted this "printer," replace it as follows:

1. Tap on **Start**.
2. Tap on **Run**.
3. Type in: journal /RepairNoteWriter.
4. Tap on **OK**.
5. Launch the Journal application.

Check in Printers to ensure Journal Note Writer is now present.

How to Improve Handwriting Recognition

- Calibrate the tablet PC pen and screen.
- Hold the tablet pen in the same way that you hold a pen or pencil when writing on paper.
- Hold the pen near the tip and rest your hand on the screen.
- Write using cursive letters in a straight line.
- Avoid printing all uppercase letters.
- Write legibly, at a constant speed with even spacing between letters and words.
- Write uppercase letters larger than lowercase letters.
- Avoid empty spaces and letters.
- Avoid adding additional words, diagrams, or drawings within existing handwriting in a note.

Note: By design, highlighted words do not print from Windows Journal documents.

How to Set the Pen and Screen Left-Handed Users

Follow these steps to change handedness settings.

1. Double-tap the **Change Tablet and Pen Settings** icon in the Notification Area of the Windows Taskbar.
2. Under Menu Location, select right-handed or left-handed.
3. Under Handedness, select right-handed or left-handed.

How to Create "Sticky Notes"

Windows XP Tablet PC Edition also includes a Sticky Notes application that lets you scrawl a quick note and "stick" it on a Word document (or any other application that needs marking up and that supports OLE.) Sticky notes can contain both writing and voice recording. Voice Notes can be a maximum of 30 seconds.

To Create a Sticky Note:

1. Launch Sticky Notes. The application automatically opens to a new note.
2. Start writing on the surface of the note.
3. Tap the red record button to record a voice message for a maximum of 30 seconds per note.

4 To create another note, tap the **New Note** button.

Sticky Notes can only be viewed one at a time, in order of date created. Sticky Notes can only be deleted one at a time.

How to Use the Pen to Write in Microsoft Excel or Word Files

In order to use the Tablet PC features in these applications, you must obtain the Microsoft Office XP Pack for Tablet PC. This is available only from Microsoft's website. If you use the pen to write in Microsoft Word or Excel, and you are sharing the file with another user who does not have Windows XP Tablet Edition, they will be able to see the ink comments if they are using Office 95 or newer versions. However they will not be able to do anything with the document such as editing in ink, etc.

Speech Recognition

Speech recognition is also a component of Tablet PC. Speech recognition allows users to dictate content or control applications with their voice. An external microphone is required. The Tablet PC Platform SDK, in conjunction with the Microsoft Speech API (SAPI), can be used to extend capabilities to third-party applications.

Performance and Maintenance

Monitoring Your Battery

You can easily monitor your battery to see how much power you have available while you are working away from your desk.

To check your battery power if you are running on battery power, double-tap the battery icon in the notification area of the Windows taskbar. The battery icon appears only when your Tablet PC is running on battery power.

You can monitor your battery as it charges to see when it is fully charged.

Checking Battery Power

1 On the taskbar, tap the **Start** button, and then **Control Panel**.

2 Tap **Performance and Maintenance**, and then tap **Power Options**.

3 Tap the **Power Meter** tab.

4 Total battery power remaining is shown under Power status.

Note: On the **Advanced** tab you can select the **Always show** icon on the taskbar check box if you want to see a power status icon in the notification area at all times. Use a right-click equivalent on the power status icon to open the Power Meter.

Setting the Battery Alarm

You can set Power Options to warn you when the level of battery power falls below the levels you have defined as low and critical. You can change the battery level at which the alarm or message is activated.

1. On the taskbar, tap the **Start** button, and then tap **Control Panel**.
2. Tap **Performance and Maintenance**, and then tap **Power Options**.
3. Tap the Alarms tab.
4. Under Low battery alarm and Critical battery alarm, specify the settings that you want by moving the slider.
5. Tap Alarm Action to select the type of alarm notification and resulting action you want.

Turning Off Power-Consuming Peripherals

Peripheral devices on your computer use power. For instance, your Tablet PC may have a wireless network connection, a modem card, or USB devices. Because some of these peripherals can draw a significant amount of power, you should consider unplugging them or turning them off in situations where you want to conserve battery power. For information on turning off your wireless network connection, please refer to the manufacturer's documentation.

Using Power Schemes

Power schemes are a collection of settings that manages the power usage of your computer. You can select from a number of power schemes that are available in Power Options in the Control Panel, you can adjust individual settings of any available power scheme, or you can create your own power schemes to suit your particular system and preferences.

Standby

Standby is a low-power state in which your monitor and CPU turn off. When you want to use the computer again, it comes out of standby quickly and your desktop is restored exactly as you left it. Use standby to save power when you will be away from the computer for a short time while working.

Hibernation

Hibernation is a state in which your computer shuts down to save power but first saves everything in memory on your hard disk. When you restart the computer, your desktop is restored exactly as you left it. Use hibernation to save power when you will be away from the computer for an extended time.

Other Questions about XP Tablet PC

Can User Rights Limit Functionality of Windows XP Tablet PC Edition?

The same user rights that apply to Windows XP Professional also apply to Windows XP Tablet PC Edition.

Can I Reinstall or Remove One of My Tablet PC Components?

Tablet PC components cannot be independently installed, removed, or reinstalled.

CT60 Utilities

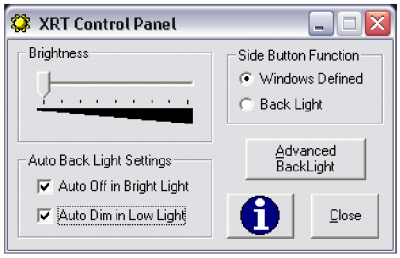
The CT60 comes with a Utilities program that provides additional functionality to your computer.

To launch the Utilities program, tap on the icon found in the quick launch bar.

If the icon is not found, you can launch the program by tapping on **Start→All Programs→XRT Control Utilities**.

Manual Brightness Adjustment

The brightness slider control allows you to manually adjust the backlight brightness. Tap on the bar and slide it to the left or right to achieve the desired brightness.



Auto Backlight Settings

To have the backlight automatically turn off in direct sunlight, check the **Auto Off in Bright Light** option.

To have the backlight automatically dim in low light conditions, check the **Auto Dim in Low Light** option.

Side Button Function

The Side Button function allows you to have the system respond to the Windows side button options, or toggle the backlight on and off.

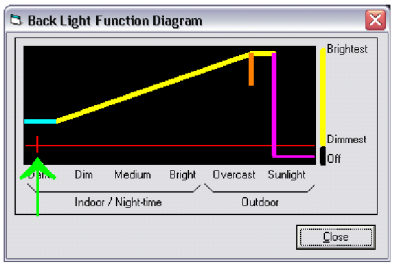
To have the side button function set to Windows-defined options, tap on the **Windows Defined** button.

Note: Windows side button options can be found under **Control Panel→Power Options →Advanced Power Button**.

To have the side button set to toggle the backlight on and off, tap on the **Back Light** option.

Advanced Backlight

Your computer is delivered preset with the optimal settings for most users. For those users with special needs, such as optimizing operation in dark environments, the Advanced Backlight settings allow for optimal backlight performance. To make modifications to the backlight settings, tap on the Advanced Backlight button.

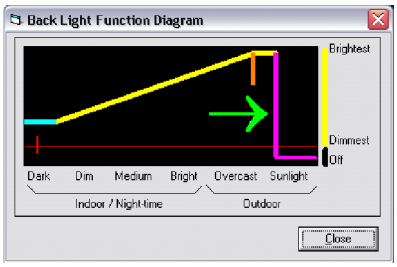


To help you optimize the settings for your special needs, the red tick mark on the red line indicates the current ambient light level. If the tick mark is located to the left, there is little ambient light. As the ambient light becomes brighter, it will move further to the right.

Backlight Adjustment

Sliding the pink line left or right will set the light level at which you want the backlight to go off. If the ambient light is greater than this setting (such as ambient light is to the right of this line) the backlight is turned off.

If the ambient light is less than this setting (such as to the left of this line) the backlight will be on.



Note: You will only be able to move the pink line within the "Sunlight" range of the light meter indicated at the bottom.

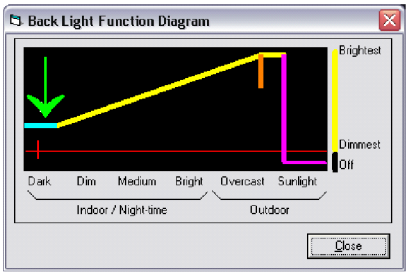
Auto Dim

The blue line represents the minimum backlight setting at low light levels. Sliding the blue line up or down sets the auto dim brightness level. Up is brighter; down is darker. The red line represents the minimum backlight level and the top of the window represents maximum backlight level.

Note: The auto dim adjustment tab size can be adjusted.

Typing Alt-S using a keyboard allows grabbing the red line and sliding it until the desired size of the tab is reached.

The orange segment represents the light level at which the back-light is at full brightness. At light levels lower than this, Auto dimming takes place, as represented by the sloping yellow line. This full brightness setting can be adjusted by dragging the orange line to the right or to the left.



4 FAQs

This chapter contains some common frequently asked questions about the CT60. If you do not find an answer to your question here, please contact Technical Support at 800-755-5505 and one of our representatives will be able to help you.

What Options are Available for Loading Software into the CT60?

- USB Floppy Drive
- USB CD-ROM
- Local Area Network
- Direct Cable Connection

How Do I Install Drivers for Peripheral Devices Sold by Intermec?

Device drivers for peripherals that Intermec distributes reside on the CT60 where they can be installed as needed.

Contact Technical Support for assistance on any of these installations at 800-755-5505.

How Do I Install Drivers for Peripheral Devices Not Sold by Intermec?

Device drivers for peripherals not distributed by Intermec will require loading via one of the options listed above.

Contact Intermec Technical Support at 800-755-5505 for loading device drivers for any variety of peripheral that may need to be installed.

How Do I Activate the "Screen Keyboard"?

If you are using Windows XP Tablet PC, tap the Input Panel button on the task bar. The Tablet PC Input Panel opens.

If You are Using MS Pen Services:

From the Windows desktop,navigate through the Start Menu to the Program group named "Pen Services". Tap on the icon for the screen keyboard in this group.

If You are Using My-T-Pen:

From the Windows desktop, navigate through the Start Menu to the Program group named "My-T-Pen". Tap on the icon for "My-T-Pen" in this group.

How Can Hand Writer Recognition be Disabled?

For XP Tablet PC Edition, the handwriting recognition cannot be disabled.

For MS Pen services, open the control panel applet for Hand Writer Settings. Locate the option under the **Personal** tab that will allow you to set the time delay for **Switch from Ink to Text Selection**. Set this adjustment to the extreme left (0.0 seconds) to disable Hand Writer Recognition.

For Calligrapher, the handwriting recognition is only active when the calligrapher program is running.

What Do I Do If the Computer Locks Up or Freezes While under Windows?

In the event that Windows locks up and you lose control of screen activity, you can depress the on/off switch twice for a <CTRL><ALT><DEL> function or hold the side power button for a period of 4-5 seconds to force a "hardware shutdown."

How Do I Clean the Dock Connector On the Back of the CT60?

Use a non-metallic bristle brush to sweep out any dust or foreign particles.

How Do I Clean the Glass on the Face of the Computer?

On pen machines, use a non-abrasive glass cleaner to clean the display glass.

On touch screen machines, use a plastic cleaner such as (Micro-clean) to clean the display.

What Do I Do When the Pen Gets Out of Alignment?

When using Windows XP Tablet PC Edition, recalibrate the pen any time you change screen orientations or sitting positions.

Go to **Start→Control Panel→Tablet and Pen Settings**.

Tap the **Settings** tab. Under Calibration, tap the name of the screen orientation for which you would like to calibrate your tablet screen. Tap **Calibrate**. Follow the on-screen instructions for calibrating the screen. You must calibrate the screen for each screen orientation separately.

If you are using MS Pen services: In the Windows Control Panel is an applet labeled Hand writer Settings (pen settings on some machines), which has the pen alignment utility. You may have to attempt alignment more than once to get the desired result.

If you are using Pen with Calligrapher: From the Windows desktop, navigate through the Start Menu to the Program group named "Fine Point" ("Mutoh pen system driver" on some units). In this group, tap on the icon for "Recalibrate" and follow the onscreen instructions.

What if the Pen Still Will Not Align?

Check that the Windows Display settings are not set to a screen resolution other than factory default. If so, adjust the setting to factory default, reboot the unit and attempt pen alignment.

See supporting documentation for instructions on reinstalling the pen services software. This will typically cure problems with damaged support files that impact the pen function.

What Can I Do When the "Start" Button Disappears?

In pen computing, it is not uncommon for the user to inadvertently resize the task bar so that it is not visible on the screen.

First, attempt to recover the start button and task bar by moving around the edges of the display to see if you will get a double arrow. If you get a double arrow, simply drag the task bar to the size you need.

If not, follow these steps:

Note: you will need a keyboard to perform this function. Do not attempt to use the pen during this process.

1. Press the <CTRL>, <ESC> keys in combination to display the "Start" menu.
2. Press the <ESC> button and the menu will disappear. Youhave now placed the focus on the "Start" button.
3. Press <ALT>, <SPACEBAR> keys in combination to display a context menu.
4. Use the cursor keys to navigate in the context menu and highlight "Size."
5. Press <ENTER> and the pointer will move to the middle of the taskbar along the edge of the display and become a two-way arrow.
6. Using the cursor key, size the task bar until it is the size you prefer.
7. Press the <ENTER> key to set the task bar size.

To avoid this problem in the future, try sizing the task bar to belarger than the default. This can be done at your discretion. Windows XP also gives you the option of locking the task bar so this will not happen. Intermec highly recommends locking your taskbar if you are using Windows XP.

To Lock Your Taskbar:

1 Right tap on the taskbar.

2 Select the **Properties** tab.

3 Under task bar tab menu, check “Lock the taskbar.”

What Do I Do When the Battery Discharges and Will Not Charge in the Computer?

There are several fused circuits in the CT60 designed to protect the core electronics. In the event that the unit will not initiate the charge cycle, there may be a blown fuse in the circuit. See *Battery Use and Care* in Chapter 2 for more information on charging your batteries.

What External Peripherals Does the CT60 Support?

The CT60 will support all Cardbus/PC cards.

The CT60 has aType III Cardbus/PC card slot which will accommodate either one Type III card or up to two Type II devices.

How Can USB Networking Be Used In the CT60?

Intermec provides desk dock and wall dock options with a USB network adapter that communicates to the CT60 via the docking connection and connects to the network hub by way of standard network patch cabling.

- No network cable is connected directly to the CT60.
- USB functionality is supported under Windows 98, 2000, XP Pro and XP Tablet PC Edition.

How Can USB be Used In the CT60?

The CT60 is manufactured with a single USB connection on the side of the unit. This USB connection can be used for a wide variety of USB type devices.

Note: CT60 does not support USB 2.0.

There is also an additional USB port in the dock connector, available on the desk dock, vehicle dock, and wall dock.

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