

Allegro CE™

OWNER'S MANUAL

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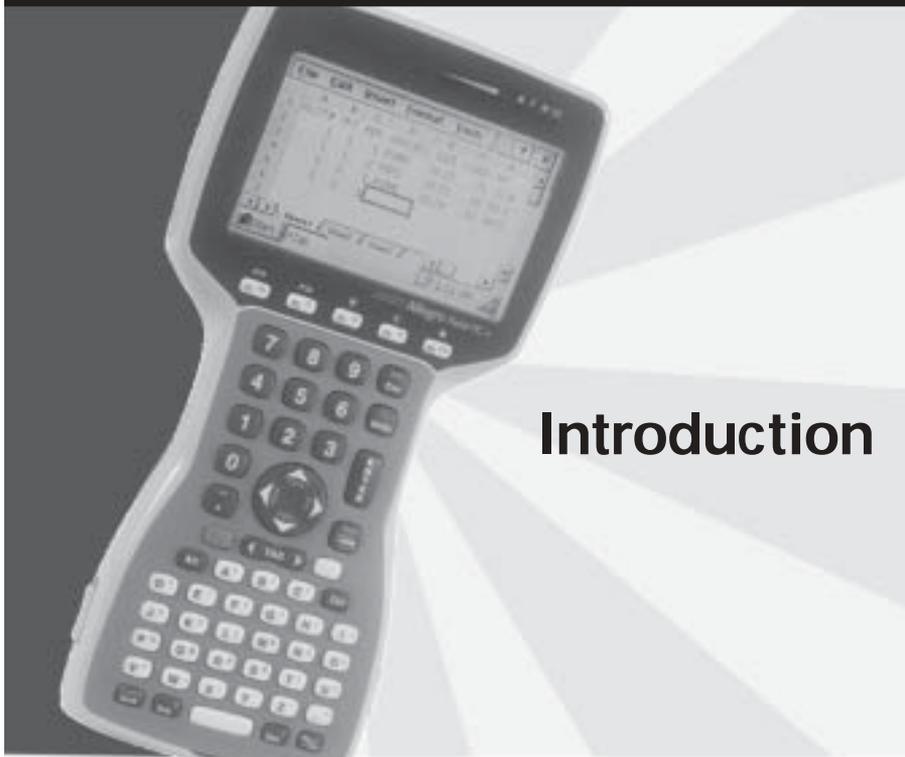
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Chapter 1



Introduction

Welcome
Allegro Overview
Quick Start Guide

Welcome

The Allegro CE is a rugged, waterproof Field PC built for long-term field use. Intel's StrongARM 206 MHz processor provides outstanding speed and performance. The 1/4 VGA display and non-glare touchscreen provides excellent visibility. The ergonomic, lightweight, balanced design makes it easy to carry and use in the field for extended periods. The Allegro CE comes with the Windows CE operating system. It also features solid state data storage so that your data are secure, even without power backup. Data are hand-keyed on the keyboard or entered directly via instruments. Expansion pods provide sensor integration. A user-accessible PC card slot provides additional storage and I/O capability.

This manual contains the information you need for using and caring for your Allegro CE. The manual covers the hardware that either comes with your Allegro, or optional hardware that is available for your Allegro. Additional chapters cover storage options, the operating system, and software development for your Allegro.

This manual also contains indepth instructions for all of our expansions pods. These include:

GPS Pod

Barcode Pod

802.11b Pod

Barcode/802.11b Pod (combination pod)

You have the option of upgrading the Windows CE 3.0 operating system to Windows CE .NET. This upgrade is available through your Allegro reseller. The Allegro Owner's Manual addresses the changes and additions that result in this operating systems upgrade, specifically in the Control Panel and Developers Guide sections.

If you have any questions or comments about the Allegro CE after reviewing this manual, please feel free to contact our Technical Support department at (435) 753-1881.

Allegro CE Overview

▲ Features

The standard features of the Allegro CE are listed below. These features are described in detail throughout this manual. A complete list of specifications is in the *Technical Reference* section.

- ❑ Operating System: Windows CE 3.0
- ❑ Processor: 206 MHz Intel StrongArm
- ❑ Memory: 32 M RAM with options for 64 M and 128 M
- ❑ Data and Program Storage: 32 M Solid State Storage on system motherboard with larger options
- ❑ PC Card Slot: User-accessible for ATA, Compact Flash and other Type I or II 3V/5V PC cards, modem, wireless networking cards, or other accessory cards
- ❑ Case: Rugged, waterproof, easy to hold, and lightweight
- ❑ Display: Large 4.1" diagonal, 1/4 VGA display, 320 wide x 240 high pixels, anti-reflective, equipped with a backlight (brightness adjustable) and heater for cold weather operation
- ❑ Touchscreen: Pressure sensitive with keyboard accessible disable touchscreen function for use in rainstorms and in heavy brush
- ❑ Keyboard: Includes all printable ASCII characters, 12 function keys, centrally located number keys, and special coatings to prevent the characters from rubbing off
- ❑ Keyboard Bezel: Protects keys from tearing; removable for cleaning keyboard
- ❑ Power: NiMH battery pack lasts an average of 12 to 20 hours, depending on the application
- ❑ Communication Ports: Two sealed 9-pin D serial ports, one high and one low speed infrared IrDA port, and one external USB port
- ❑ Software: Windows CE Software Suite
- ❑ Sound: Screen taps and key beeps, programmable to associate beeps with events. Volume is adjustable
- ❑ System Tray Indicators: Remaining battery status, charging status, data storage activity, PC card activity, caps lock on, touchscreen disable, and external power input
- ❑ File Synchronization between the Allegro and desktop PC

▲ **Standard Accessories**

The Allegro comes with the following accessories:

- Allegro CE Utilities CD-ROM with the Desktop PC Setup Programs, Backups of Software Suite programs, and an Electronic Owner's Manual
- NiMH Battery Pack
- Universal AC Adapter
- Communication Cable
- Two Mini and One Full Size Stylus
- Carrying Straps
- Hand Straps

▲ **Optional Accessories and Expansion Pods**

The accessories listed below are optional. Contact our Sales Department if you are interested in any of the following items.

- USB/Power Dock
- Hardcopy of Owner's Manual
- Alkaline Battery Holder
- Vehicle Power Adapter
- External Battery Charger
- Bar Code Wands and Accessories
- Digital Calipers
- ATA Flash Cards
- IrDA Adapters
- Printer Adapters
- Application Development Software
- Replacement Accessories
- ActiveSync CD-ROM

Expansion Pods

- GPS Expansion Pod
- Bar Code Expansion Pod
- 802.11b Expansion Pod
- Bar Code/802.11b Expansion Pod

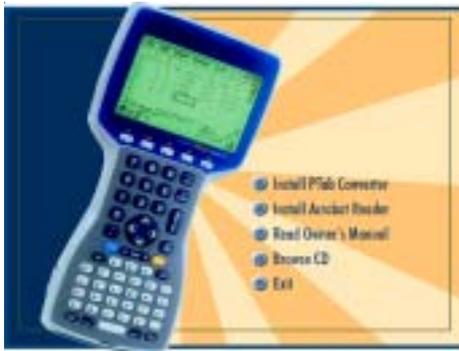
Quick Start Guide

A Quick Start Guide is included with the Allegro. It offers nine basic and initial steps to get the Allegro charged and ready to take out into the field. The instructions on the guide should be done first, before you begin using the Allegro.

If the Quick Start Guide is discarded or misplaced after setting up the Allegro and you discover you need the guide again, you can access a copy of it from the Allegro CD.

To Access the Quick Start Guide from the Allegro CD complete the following steps:

- 1) Place the Allegro CD into the desktop PC's CD-ROM drive. The following splash page appears:



- 2) Click on the *Browse CD* option. The CD opens up in a Windows Explorer program displaying the contents of the CD.
- 3) Double-click on the *Quick Start Guide* file to open in Acrobat Reader.
- 4) Read and/or print the Quick Start Guide.

Chapter 2



Hardware Components

- Case Design
- Keyboard
- Display
- System Tray Indicators
- Batteries
- Communication Ports
- USB / Power Dock
- PC Card Slot
- Sound Generator
- Expansion Pods

Case Design

▲ Case Features

The case has the following features:

- ❑ The polycarbonate ABS material is rugged, shock resistant, and formulated to resist damage from chemicals.
- ❑ The ergonomic shape and smooth edges make it easy to hold, maximizing comfort and usability in the field.
- ❑ The weight distribution is balanced.
- ❑ There are three gaskets used to seal the case from water and dust:
 - between the top and bottom case halves
 - around the battery compartment
 - around the PC card slot compartment

In most circumstances, these gaskets are not field replaceable. Contact our Service Department if a gasket needs to be replaced.

- ❑ There are two doors: one for the battery compartment and one for the PC card slot. These doors are user-replaceable. Contact our Sales Department for ordering information.



PC Card Slot



Battery Compartment

▲ Hand Strap and Shoulder Strap

There are four metal cleats, one on each corner of the Allegro CE case. Each cleat has two metal rings that are used to attach the hand strap and shoulder strap onto the Allegro.

The straps can be attached in numerous configurations, depending on your preference and whether you are right-handed or left-handed. The shoulder strap can be used as a neck strap for hands-free operation. The tension on the hand strap is adjustable.



Keyboard

▲ Keyboard Features

The keyboard on the Allegro CE is designed to maximize data entry efficiency and to withstand rugged, wet conditions.

- ❑ Careful planning went into the placement, size, and space between keys to increase efficiency and ease of use.
- ❑ The number keys are large and placed in the center of the Allegro for easy access from either side.
- ❑ Some keys have standard functions as well as special functions accessed with the GOLD and BLUE shift keys.
- ❑ Five function keys are located below the display. With the use of the GOLD and BLUE shift keys, twelve function keys are available.
- ❑ Two special coatings prevent the key labels from rubbing off after extended use.
- ❑ The keyboard bezel helps protect the keys from tearing. It is removable for cleaning purposes.



▲ Special Keys and Key Sequences

The standard keyboard letters, numbers, and functions are printed in dark brown on the off-white keys and in off-white on the dark brown keys. These standard options are operational unless a GOLD or BLUE shift key is pressed.



Blue Shift Key Usage

To access the keyboard characters printed in blue, press and release the BLUE shift key followed by the key with the desired blue-lettered character. To activate several blue-lettered keys before returning to standard mode, continue to hold the BLUE shift key down while you press the desired keys. Once the BLUE shift key is released, the keyboard reverts back to the standard mode.

Gold Shift Key Usage

To access the gold shift key options, press and release the GOLD shift key followed by the key with the desired gold symbol. To activate several gold-lettered options before returning to standard mode, continue to hold the GOLD shift key down while you press the desired keys. Once the GOLD shift key is released, the keyboard reverts back to the standard mode.

Circular Key Usage

The circular key located in the center of the keyboard has two functions:

- 1) Standard (no shift keys): Up, Down, Right, and Left arrow keys
- 2) BLUE shifted functions: Page Up, Page Down, Home, and End



Shifted Options

The shifted options and the associated key sequences are listed below.

<u>Option</u>	<u>Key Sequence</u>
Function keys F6, F7, F8, F9 and F10	BLUE key + desired function key
Function keys F11 and F12	GOLD key + desired function key
Enable/Disable touchscreen	BLUE key + <i>TS</i>
View Windows CE Start Menu	BLUE key + <i>Start</i>
Page up	BLUE key + <i>PgUp</i>
Page down	BLUE key + <i>PgDn</i>
End	BLUE key + <i>End</i>
Home	BLUE key + <i>Home</i>
Toggle caps lock on and off	BLUE key + <i>CapLk</i>
Toggle display backlight	GOLD key + <i>F3</i> (see gold light bulb symbol above function key)
Display Contrast Lighten	GOLD key + <i>F4</i> (see gold symbol above function key)
Display Contrast Darken	GOLD key + <i>F5</i> (see gold symbol above function key)
Perform a reset	<i>On/Off</i> (hold down for eight seconds)

Keyboard Options

The following keys and key sequences are functional in Windows CE.

On/Off (Reset)



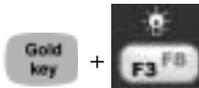
This key is used to turn the Allegro on and off. The ridge around the key helps prevent the Allegro from being accidentally turned on without your knowledge (while it is in a backpack, for example). A reset is performed by holding down the *On/Off* key for about eight seconds. Release the key when the reset process begins.

Contrast Keys



To make the display darker, press the GOLD key and the *F5* key. To make the display lighter, press the GOLD key and the *F4* key.

Backlight On/Off



The backlight is toggled on and off by pressing the GOLD key and the *F3* key.

Tab, Forward and Backward



The tab keys are used primarily for cursor movement between fields.

Touchscreen Disable/Enable



The touchscreen key allows you to disable and enable the touchscreen. This feature allows you to wipe off the screen without inadvertently making selections on the screen. Press the BLUE shift key and the *TS* key to disable the screen. A system tray icon will appear showing that the touch screen has been disabled. Once the screen has been cleaned, use the same key sequence to enable the touchscreen. (For instructions on how to clean the screen, refer to *Display, Touchscreen* later in this section.)

Task Manager



Press the *Task Manager* key to view all of the programs that are currently running. Select which program you want to be in by using the up and down arrow keys to highlight the desired program and pressing *ENTER*.

Start Menu



Press the BLUE shift key and the <Start> key to view the Windows CE Start Menu. Use the arrow keys to move up and down the menu. Press the *ENTER* key to make your selection.

The Task Manager and Start Menu functions have been provided to speed up operation. You do not have to use the touchscreen and stylus to bring up the Start Menu or to change tasks. These keys are also handy when the Taskbar has been hidden.

Right Mouse Click

Press the *Alt* key and touch the screen with a stylus to achieve a right mouse click. In many Windows CE programs, when you right click on an item a menu is displayed listing functions and options that pertain to the item.

▲ Cleaning the Keyboard

Dirt and debris can get underneath the keyboard bezel. To clean, use a coin (do not use a screwdriver) to pull the bezel up at the recess located at the bottom of the keyboard and remove it. We recommend that you use warm water, mild detergent, and a toothbrush to clean the keyboard or simply brush it out. The Allegro remains sealed during this process. (Do not direct a high pressure stream of water at the keyboard to clean it. This action could break the seal, causing water to get inside the Allegro.)

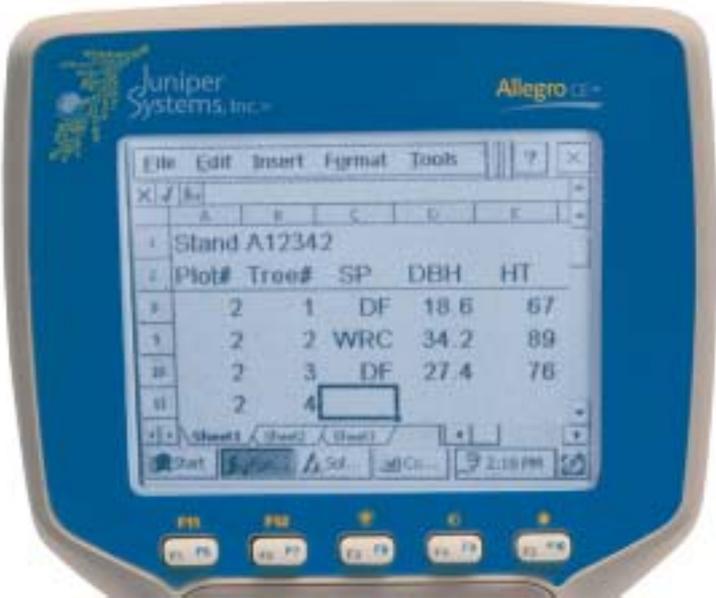


Reattach the bezel by carefully inserting the top ridge under the function keys and lowering the bezel down flat onto the case. Press down along the sides while aligning the keys through the holes.

❖ *Note: After you reattach the bezel, check each key to make sure it is completely free from the bezel. If any part of a key is caught underneath the bezel, you may not be able to turn the Allegro on or you may hear a continuous string of beeps.*

Display

The Allegro CE has a high-contrast liquid crystal display. The active viewing area is 3.3" wide x 2.5" high. The display resolution is 320 x 240 pixels. The display is shock-mounted and sealed.



Display Features:

- Contrast: The display contrast can be lightened or darkened and automatically adjusts the contrast to compensate for temperature.
- Heater: The display heater allows you to use the Allegro in temperatures below freezing.
- Backlight: The backlight enhances visibility in low-light conditions. The brightness of the backlight is adjustable.
- Position: The display is slightly tilted up to reduce glare and enhance visibility.
- Touchscreen: A 1/4 VGA display touchscreen with an anti-reflective coating to eliminate reflective glare and is used to make selections and enter data in Windows CE.

▲ Adjusting the Display

The display features can be enabled, disabled, or controlled through the Control Panel (see *Chapter 4*). Some display features can be adjusted using the special key sequences shown below:

<u>Display Function</u>	<u>Key Sequence</u>
Increase Contrast	GOLD + F5
Decrease Contrast	GOLD + F4
Backlight Toggle On and Off	GOLD + F3

Backlight

The display backlight is used to enhance visibility in low-light conditions in the field. The backlight can enhance visibility indoors.

The brightness of the display backlight is adjustable from dim to bright (the default). This adjustment is made from the *Control Panel | Display Properties | Backlight*.

Contrast and Automatic Temperature Compensation

Once you have set the contrast, you seldom need to readjust it.

▲ Touchscreen

The Allegro display has a touchscreen used to activate programs and functions. The touchscreen can be operated with a stylus, finger, or other pointed object (avoid using sharp objects that may scratch the screen). Three styli are provided: two mini styli that snap into a holding bay built into the top of the case and a pen-size stylus. For more details on how to use the touchscreen, refer to *Chapter 4, Windows CE Operating System, Display Touchscreen*.

Cleaning the Touchscreen

Disable the touchscreen before you wipe it off or clean it to avoid inadvertently making selections on the screen (see instructions below). Use a clean cotton cloth to gently wipe off the screen. Do not use anything abrasive that could scratch the screen (including tissues and paper towels).

❖ *Note: petroleum-based cleaners and solvents should not be used. They can damage polycarbonate.*

Touchscreen Disable/Enable Key



The touchscreen key disables and enables the touchscreen. Press the BLUE shift key and the TS key to disable the screen. Once the screen has been cleaned, use the same key sequence to enable the touchscreen.

System Tray Indicators

System tray indicators specify applications that are running on your computer. The Allegro CE system tray indicators are located in the bottom right corner system tray.

These system tray indicators are active while the Allegro is running specific tasks. These indicators provide you with the following information:

<u>System Tray Indicators</u>	<u>Indicator Description</u>
	Remaining Battery Charge Status: shows the percent of charge remaining in the batteries
	External Power Input: indicates that you are connected to an external power source and not drawing power from the internal batteries
	Charging Indicator: appears in the system tray while the rechargeable batteries are being charged up
	Data Storage Activity: appears when data are being read from or written to the solid state disk
	PC Card Activity: indicates that the application program is accessing the PC card (do not remove the card when this icon is on)
	Caps Lock On: appears when the all capital letters option is activated
	Touchscreen Disable: appears when the touchscreen is disabled for cleaning purposes, or for use in heavy rain storms.
	PC Connection: appears when there is an active connection between the Allegro and the desktop PC.

▲ Making Space in the System Tray

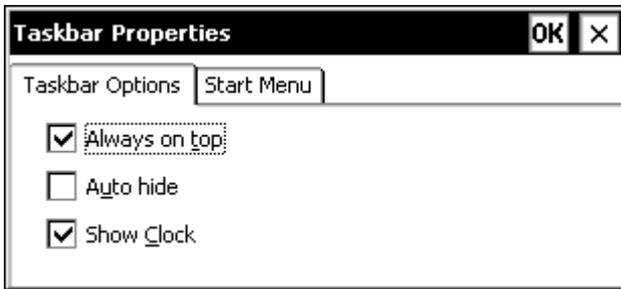
The system tray is a feature limited by the amount of space it has to show which features are currently active. The following are ways of freeing up space in the system tray to make room for the system tray indicators:

Clock Removal
AM / PM Removal

Clock Removal

To remove the clock from the system tray, complete the following steps:

- 1) Select *Start / Settings / Taskbar* on the Allegro and the following screen appears:



- 2) Tap on the check mark next to the *Show Clock* option to deselect this option and tap on *OK*. The clock is now removed from the system tray.

System tray with clock:



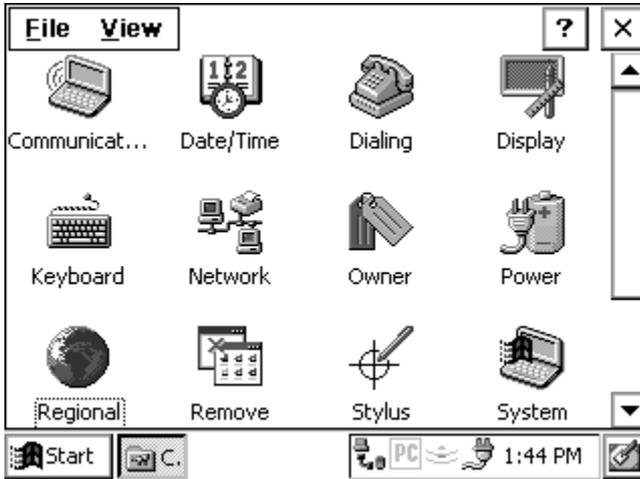
System Tray without clock:



AM/PM Removal

You may have need for a clock on the Allegro desktop, but to conserve on the amount of space it takes up in the system tray you can remove the AM/PM setting after the clock. This function will shift the time into military time (2:00 PM = 14:00). To do this complete the following steps:

- 1) Select *Start / Settings / Control Panel*, the following screen will appear:



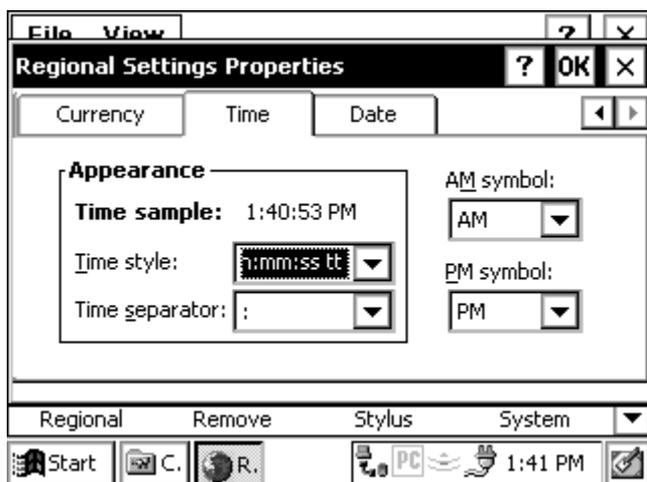
- 2) Double tap on the Regional Settings icon:



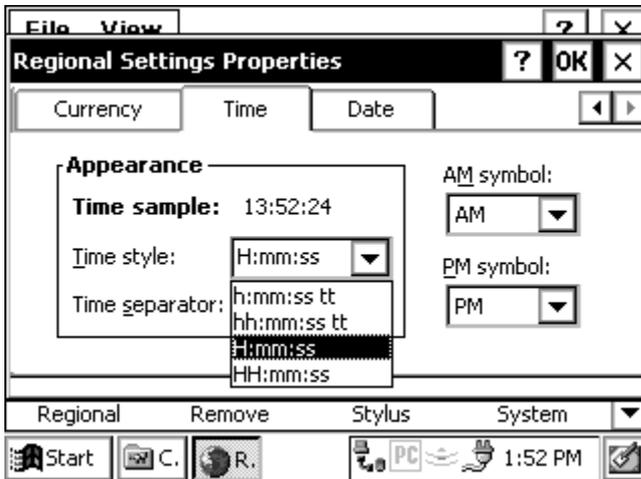
The following screen appears:



- 3) Tap on the arrow next to the tabs to get them to scroll over until the *Time* tab appears and tap on that, the following screen appears:



- 4) Tap on the down arrow in the *Time style* in the *Appearance* box and select the H:mm:ss or HH:mm:ss option:



- 5) Tap on *OK*.

The clock in the system tray no longer has the AM/PM sign next to the clock:



Batteries

The power consumption of the Allegro CE is very efficient. The Auto Suspend and Power Management features help to conserve power. Maintaining the battery pack and backup supply is simple.

There are two types of batteries and a backup capacitor associated with the Allegro:

- ❑ NiMH battery pack
- ❑ Battery holder for three alkaline cells (optional accessory)
- ❑ Super capacitor that serves as the RAM backup (maintains the RAM while you change the battery pack)

▲ Main Power Source

The Allegro is powered by a rechargeable nickel metal hydride (NiMH) battery pack. The battery compartment is accessed through a door in the back of the case. The NiMH battery pack is shipped along with the Allegro but is not installed at the factory. When you receive the Allegro, you must install and then charge the battery pack. To do this, complete the following steps:

- 1) Push up on the sliding latches on the sides of the Allegro to open the battery compartment door.
- 2) Place the NiMH battery pack in the left side of the battery compartment, push down, and slide it all the way to the right.



- 3) Push the battery door closed until each latch clicks into place.

- 4) Slide the latches downward until they cannot slide any further to securely latch the battery door closed.



Do not turn on the Allegro yet.

- 5) Plug the AC wall charger that came with the Allegro into the wall socket.



The small green light on the wall charger turns on when it is plugged in.

- 6) Remove the rubber protector from the Allegro's external power input jack.
- 7) Plug the power connector end of the wall charger into the Allegro.



- 8) Charge the battery pack at room temperature until the charge indicator on the Allegro turns off. This can take 3 to 5 hours the first time you charge the battery.

Setting Battery Charge

After installing the battery pack into the Allegro, the battery charge percent must be set. This allows the Allegro to know the pack's charge status. When you insert the battery pack into the Allegro for the first time, the charge status is unknown to the Allegro.

To set the charge status of the battery pack after you install the battery pack for the first time, complete the following:

- 1) Turn on the Allegro by pushing the On/Off button.



As Windows CE loads, various screens appear that do not require any action until it gets to the *New Battery Detected* screen.

- 2) Tap on the circle next to the *Specify charge (%)* option to set charge status.



- 3) Set the charge percent to 10 by tapping on the small up or down arrows to move the percent.

The capacity of the NiMH battery we have provided with the Allegro is 3800 mAh, so this will not change.

- 4) Tap on *OK* to save the set charge percent.

The *New Battery Detected* screen closes and the charge status is set. Once the battery pack is fully charged, the gauging is automatically set to 100%. The battery task bar icon indicator now accurately reflects the battery charge.

New Battery Detected Screen

There are other situations when you turn on your Allegro and the *New Battery Detected* screen pops up, directing you to set the values for battery charge percent and battery charge capacity. The following are reasons for this:

- Restore function is used
- Set Factory Defaults function is used
- Power is removed from the Allegro because the battery is fully discharged
- Removal and replacement of the battery pack

These values must be set correctly for the battery charge function to work properly, as previously outlined in this section.

If you insert a battery pack and do not know what the status it is, we recommend you follow the previous instructions and set the battery charge at 10%.

If you do know what the status is, then set the correct percentage and tap on OK.

Setting the Battery Capacity

The battery capacity is set to the default of 3800 milliamp-hours (mAh) for the newly installed battery pack. The capacity of the NiMH battery we have provided with the Allegro is 3800 mAh.

If you purchase a battery pack from another vendor, note what the capacity is. For optimum performance, it is best to use battery packs with a 3000 to 4000 mAh capacity. The higher the capacity of the battery pack, the longer it holds a charge. However, battery packs with a capacity over 4000 mAh may not charge fully.

As a battery pack ages, it does not operate as long on a charge as it did when it was new. The capacity could be reduced by as much as 50% at the end of its useful life. Over time, the capacity setting for an individual battery pack may be adjusted downward to account for age.

Battery Life

Depending on the application, the batteries can last from five to 30 hours between charges (NiMH) or replacement (alkaline cells) as shown below:

<u>Battery Pack</u>	<u>Capacity</u>	<u>Typical Operating Time</u>
NiMH	3,800 mA hours	12 to 20 hours
Alkaline	1,600 mA hours	5 to 10 hours

The operating times stated above are based on a typical application including: the data are being entered manually on the keyboard, no external devices are powered by the Allegro, the backlight is used 10% of the time, and processing time is 20%. The actual operating time could vary from as little as five hours to as much as 30 hours, depending on the program and how the system is set up.

Recharging the NiMH Battery Pack

For applications where the Allegro is used for several hours each day, the NiMH batteries can be charged daily. The Allegro's built-in intelligent charging circuit manages the charging of the batteries and prevents them from being overcharged.

You should always be aware of the status of the main batteries before you go out into the field to collect data. The batteries may need to be recharged before you go. You need to take into account how much battery life is left and the amount of time required to charge the pack.

Temperature Ranges for Charging the NiMH Battery Pack

The Allegro's NiMH batteries are charged most efficiently at temperatures ranging between 10° to 20° C (50° to 68° F) when the AC power adapter is used.

The Allegro batteries must be charged when the battery temperature is between 0° to 40° C (32° to 104° degrees F) due to the nature of NiMH batteries.

The chart below describes the Allegro battery charging behavior at different temperatures.

	Temp. Range Degrees C	Temp. Range Degrees F	Charging Behavior
Recommended Charge Range	10° to 20°	50° to 68°	Most efficient; batteries charge within three hours.
Acceptable Charge Range	0° to 30°	32° to 86°	Batteries are charged within four hours.
<i>Too Cold</i> Range	< 0°	< 32°	The batteries must reach 0° C (14° F) before they begin to charge.
<i>Too Hot</i> Range	> 30°	> 86°	Battery charge cycle is complete in four to five hours. If the batteries become too warm, they may only reach a 90 to 95% charge capacity.

Try to charge the batteries within the recommended temperature range. If you need to charge the batteries in temperatures exceeding this range, you should purchase an extra battery and keep it charged for the most efficient operation of the Allegro.

Power Connector

A dedicated standard external DC power input connector is located on the top of the Allegro. The connector is 5.5 x 2.1 mm, 10 to 20 V DC. The AC power adapter and optional vehicle power adapter are inserted into this connector.



< Power Connector

Charging Accessories for NiMH Battery Packs

There are several charging options available for the Allegro. The most common is the AC power adapter that is shipped with your Allegro. The USB/Power Dock, vehicle power adapter, and external battery charger are all optional ways of charging the Allegro and can be purchased separately.

- ❑ AC Power Adapter: Using the AC power adapter, the battery pack is recharged without removing it from the Allegro.

Please note that you must use the adapter included with the Allegro or one that is capable of supplying adequate current (12 V at 1 Amp). Otherwise, the battery pack could be damaged.

You can run the Allegro from the adapter while the batteries are being charged. To charge the battery complete the following steps:

- 1) Plug the AC charging adapter into an AC outlet.
 - 2) Insert the connector into the external power input jack located on the top of the Allegro case. It can take up to five hours to fully charge a battery pack.
 - 3) When the batteries are fully charged, the charging circuit switches into trickle charge mode. You can leave the Allegro connected to the adapter continuously without overcharging or damaging the batteries.
- USB/Power Dock: Using the USB/Power Dock, you can charge the battery pack while it sits in the Power Dock. To charge the battery complete the following steps:
- 1) Plug the AC charging adapter into an AC outlet.
 - 2) Insert the connector into the external power input jack located on the back of the Power Dock. Place the Allegro into the Power Dock to begin charging the battery pack until the amber charging light on the Power Dock goes out. It can take up to five hours to fully charge a battery pack.
 - 3) When the batteries are fully charged, the charging circuit switches into trickle charge mode. You can leave the Allegro in the Power Dock continuously without overcharging or damaging the batteries.
- Vehicle Power Adapter: With this adapter, you can charge battery packs via an automobile cigarette lighter. To charge the battery, complete the following steps:
- 1) Plug the adapter into the cigarette lighter.
 - 2) Insert the connector into the external power input jack located on the top of the Allegro case. It can take up to five hours to fully charge a pack. You can operate the Allegro with this adapter as well as charge the batteries.

- External Battery Charger (optional): The battery pack is removed from the Allegro to be charged using the external battery charger. To charge the battery complete the following steps:
 - 1) Place the NiMH battery adapter on the charger.
 - 2) Slide the battery onto the charger and leave until fully charged, which can take up to five hours. Refer to the instructions that came with the charger for more details. (Details on how to remove the battery pack are located later in this chapter.)

Using Vehicle Power

It is important to have the Allegro in Vehicle Mode when it is left connected to vehicle power for periods of an hour or more, either directly or via the vehicle power adapter. Vehicle Mode prevents excessive charging of the NiMH battery pack.

Using Vehicle Mode is necessary because every time the power is cycled (the key to the vehicle is turned on) the Allegro begins a new battery charge cycle. The Allegro circuitry detects when a battery pack is fully charged, however, it takes approximately 20 minutes for this to occur. Repeatedly attempting to charge a fully charged battery pack causes premature degradation in battery performance. In Vehicle Mode, charging is inhibited if the gauging circuitry indicates that battery pack is above 90% charged.

To put the Allegro in Vehicle Mode, complete the following steps (the default is for Vehicle Mode to be off):

- 1) Tap on the *Start* menu and select the *Settings / Control Panel* options, double-tap on *Power* icon. The *Power Properties* screen appears.
- 2) Tap on the box next to the *Select the In-Vehicle Charge Mode* option so a check mark appears. (Refer to *Chapter 4, Windows CE, Control Panel* for details).
- 3) Tap on *OK*.

Your Allegro is now set up for use in vehicle power mode.

Battery Gauging Explained

The Allegro's intelligent battery gauging circuit helps you efficiently maintain the batteries for applications. The percentage of remaining charge in the batteries is indicated through the battery status system tray icons. The gauging works for both NiMH rechargeable batteries and alkaline batteries, although the mechanism is different, as outlined in this section.

❖ *Note: Battery gauging is provided as a tool to help you manage the batteries. It does not affect the performance of the Allegro or the batteries in any way. If the gauging circuitry is not properly synchronized with a NiMH battery, it may show erroneous readings. Please read this section on battery gauging so you understand the proper setup, functionality, and limitations of battery gauging.*

How Battery Gauging Works for the NiMH Rechargeable Battery

The Allegro employs a circuit that watches how much charge is added to or removed from the rechargeable battery.

To illustrate how this circuit works, imagine the battery as a tank of water. The battery capacity is like the size of the tank in volume. Watching the charge is like watching how much volume of water flow into or out of the tank.

Gauging the battery is like gauging how full the tank is, without being able to see into it. You must know the size of the tank and how full it was to start with to determine the amount of water in the tank.

As water flows out of the tank, the percent full can be calculated by subtracting how much water has flowed out of the tank from the starting point and then dividing by the capacity of the tank. This is exactly what the Allegro does, except it monitors milliamp-hours of electric charge instead of the volume of water.

For the battery gauging to work correctly on the Allegro, the following values must be known about the NiMH battery pack:

- Charge percent
- Capacity

Setting the battery charge percent and capacity are both described earlier in this chapter in the *Setting Battery Charge* section.

The battery gauging is an estimate. It works well in applications where the Allegro is used heavily and charged every day. When it is not used much and goes several days between charges, the gauging may not be as accurate in reflecting the true charge of the battery pack. The accumulated error can be as much as 5% per day.

To avoid errors, keep the Allegro attached to the AC charging adapter or in the USB/Power Dock when you are not going to use it for a few days. This practice prevents the battery pack from self-discharging. The battery stays fully charged and the battery gauging reflects the correct status of the battery pack.

How Battery Gauging Works When Using Alkaline Batteries

Alkaline batteries have a better slope to the voltage discharge curve than NiMH batteries. Because of this, the voltage can be read directly to gauge the battery charge percent.

The gauging may vary depending on the grade and brand of the batteries being used. For best results, we recommend that you use the new types of alkaline batteries such as the Duracell Ultra™ and Energizer Titanium™.

Temperature and loading affect alkaline battery voltage and may cause the gauging to behave differently in different environmental conditions. When moving from a cold environment to a warm one, the battery charge status bar indicators may actually move up instead of down. This happens because in cold temperatures the alkaline batteries actually have less capacity than in warm temperatures and this is reflected in the voltage output.

Battery Status Icons

There is a battery indicator in the system tray that shows the amount of power left on the battery. The indicator gives a percentage of the charge left in the battery, as shown below:



❖ *Note: The system tray indicators are meant to give only an approximate indication of battery charge remaining, not an exact reading.*

When the Battery Voltage Drops

As the battery charge drops to 10%, the voltage begins to drop off rapidly. The Allegro detects this low battery condition. When the battery indicator begins to flash on and off this lets you know it is time to recharge or replace the batteries.

When the battery pack voltage drops sufficiently, the Allegro automatically goes into suspend mode. Charge or replace the batteries as soon as possible. The battery pack has enough charge left to retain the system RAM for five minutes, at which point the Allegro completely powers down to prevent damage to the batteries. If this happens, the Allegro resets after you charge or replace the batteries. Any data that were not saved to disk are lost.

Lost Data if Batteries are Removed

If the batteries are removed from the Allegro for longer than five minutes, the Allegro *resets* to the Desktop instead of resuming to the screen that was last displayed before the batteries were removed. All data that was stored in RAM are lost.

Power Management Feature

To conserve power, the Allegro has an Auto Suspend feature. When the Allegro is on, it turns itself off if there is no activity after a specified period of time. This feature is on by default and is set at three minutes when the Allegro is using battery power or always on when the Allegro is connected to the an external power supply. The Auto Suspend is controlled through the *Start / Control Panel / Power* menu.

Changing NiMH Battery Pack

The battery compartment is accessed through a door in the back of the case. Before you remove an existing battery pack from the Allegro, complete the following:

- 1) Exit from all open programs.
- 2) Turn the Allegro off.
- 3) Push up on the sliding latches on the sides of the Allegro to open the battery compartment door.
- 4) Slide the battery pack towards the left side of the battery compartment and pull it out.

- 5) Place the new battery pack in the left side of the battery compartment, push down, and slide it all the way to the right.



- 6) Push the battery door closed until each latch clicks into place.
- 7) Slide the latches downward until they cannot slide any further to securely latch the battery door closed.

Alkaline Battery Holder: Inserting Batteries and Usage Information

The alkaline battery holder enables you to power the Allegro with alkaline batteries. Follow the steps outlined below for proper usage.

- 1) Turn the Allegro off before changing the batteries.
- 2) The Allegro battery compartment is accessed through a door in the back of the case. To open the compartment door, push up on the release latches on the sides of the case. The door pops open. Remove the alkaline holder or NiMH pack by sliding it to the left and pulling it out.
- 3) Open the door to the alkaline battery holder by pressing in on both tabs with your index finger and thumb as shown.



- 4) Insert three fresh AA alkaline batteries, taking care to orient them correctly (only use alkaline batteries). Always replace all three batteries at once.

❖ *Note: For best results, we recommend that you use the new types of alkaline batteries such as the Duracell Ultra™ and Energizer Titanium™.*

- 5) Slide the door to the alkaline holder back into place, making sure it snaps securely shut.
- 6) Place the alkaline battery holder in the left side of the Allegro battery compartment. Put gentle pressure on the holder while sliding it all the way to the right.
- 7) Press down on the Allegro battery compartment door to close it. The latches should automatically lock the door into place and seal the compartment. Make sure that the slide latches are completely closed.
- 8) Occasionally check the battery task tray indicators on the Allegro display while you are using the Allegro. When the battery power gets low, replace the alkaline batteries or insert a NiMH pack.

Important Information Regarding the Use of Alkaline Batteries

The Allegro is designed to be used with the rechargeable NiMH battery pack that came with the unit. The alkaline battery option should be considered as a backup to the NiMH battery pack, not as the main source of power for an extended period of time.

Alkaline batteries have a lower capacity and a higher resistance than NiMH batteries. The battery life and performance of the Allegro is reduced when alkaline batteries are used. The alkaline batteries have the following limitations:

- The display heater cannot be enabled.
- As the batteries reach low power, the Allegro automatically disables the backlight to reduce power consumption.
- The battery life ranges between 5 and 10 hours (this is highly dependent on the temperature).

Storing the Allegro CE During Inactive Periods

To protect the Allegro and your files during long or short-term storage periods, please take the following precautions:

- Close all application programs.
- Run the *Save System* utility.

The data and programs are secure as long as they have been saved to the non-volatile solid state storage, even if the batteries become discharged. The Allegro does not depend on the battery to store the data for extended periods.

Storing the Allegro CE for Less Than Two Months

If you store the Allegro for less than two months, we recommend that you leave the NiMH battery pack in the Allegro and attach the AC power adapter to keep the batteries charged or leave the Allegro in the USB/Power Dock.

Once the battery pack is fully charged, the Allegro switches to trickle charge mode. You can leave the Allegro in trickle charge mode continuously without damaging the batteries. The battery pack will be fully charged when you are ready to use the Allegro.

❖ *Note: Do not leave the Allegro plugged into a wall outlet where the power to that outlet cycles on and off frequently. The battery can become damaged from overcharging.*

Storing the Allegro CE for More Than Two Months

If you store the Allegro for more than two months, perform a *Save System* to save all data on the Allegro's internal data storage, remove the battery pack from the Allegro, and place the Allegro on a shelf.

When you are ready to use the Allegro, insert a battery pack and fully charge it as outlined in the beginning of the *Batteries* section. The Allegro will automatically restore the saved system and reset the time on the Allegro. You are now ready to begin using the Allegro again.

NiMH Battery Pack's Useful Life

Battery packs can be recharged approximately 600 times before they need to be replaced. This is dependent on the temperatures they have been exposed to, operating conditions, and charging and discharging practices.



Recycling the NiMH Batteries

The NiMH batteries inside the Allegro battery packs are recyclable. We are voluntarily participating in an industry program to collect and recycle these batteries when they are taken out of service in the United States or Canada.

The recycling program provides a convenient alternative to placing used NiMH batteries into the trash or the municipal waste stream. Our involvement in this program is part of our commitment to preserving our environment and conserving our natural resources.

The NiMH batteries inside the Allegro battery packs are recyclable. We encourage you to find a business in your area that provides battery recycling bins for public use as an alternative to placing used battery packs into the trash, thus conserving natural resources and preserving the environment.

Spare NiMH Battery Packs

Spare battery packs should be stored in a cool location. Avoid placing battery packs “contact side” down on a metal surface. Also, do not stack packs so that their contacts touch one another. These practices will cause the batteries to drain. The shelf-life of a battery pack is about two months. Before using a spare pack, you should charge it.

▲ Short-Term Backup Supply

The Allegro has a super capacitor that behaves like a backup battery. When the main batteries are removed, the capacitor maintains the RAM for up to five minutes, allowing you plenty of time to change the batteries. The capacitor cannot operate the Allegro. The capacitor is charged by the batteries. It holds a charge as long as the batteries or external power are supplied. When a battery pack is replaced, the capacitor charges up to full capacity in about two minutes.

If power is not supplied to the Allegro for more than five minutes, the Allegro resets when the battery pack is replaced or charged. All the programs, data, and applications saved to the disk (C_Drive) are safe. Information that was not saved to the disk is lost.

The super capacitor should not need replacement through the life of the Allegro.

▲ Real Time Clock

The Allegro does not have a backup clock. You will need to reset the clock on the Allegro when the Allegro’s power completely stops for over five minutes.

Communication Ports

The Allegro CE has five possible communication ports:

- ❑ Two 9 pin serial ports (located on the top of the case)
- ❑ One infrared port (on top of the case)
- ❑ One USB port (available through the optional USB/Power Dock)
- ❑ One internal expansion port (available for most expansion pods)



Some of these ports are recessed to protect them in case the Allegro is dropped. They are also completely sealed.

▲ 9 Pin Serial Communication Ports

The standard 9 pin serial communication ports (COM1 and COM2) allow for the simultaneous operation of two serial devices such as printers, modems, and bar code wands. Additional power is provided on COM1 to power bar code wands and other sensors. The data transfer rate on these ports ranges from 300 baud to 115 Kbaud. Rubber connector protectors keep dirt and moisture out of the ports. The ports are sealed without the protectors.

Be sure to use the serial communication cable (9 pin to 9 pin) included with the Allegro to connect the Allegro to a desktop PC. A wiring diagram of the cable is shown in *Chapter 5, Technical Reference*. Note that a standard ‘straight through’ serial cable will not work.

9 Pin D Connector Pinouts

<u>Pin #</u>	
1	Data Carrier Detect (DCD) Input
2	Receive Data (RCD) Input
3	Transmit Data (TXD) Output
4	Data Terminal Ready (DTR) Output
5	Ground (GND)
6	Data Set Ready (DSR) Input
7	Request To Send (RTS) Output
8	Clear To Send (CTS) Input
9	Ring Indicator (RI) Input

Connecting Sensors to COM1

Pin 4 (DTR) on COM1 supplies up to 200 mA at +5 volts to power bar code scanners and other sensors. This signal (DTR) must be set high by the application to take advantage of this feature. When the DTR signal goes low, the output is -5 volts. Insure that the device connected to the DTR line can accept negative voltages or is protected against them (standard RS-232 signal levels).

▲ Infrared Communication Port

The infrared wireless communication port (IrDA) located on the top of the Allegro case allows you to send data to a printer or another computer with an IrDA port without the need for a cable. The IrDA port adheres to the Infrared Data Association Standards. The infrared COM port runs at the speed of 115 kbps.



< IrDA Port

The IrDA port is used to connect the Allegro and a desktop or laptop computer together to run ActiveSync, which allows you to transfer and copy files between the computers and manage the Allegro files remotely. Files can be sent from the Allegro directly to a printer with an IrDA port from programs that have printing capabilities built-in, such as Pocket Word.

The Allegro and the other device communicating with it via an IrDA port need to be placed less than one meter apart with their infrared ports aimed right at each other (within 15 degrees in any direction).

▲ USB Communication Port

The USB communication port located on the base of the Allegro case allows you to send data to a desktop PC with a USB connection. The USB COM port runs at standard USB speed (12 mbps).

The USB port connection is to be used with USB/Power Dock™, and is discussed in detail in the USB/Power Dock section of this manual.

USB/Power Dock (Optional Hardware)

Using the USB/Power Dock™ you can quickly transfer and synchronize files between the Allegro CE and a PC. The Allegro charges while it is docked, preparing it for tomorrow's work day. Multiple USB/Power Docks can be attached to one PC using our USB MultiSync™ function.

The USB/Power Dock is an optional two function component designed for the Allegro CE. It is a charging base and a communication base. The Power Dock is ordered separately for the Allegro CE. The Power Dock has three LED (light) indicators on it, with the function of each LED represented below:



<u>Function</u>	<u>LED Color</u>
Power Supply	Green
USB Communication	Red
Charging	Amber

▲ Power Supply

The Power Dock uses the wall adapter that comes with the Allegro CE. Looking at the back of the Power Dock you will see the 12 VDC adapter connection on the right. Plug the Allegro power adapter into the Power Dock and then into the wall. The green LED indicator lights up showing the Power Dock has power.

▲ Charging

The Power Dock is a charging device for the Allegro. By placing the Allegro into the Power Dock, the Allegro will automatically turn on and begin charging. When the amber LED turns off the Allegro is finished charging. The amber LED indicator lights up showing that the Allegro is properly seated in the Power Dock and that the Allegro is charging. The charging time is the same whether the Allegro is turned on or off.

▲ USB Communication

The USB/Power Dock also serves as a USB connection from the Allegro to the desktop PC. The red LED indicator lights up when the USB connection between the Power Dock and desktop PC is active.

The connection and communication between the desktop PC and the Allegro is achieved through ActiveSync. The USB port is used for connecting both single or multiple units.

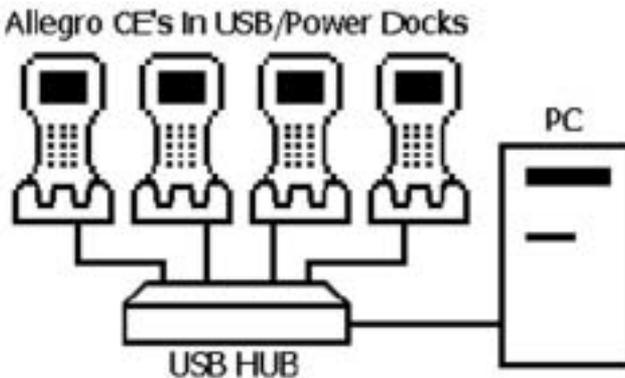
USB/Power Dock Connector Pins

The interaction between the Power Dock and Allegro happens through the connection of the six connectors on the bottom of the Allegro. There are six pins in the Power Dock that touch the Allegro connectors as the Allegro is placed into the Power Dock. The six pins can be replaced if damaged or bent.

▲ USB Connection

To establish a connection between the Allegro and desktop PC follow the directions in *Chapter 4* in the section entitled, *Establishing a Connection Using ActiveSync*.

Once you have set up and successfully connected to ActiveSync for the first time, you only need to place the Allegro into the Power Dock and it will automatically begin the ActiveSync connection sequence.



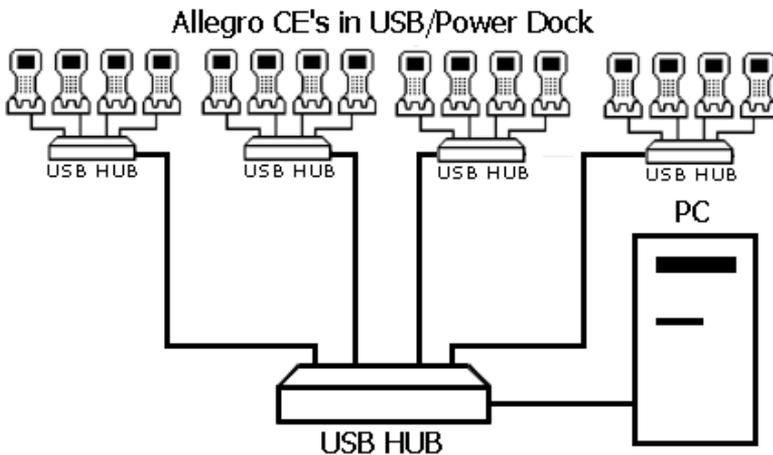
Multiple Allegro USB Connections

ActiveSync is a single unit connection program, resulting in only one Allegro connecting to the desktop PC at a time. The USB MultiSync feature automatically tells all connected Allegros to randomly begin the connection process. If an Allegro is already connected to the desktop PC, the other Allegros cancel the connection process and wait a few minutes to retry a connection. This cycle continues until each Allegro has connected to the desktop PC and all files have been synchronized.

▲ Using USB Hubs for Multiple Connections

Because the average desktop PC only has two to three USB ports on it, you need a USB hub for connecting multiple Allegros to the desktop PC. You can purchase a 7-port USB hub through a computer store or our Sales Department.

To connect the USB hub to the desktop PC follow the connection instructions that come with the USB hub. To connect multiple USB hubs to the desktop PC, plug the additional hubs into the first hub and then plug the Power Docks into those hubs. Simply continue this process until you have enough USB ports for the number of Allegros you will be connecting to the desktop PC.



The USB/Power Docks can be connected to the hubs and PC in any order. There is no fixed connection pattern required.

PC Cards

The Allegro CE has a user-accessible PC Card Slot (PCMCIA 2.0 Type II) that allows you to add mass data storage and I/O capabilities to the Allegro.

▲ Types of PC Cards Accepted

The PC card slot accepts Type I or Type II cards. These cards include ATA Compact Flash cards, SRAM (Static Random Access Memory), or Input/Output cards. All types have a 68 pin connector for attachment to the Allegro. The cards must be 5 V or 5 V/3 V (PC cards that are 3 V only are not supported). The PC card slot is a 16 bit card slot. It is not a “card bus” slot.

Memory Cards

A memory card is a solid state, self-contained memory board housed in a credit card-sized package. There are several types and brands of cards on the market. These cards behave like hard disks. Refer to *Chapter 3, Program and Data Storage Options*, for more details.

Input/Output Device Cards

Input/Output Device cards can provide additional communication capabilities to the Allegro. Common I/O cards include fax/modem and network cards. Refer to the manufacturer's instructions for information on how to use these cards and for information about hardware or software accessories that may be required. Contact our sales department for information on compatible cards and technical information about the installation and operation of the cards.

▲ Inserting and Changing Cards

- 1) ATA cards should be ready to use. If you are using an SRAM card, make sure the battery is installed (if required).
- 2) Turn the Allegro off and place it face-down on a surface.
- 3) The card slot is located in the top part of the Allegro behind the display. It is accessed from behind through the PC card slot door. There are two screws holding the door in place. Turn each screw counter-clockwise 1/4 of a turn to release the door.

- 4) PC cards have a 68 pin socket on one end. Insert the card socket-first. The front of the card should be facing the door.



❖ *Important Note: Be careful when inserting and removing cards. Excess force could damage the card and the card drive. If the system tray indicator for the PC card activity is on, the computer is writing to the card. Do not turn off the Allegro and remove the card until the indicator stops blinking. Incomplete files can corrupt the data already stored on the card.*

- 5) To remove a card, push the eject button, grasp the card firmly, and pull it out.
- 6) Close the door to the PC card slot. Turn both screws clockwise 1/4 of a turn to seal the compartment. (Because of the wide slits in the screws you can use coins or even keys to turn the screws.)

▲ **Displaying Information About the PC Card**

You can display information about the installed PC card such as the card type and the name of the manufacturer. In Windows CE, go to *Control Panel / System Properties / General* to view this information.

Expansion Pods

Custom expansion pods allow you to integrate additional components as they become available. Our current available expansion pods include the following:

GPS

Bar Code

802.11b

Bar Code/802.11b

Each of these expansion pods replace the PC card door with an extended PC card door which contains the integrated technology of the Allegro CE into a single hand-held, fully sealed unit.

Chapter 8 of this manual describes each expansion pod currently available and the instructions for using each pod.

Chapter 3



Memory Configuration and Data Storage Options

Internal Memory
Program and Data Storage Options

Internal Memory

The Allegro CE's internal memory is configured much like the memory in laptop computers. It consists of ROM (Read Only Memory) and RAM (Random Access Memory).

▲ Read Only Memory (ROM)

ROM is used to store the Operating System and Utility programs. Information in the ROM is electronically “burned” into a chip before the chip is installed at the factory. Information stored in ROM can be read or copied. It can only be altered with a special utility program provided by the factory. The information stored in ROM remains intact whether the system power is on or off.

▲ Random Access Memory (RAM)

The Allegro has various sizes of internal RAM. Often referred to as the computer's workspace, RAM is where programs are executed or run. RAM can be written to, read from, erased, etc. Its storage ability is temporary in nature, only holding information while the system has power (although the Allegro does not have to be turned on). If the battery pack is drained or power is interrupted for any reason, everything stored in RAM is lost. The backup capacitor saves the contents of RAM for a limited time while you change the battery pack (see *Chapter 2, Batteries*, for details). You can use the Save System utility to save the RAM file system and registry. Refer to *Chapter 4, Windows CE, System Save/Restore Utilities*.

To see how much RAM is available for your use, tap on *Start* and select *Settings | Control Panel | System | Memory*. Subtract the *In Use* figures from the *Allocated* figures. From this screen you can adjust the amount of RAM that is allocated for storage memory versus program memory.

If you try to save a file that is too large for the amount of RAM that has been allocated to storage memory or run a program that requires more execution space than you have allocated to program memory, an error message is displayed.

Program and Data Storage Options

The Allegro CE has two options for storing programs and data: internal non-volatile data storage and a PC card slot for memory cards.

▲ Storage Designations

Double-tap on *My Computer*. The data storage options are designated as follows:

<u>Folder</u>	<u>Type of Storage</u>
C_Drive	Internal non-volatile data storage
Storage Card (shown only if a card is installed)	PC Card
My Document	RAM
Program Files	RAM

We recommend you use the internal non-volatile data storage as your primary storage area. This is because the information is retained without power. (ATA Flash and Compact Flash cards are also non-volatile.)

▲ Internal Non-Volatile Data Storage

The Allegro CE has a solid state storage drive used to store programs and data. It can be read from and written to just like the hard drive on a PC. The solid state internal storage is non-volatile so information stored on it is retained even when no power is supplied to the Allegro. The solid state storage is an internal drive and is not user accessible.

▲ PC Cards

The Allegro CE has a user-accessible PC card slot (PCMCIA 2.0 Type II) that allows you to add mass data storage to your Allegro with PC cards.

PCMCIA stands for the *Personal Computer Memory Card International Association*. This association has developed standards for PC cards. PC cards are about the size of a credit card and come in three thicknesses or types.



The PC card slot accepts Type I or Type II cards. These cards include ATA Flash cards, SRAM (Static Random Access Memory), and Compact Flash adapter cards. All types of cards have a 68 pin connector for attachment to the Allegro. The cards must be 5 V or 5 V/3 V (PC cards that are 3 V only are not supported). This is a 16 bit card slot. It is not a “card bus” slot.

A PC memory card is a solid state, self-contained memory board housed in a credit card-sized package. These cards behave like hard drives. You can read from them, write to them, and erase single files from them. There are several types and brands of cards available.

ATA Flash Cards

ATA Flash cards provide solid state data storage. Power is not required to maintain the data, and because of this feature, we recommend them over other types of memory cards. The Allegro accepts cards ranging in size from 1 M to 100+ M, with larger cards available.

Formatting ATA Flash Cards

ATA Flash cards come pre-formatted.

SRAM Cards

Power

SRAM cards are powered by the Allegro while installed in the PC card slot. An on-board battery retains data when the card is not being powered by the Allegro. Some brands have a replaceable lithium battery (coin type). If you have this type, make sure that the battery is installed before attempting to use the card. Other brands have a rechargeable battery that is automatically recharged while it is inside the Allegro. The rechargeable batteries are not replaceable.

The life of these batteries varies greatly depending on usage and the memory size of the card. If the lithium battery in the card is drained, the information stored on the card is lost. When a new battery is installed, the card needs to be formatted. The manufacturer's instructions that came with the card includes information on battery life and recommended charging intervals.

Replacing SRAM Card Batteries

SRAM card batteries are readily available at most stores. Unless the manufacturer's instructions state otherwise, we recommend that you change the battery every six months.

Formatting SRAM Cards

SRAM cards come pre-formatted. Files and directories can be copied onto it just like a standard disk drive.

Inserting and Removing Cards

For details on how to access the PC card slot and insert and remove cards, refer to *Chapter 2, Hardware Components, PC Card Slot*.

Chapter 4



Windows CE Operating System

Windows CE Overview

ActiveSync File Transfer Program

Windows Explorer

Storing Files and Programs

Allegro CE System Utilities

Application Command Bars

PTab Spreadsheet Program

Pocket Word

Internet Explorer and Inbox

Calculator Program

Terminal Program

Windows CE Overview

This chapter describes the operation of the Allegro CE using Microsoft™ Windows™ CE (3.0 and CE .NET). Each operating systems has a similar look and feel to a desktop PC Windows operating system. Windows CE is designed for small, portable hand-held computers like the Allegro. Windows CE gives the Allegro the ability to communicate and share information with Windows-based computers and the Internet by using ActiveSync.

Windows CE offers the following features:

- ❑ Compact operating system and application file sizes
- ❑ Advanced power management
- ❑ Communication flexibility
- ❑ Graphic user interface similar to Windows 98/2000
- ❑ Packaged programs, including PTab Spreadsheet, Pocket Word, and Internet Explorer
- ❑ Multiple applications can run simultaneously

Windows CE has the same Windows interface you are familiar with if you have used Windows on your desktop PC. You will find that you already have much of the knowledge you need to use Windows CE effectively. This chapter was written with the assumption that you have a working knowledge of Windows.

▲ Starting Windows CE

The first time you insert the battery pack into the Allegro you must fully charge the batteries (see the Quick Start Guide). While the Allegro is charging, you can turn it on. The Allegro loads and opens to Windows CE. It takes a moment for the desktop to appear and remain on the display. Various screens appear during the loading process that do not require any action.

The Windows CE Desktop appears on the screen:



Suspend/Resume Mode

If you press the *On/Off* key, the Allegro goes into suspend mode. When you turn it back on, it resumes in the same place it was at before you turned it off. For example, if a PTab spreadsheet file was on the screen when you turned the Allegro off, the same spreadsheet screen appears when you turn the Allegro back on. (If the batteries are drained or left out of the Allegro for more than five minutes, the Allegro restarts instead of resuming. Refer to the *Chapter 2* section entitled *Batteries* for details.)

▲ Display Touchscreen

The display has a touchscreen used to activate programs in Windows CE and to make selections. The touchscreen works similar to a mouse.



Three styli are provided: two small on-board stylus and a full size pen-type stylus. The small on-board stylus snaps into a holding bay built into the top of the Allegro. The Allegro can only hold one on-board stylus at a time. Other pointed objects can be used, including your finger. Be sure to use a device that will not scratch the screen.



Calibration

To calibrate the touchscreen and set up the screen-tap sensitivity, refer to *Windows CE, Control Panel, Stylus* later in this section. If you have trouble selecting an item when you tap on it, the touchscreen may need to be calibrated.

Touchscreen Operation

Use the following techniques to operate the touchscreen:

- Touch the screen at the desired location, just as you would point and click with a mouse.
- Tap on the screen once to achieve a single click or twice to achieve a double-click.
- A right mouse click is accomplished by holding down the *Alt* key and tapping the screen.
- Drag and drop items by touching and holding the item on the screen, dragging the stylus to the desired location, and removing the pointing device from the screen.

Wiping Off the Touchscreen

When the touchscreen gets wet or dirty, a natural inclination may be to wipe across the display with a shirt sleeve or your hand. If you do this while the Allegro is running, you may inadvertently press items on the screen. To avoid this problem, the Allegro is equipped with a special *Touchscreen Disable/Enable* key described below.



The unique *Touchscreen Disable/Enable* key allows you to temporarily disable the touchscreen and wipe it off without inadvertently making selections on the screen. Press the BLUE shift key and the TS key to disable the screen. The contents of the display are still shown, but nothing happens if you press on the touchscreen.

Ideally, use a soft, clean cotton cloth to gently wipe off the screen. Do not use anything abrasive that could scratch the screen, including tissues and paper towels. (The tail of your shirt will do, as long as it is made of a non-abrasive fabric) Once the screen has been cleaned, use the same key sequence to enable the touchscreen. Refer to the *Chapter 2* section entitled *Display* for more details.

▲ Windows CE Programs

Desktop PC Programs

The CD-ROM's include the following programs for your PC:

- Microsoft ActiveSync® (Downloaded from the Internet or purchased on a separate CD-ROM)
- PTab® File Converter (on the Allegro CE Utilities CD-ROM)
- Software Development Kits for Visual Basic® and Visual C++® (on the Allegro Utilities CD-ROM)

Software Suite

A set of Windows CE programs are factory installed on the Allegro. The following programs are included:

- PTab™ Spreadsheet Program
- Explorer™ File Manager
- Inbox™ E-mail Utility
- Pocket Internet Explorer™
- Pocket Word™ for Windows CE 3.0
- WordPad™ for Windows CE .NET
- Calculator
- Terminal Program

Copies of the Windows CE programs are included on the Allegro Utilities CD-ROM. Each program is described in detail in this chapter of the manual.

▲ Desktop

When you turn the Allegro CE on, a Desktop similar to the example shown below appears on the screen. The Desktop looks and operates much like the Windows 95/98/NT Desktop. Program icons and shortcuts are displayed. Tap on an icon twice to execute it.



Desktop

At the bottom of the screen is the Taskbar, it includes: the Start button, buttons for all the active applications, the system tray, and the Desktop icon.



Start Menu

Tap the *Start* button to view the menu as shown below:



From the menu, tap on the category you want to select. You can also use the up and down arrow keys to make a selection and *Enter*. A secondary menu or dialog box appears.

Application Buttons

The Taskbar shows which applications are currently running and can be used to select an active application. Tap an application's button on the Taskbar to maximize it. Tap it a second time to minimize it.

System Tray Indicators

The system tray uses icons to show which specific applications are running. There are a number of icons common to the Allegro, but more may appear due to the installation and running of additional programs. The following system tray icons are common to the Allegro:

-  Communication set up with desktop PC via direct connection
-  Communication set up with desktop PC via telephone modem
-  Running on AC power, batteries are fully charged or removed
-  Batteries are charging while the Allegro is being operated
-  Active communication between the Allegro and desktop PC
-  Activity of the StrongARM processor in the Allegro

-  Cap locks are active, all letters are entered as capitalized
-  Touchscreen disabled while the Allegro is operational
-  Battery power at 100% (drops as battery power is drained)

Double-tap an item in the status area to bring up the associated Control Panel setup screen. For example, if you double-tap on the time, the *Control Panel, Date/Time Properties* screen is shown.

Desktop Icon

Tap the Desktop icon to minimize all running applications and display the Desktop. Tap it again to return to the screen you were previously viewing.

▲ Special Functions

Keyboard functions have been provided that allow you to bring up the Start menu and change applications without using the touchscreen. These functions can speed up operation in some situations and come in handy when the taskbar has been minimized.

Start Menu



Press the BLUE shift key and the *Start* key to view the Windows CE Start Menu. Use the arrow keys to move up and down the menu. Press the *Enter* key to make your selection.

Task Manager



Press the *Start* key to view the Task Manager. All of the programs that are currently running are shown. Select which program you want to run by using the up and down arrow keys to highlight the desired program and pressing *Enter*. You can also close applications from the Task Manager.

▲ On-line Help

For on-line help with Windows CE basics or with a specific application, tap the Start button and select *Help*. Select a topic from the Help Contents list. You can also tap the [?] button from within an application to obtain program specific or Windows CE help.

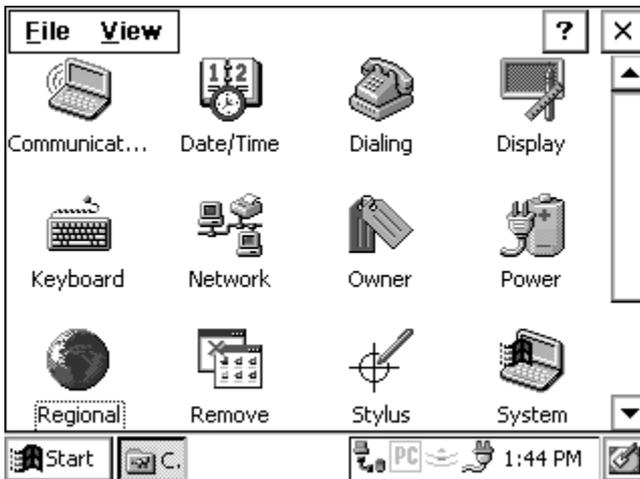
▲ Control Panel

The Control Panel consists of a group of windows called applets that control the different aspects of Windows CE operating system. Each applet has settings you can change, allowing you to customize your Allegro.

The Allegro can use either the Windows CE 3.0 or CE .NET operating system. There are notable changes in some of the Control Panel applets, both Control Panels are included in this manual. The Windows CE 3.0 Control Panel section is described first.

▲ Windows CE 3.0 Control Panel

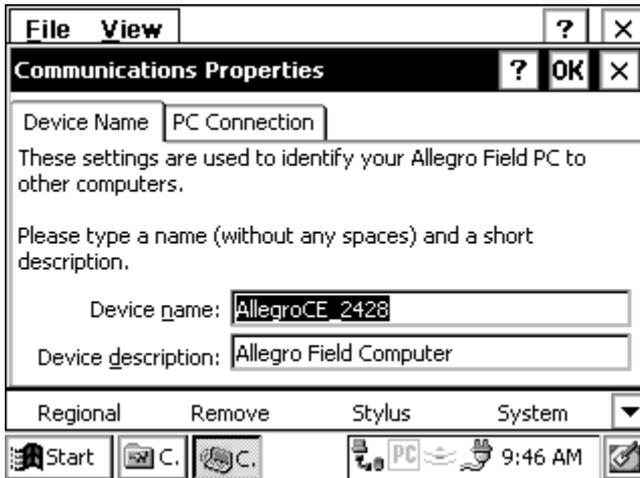
To open the *Control Panel*, tap the *Start* button and select *Settings | Control Panel*. A *Control Panel* screen, similar to the one shown below, appears. Double-tap on the application you want to view.



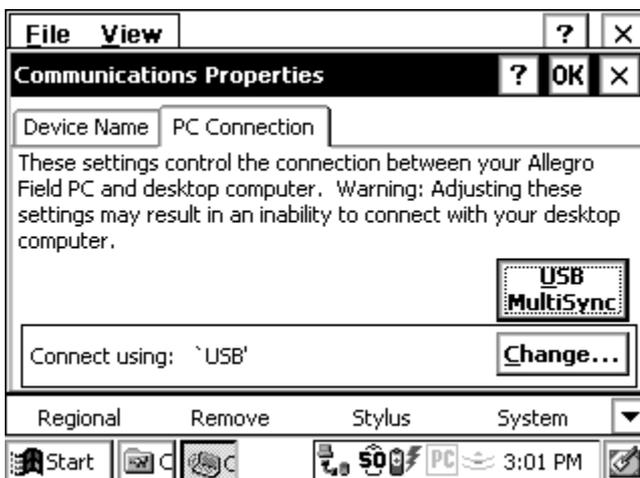
❖ *Note: You must press the OK button when settings in a Control Panel applet are changed in order for the settings to be saved. Once the Control Panel applets are set up the way you want, run the Save System utility to save all settings (described later in this chapter of the manual).*

Communications

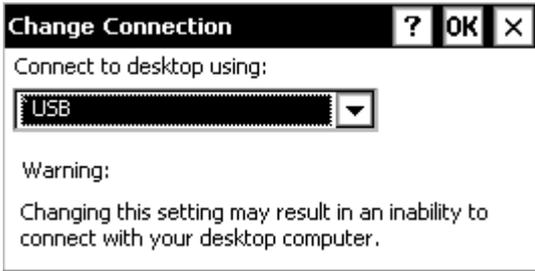
The *Communications Properties* applet allows the option for establishing a connection between the Allegro and a desktop PC. On the *Device Name* tab, in the *Device name* box, AllegroCE_#### (#### = serial number) is entered automatically (you can change it if you choose). This identification is so other computers and the multiple Allegro connection function can identify each specific unit.



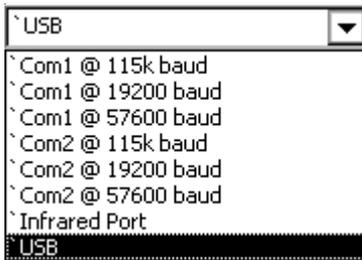
On the *PC Connection* tab, the option is available to change the port and baud rate the Allegro is using to communicate with another computer (USB is the default).



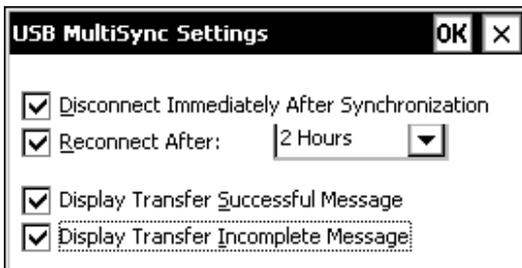
Tap on the *Change* button to access the change connection option.



Tap on the down arrow for a pull-down list of connection options.



USB MultiSync is a function available through the Allegro CE. It is used with Microsoft's ActiveSync program through the use of the USB/Power Dock. This option allows multiple Allegros to connect and disconnect automatically. This function and its options are discussed in greater detail later in the ActiveSync section.



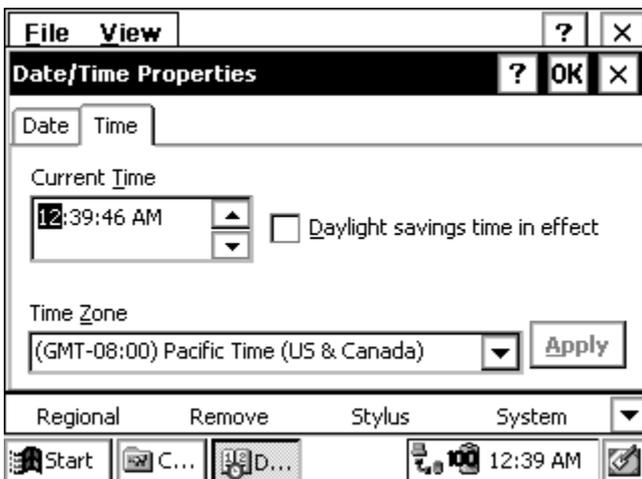
❖ *Note: The MultiSync functions are also accessible when using a single Allegro connection through the USB/Power Dock.*

Date/Time

The *Date/Time Properties* applet is used to set the current date, time, and time zone. The *Date* tab allows you to select the correct month, day, and year.

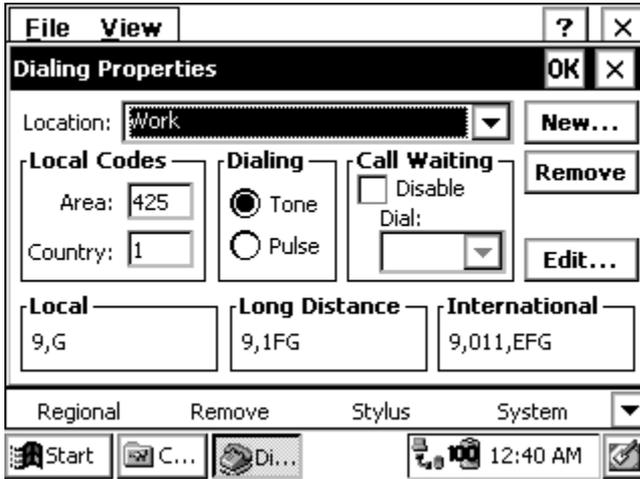


The *Time* tab allows you to set the correct hour and minute during the day.



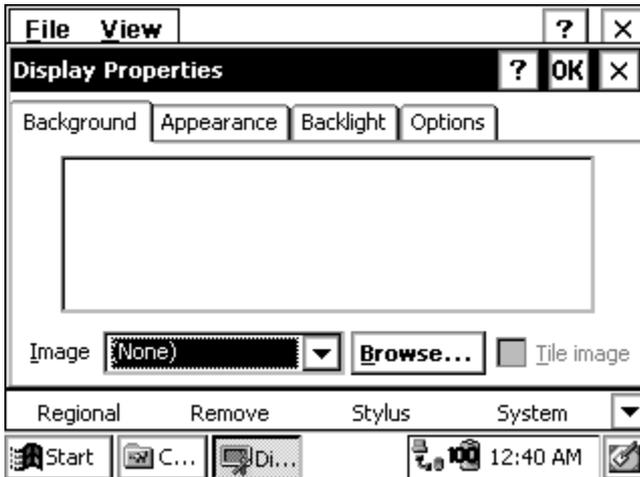
Dialing

The *Dialing Properties* applet is used to create dialing locations and set dialing options to connect to a service provider or remote computer.

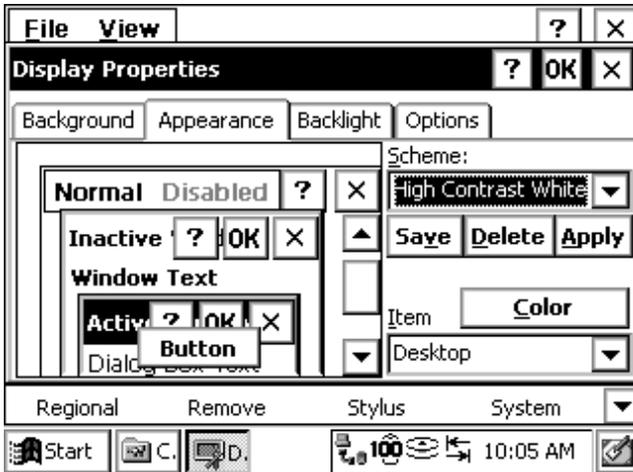


Display

The *Display Properties* applet has several tabs controlling different display features. Each allows you to change different appearance options of your Windows CE desktop. The *Background* tab gives you options for the desktop background image (the default is *None*).



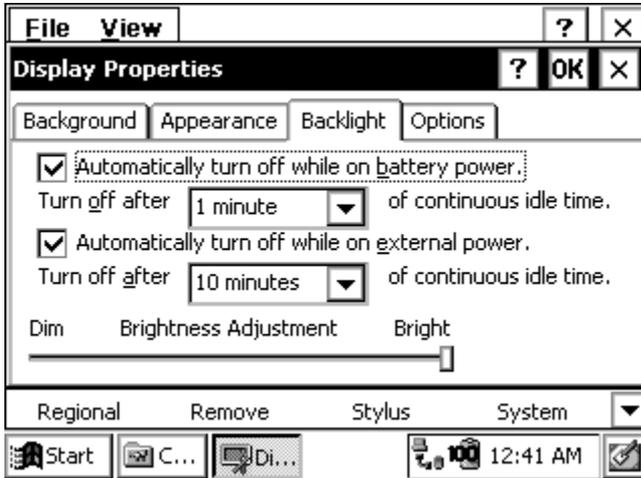
Use the *Appearance* tab to change the color scheme of the display contents (the default is *High Contrast White*). Windows Standard and High Contrast Black and are also recommended.



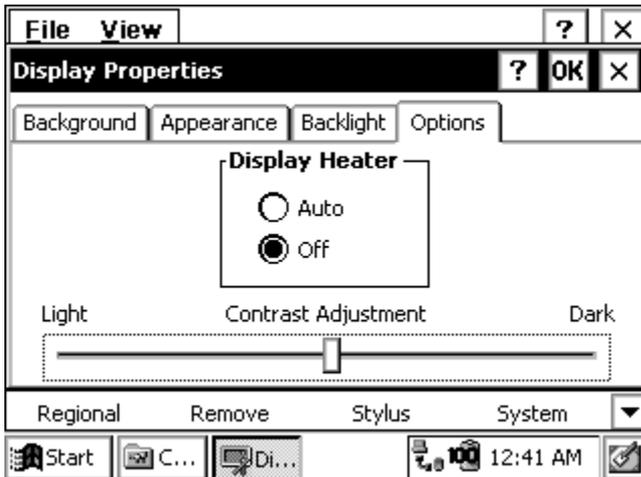
Options such as *Eggplant* appear as various shades of gray. As you make an appearance selection, the change is shown on the left side of the screen, allowing you to view it before you apply your selection.

You can customize the display by clicking on an element shown on the left, Window Text for example, or selecting it from the pull down list shown on the lower right. Above the pull down list the default color for your selection is shown by tapping on the *Color* button above the *Item* drop down box. Tap in the box and a palette with the available shades of gray appears.

The *Backlight* tab allows you to select the length of time you want the backlight to remain on while the Allegro is in an idle state and to set the brightness of the backlight.



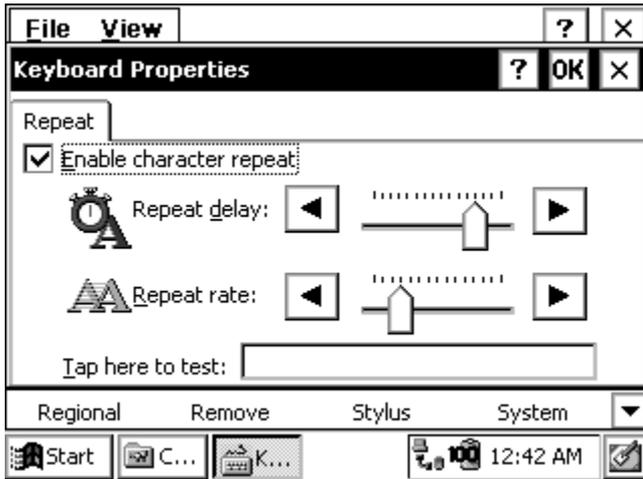
The *Options* tab is used to set the display heater. The options are *Auto* and *Off*. *Auto* is the default setting and turns the heater on automatically when the temperature is -3°C or less. You can adjust the display contrast by moving the slide bar left or right.



❖ *Note: If you are using alkaline batteries, the display heater cannot be used. The Auto option is not available.*

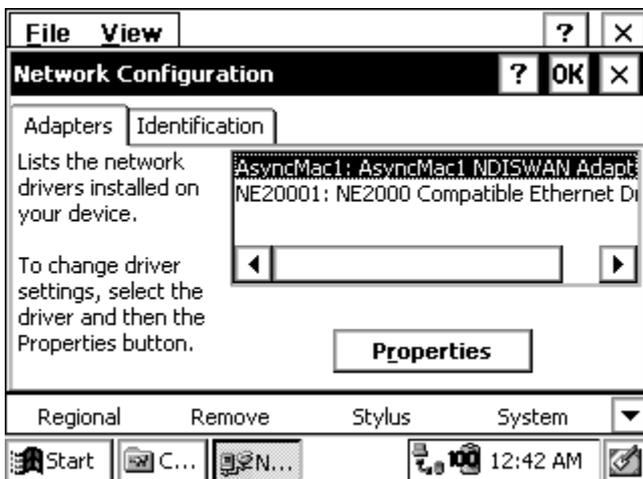
Keyboard

The *Keyboard Properties* applet has a *Repeat* tab used to enable or disable character repeat when you hold down a key on your Allegro keyboard. If the *Enable character repeat* is selected you can set the repeat delay and repeat rate.



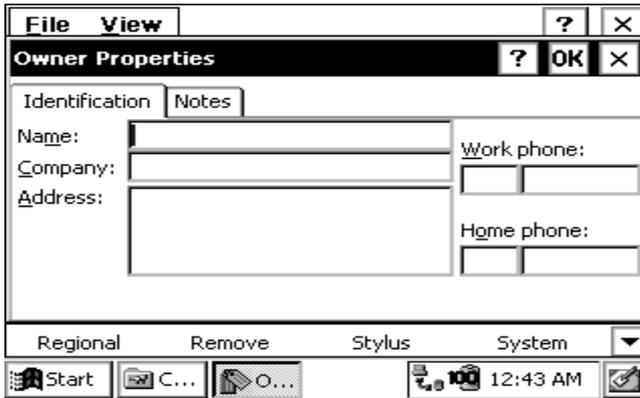
Network

The *Network Configuration* applet lists the network drivers that are installed on your device and allows you to change driver settings on the *Adapters* tab. The *Identification* tab allows you to type in your user name and password for connecting to a network.

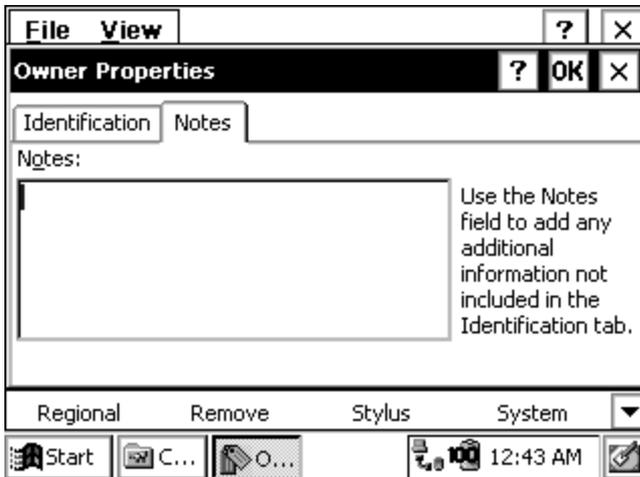


Owner

The *Owner Properties* applet *Identification* tab allows you to specify personal information, such as your name, address, and phone number.

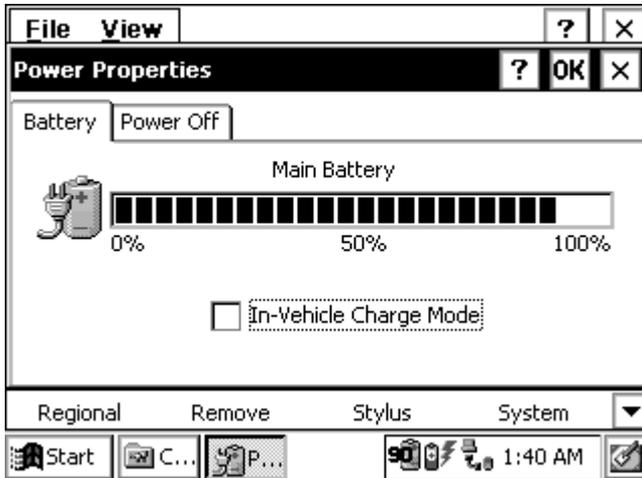


The *Notes* tab provides a place to add any additional information that is not included in the *Identification* tab.

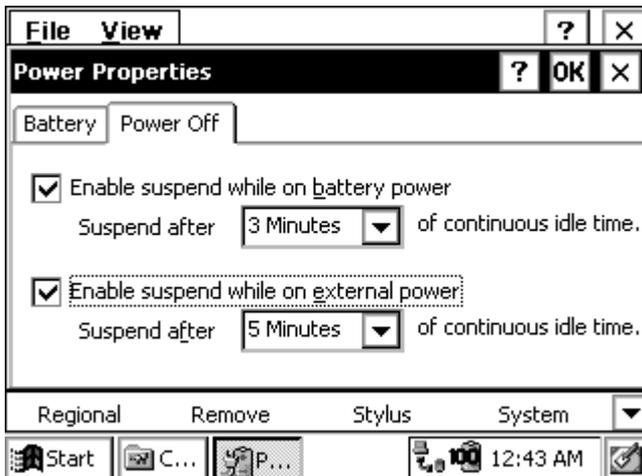


Power

The *Power Properties* applet shows information about the power level of the batteries. The *Battery* tab shows the status of the main battery.



The *Power Off* tab allows you to specify how much time will pass before the Allegro goes into suspend mode. You can also have it suspend while it is running on external power.



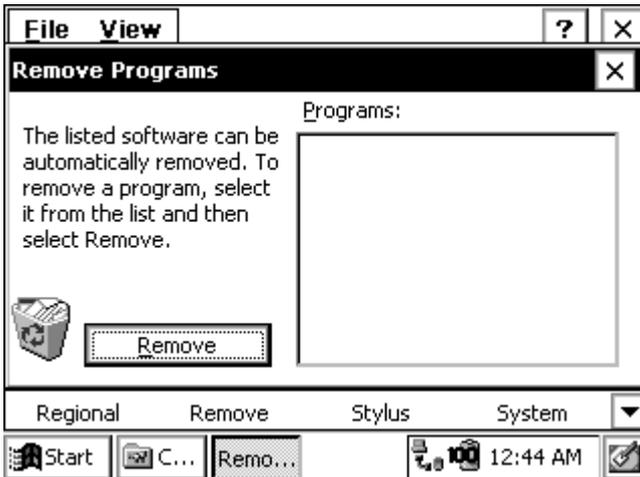
Regional Settings

Changes made in the *Regional Settings Properties* applet mainly affect programs that support international settings. In this program, you can change the way these programs display and sort dates, times, currency, and numbers.



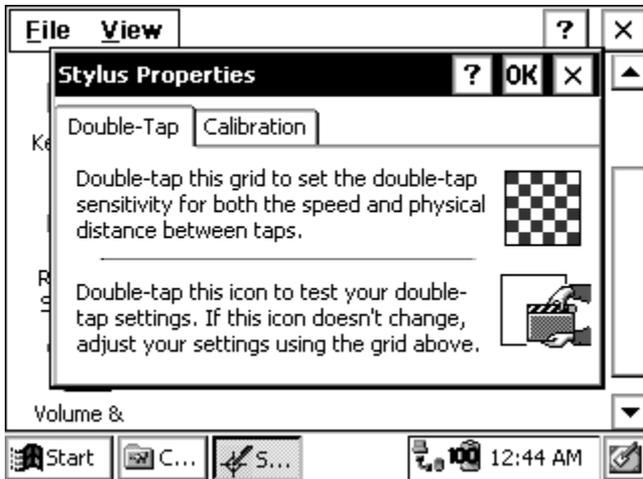
Remove Programs

The *Remove Programs* applet allows you to remove programs that you have installed on the Allegro. You cannot remove programs that were factory installed, such as Pocket Word.

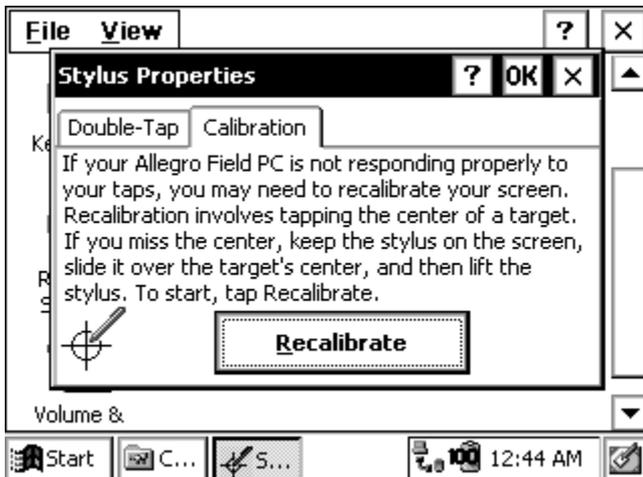


Stylus

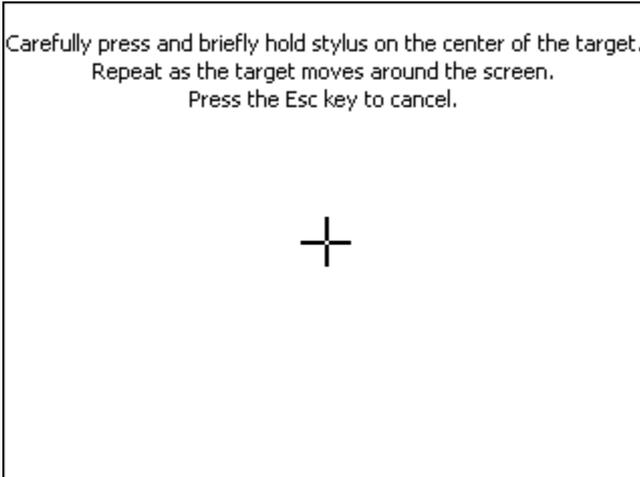
The *Stylus Properties* applet has *Double-Tap* tab used to set and test the double-tap sensitivity for speed and distance between taps.



From the *Calibration* tab, the touchscreen is recalibrated. If you have trouble selecting an item when you tap on it, the touchscreen may need to be recalibrated.

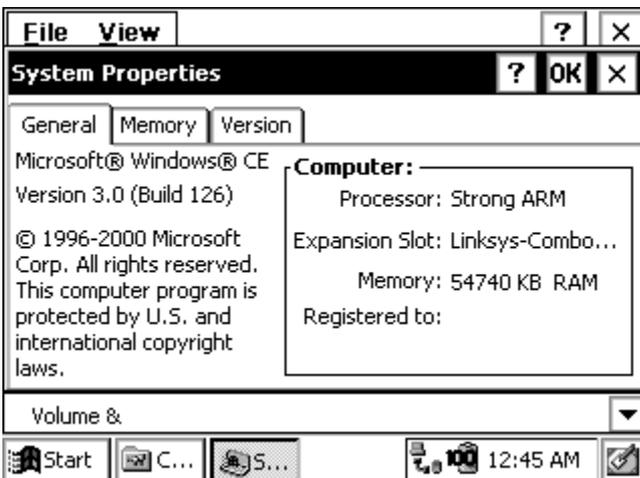


The *Recalibrate* option can be accessed from the Recalibrate button and may be accessed if the Allegro has been without any batteries for longer than 15 minutes. When calibrating the touchscreen, hold the stylus down on the plus mark (+) for two seconds. Complete this procedure for each + mark shown on the touchscreen for correct calibration. Press *Enter* when prompted.

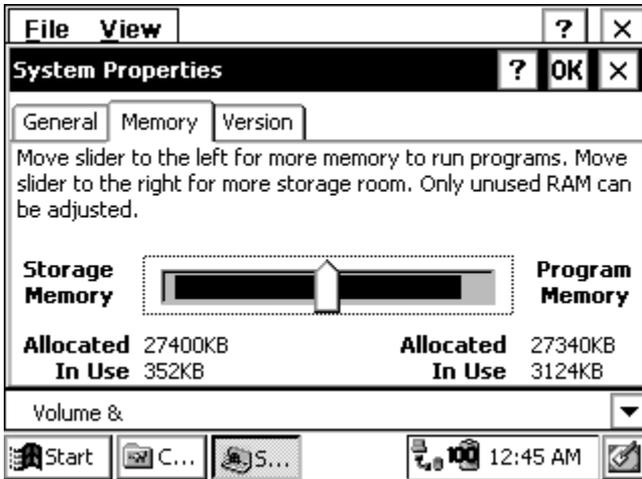


System

The *System Properties* applet displays general information about the hardware and software configurations for your Allegro. The *General* tab gives you system information including the processor type, etc.

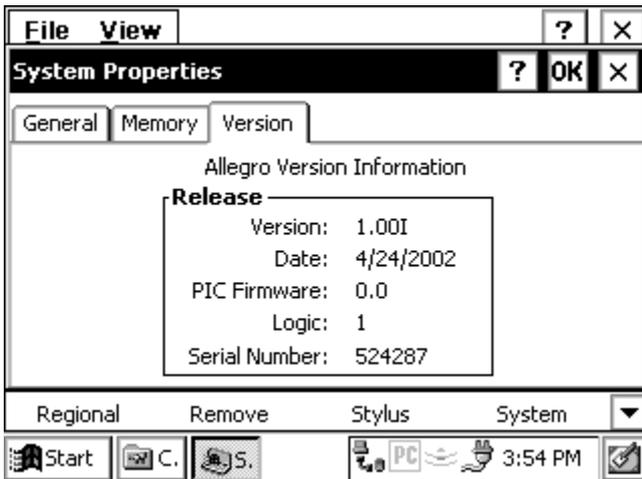


The *Memory* tab allows you to adjust the allocation of RAM between program memory and storage memory.



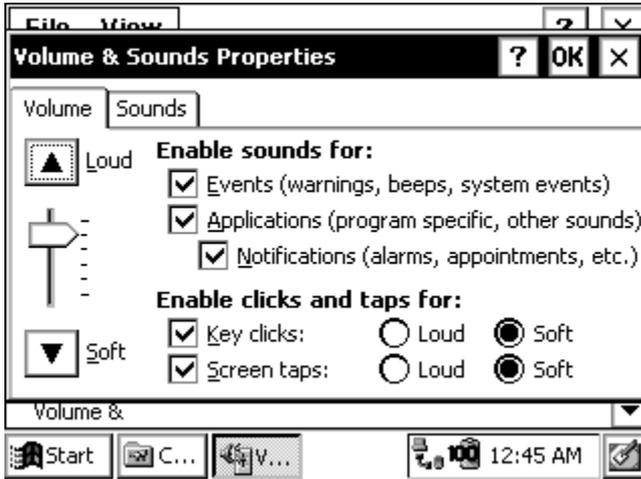
The majority of RAM should be allocated to program memory so that your applications have plenty of execution space. You can figure out how much RAM is available to use by subtracting the *In Use* figure from the *Allocated* figure.

The *Version* tab displays the Allegro system version numbers and the release date.

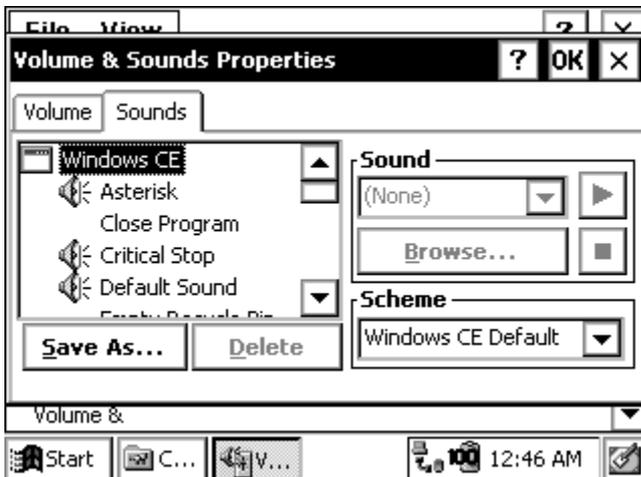


Volume and Sounds

The *Volume & Sounds Properties* applet *Volume* tab is used to adjust the speaker volume and turn on and off the sounds associated with different system events.



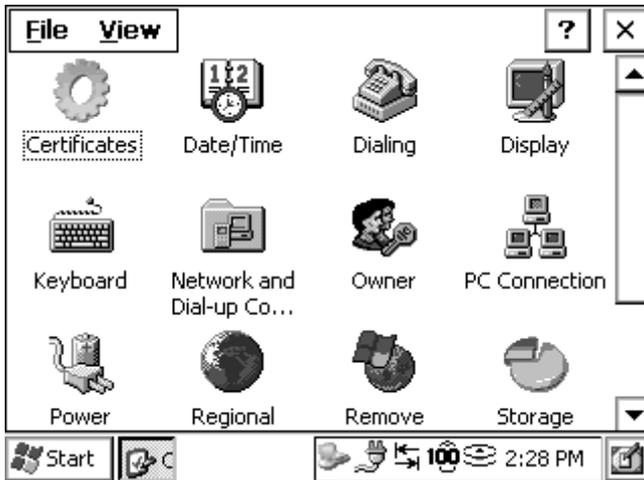
From the *Sounds* tab, you can associate a sound with an action. The actions are listed on the left. Those that have sounds associated with them have a speaker icon next to them (like Asterisk in the screen shown below). To edit, add, or listen to a sound, make a selection from the list on the left. The name of your selection is shown in the *Sound* box if a sound is already associated with it. Otherwise, it says (None).



Select *Browse* to find and select the desired sound WAV file that you want to associate with the selected action. To listen to the new sound (or an existing sound), press the right arrow button next to the *Sound* box. Changes you make can be saved as a new sound *Scheme* or you can choose an existing sound scheme from the drop down list.

▲ Windows CE .NET Control Panel

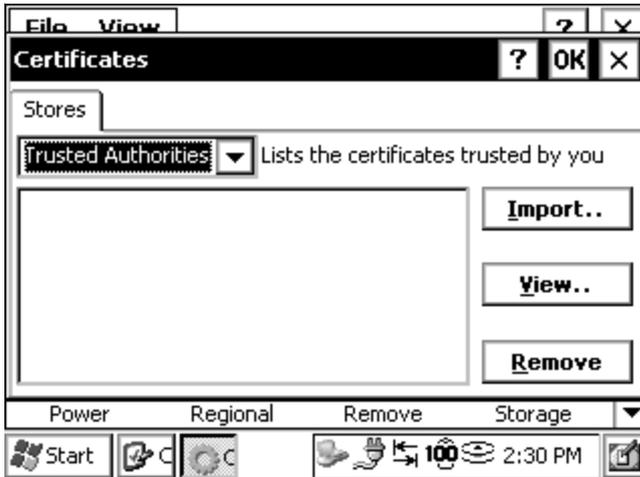
To open the *Control Panel*, tap the *Start* button and select *Settings / Control Panel*. A Control Panel screen, similar to the one shown below, appears. Double-tap on the application you want to view.



❖ *Note: You must press the OK button when settings in a Control Panel applet are changed in order for the settings to be saved. Once the Control Panel applets are set up the way you want, run the Save System utility to save all settings (described later in this chapter of the manual).*

Certificates

The *Certificates* applet is used to create secure communication with specific programs you select on your Allegro. This feature allows only the users you have certified the ability to access the program.



Below the *Stores* tab is a drop-down box with options to view and/or modify following certificates:

Trusted Authorities

My Certificates

Other Authorities

The *Trusted Authorities* option lists the top-level certificates for authorities you trust. This option allows you to view the Allegro main users and what programs they have access to.

The *My Certificates* option contains all the personal certificates you use to identify yourself. This option allows you to view all the programs on the Allegro you have access to.

The *Other Authorities* option is for intermediate certificate authorities that assist with establishing a chain of trust. This option allows you to view all the users who have access to the Allegro and what programs they have access to.

With the *Certificates* applet, you can *Import* (or add) new certificates to programs on your Allegro. You can *View* the certificates to see details about them, such as the expanded name or expiration date. You can *Remove* (or delete) certificates from your Allegro as needed.

Date/Time

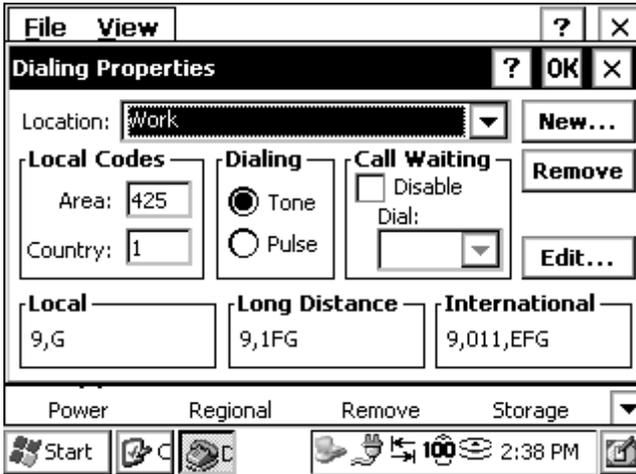
The *Date/Time Properties* applet is used to set the current date, time, and time zone. The calendar allows you to select the correct month, day, and year. The *Current Time* option allows you to set the correct hour and minute during the day. The *Time Zone* option allows you to select which time zone you are in.



❖ *Note: The “Daylight savings time in effect” option does not affect the Current Time when this option is selected/deselected and applied. If you are in a time zone that is affected by daylight savings, select the “Daylight saving comes into effect on your calendar, the time automatically changes. Your Allegro receives a pop-up notification that your clock has changed.*

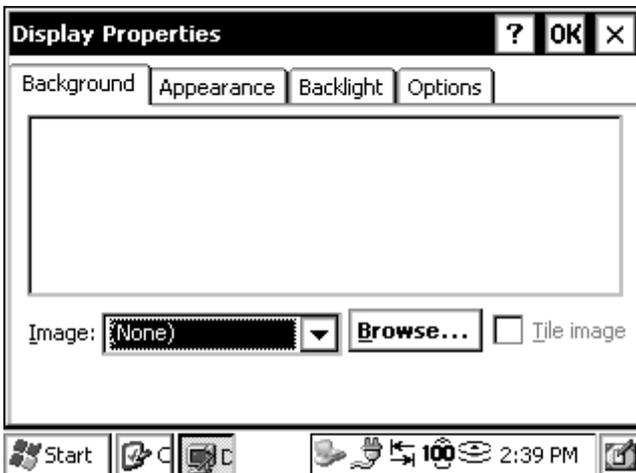
Dialing

The *Dialing Properties* applet is used to create dialing locations and set dialing options to connect to a service provider or remote computer.

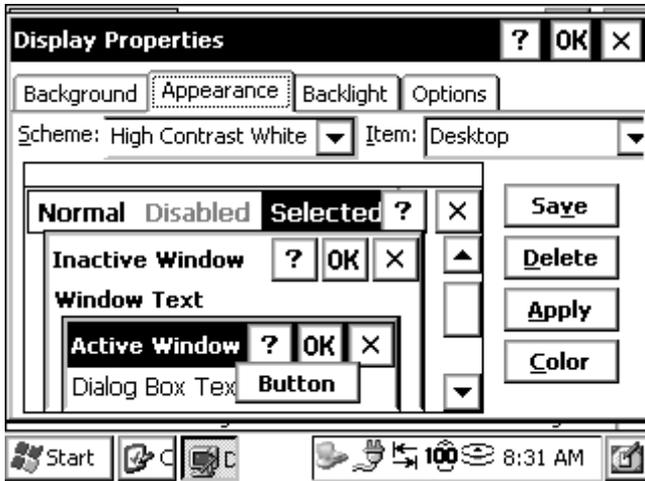


Display

The *Display Properties* applet has several tabs controlling different display features. Each tab has features allowing you to change different appearance options of your Windows CE desktop. The *Background* tab gives you options for the desktop background image (the default is None).



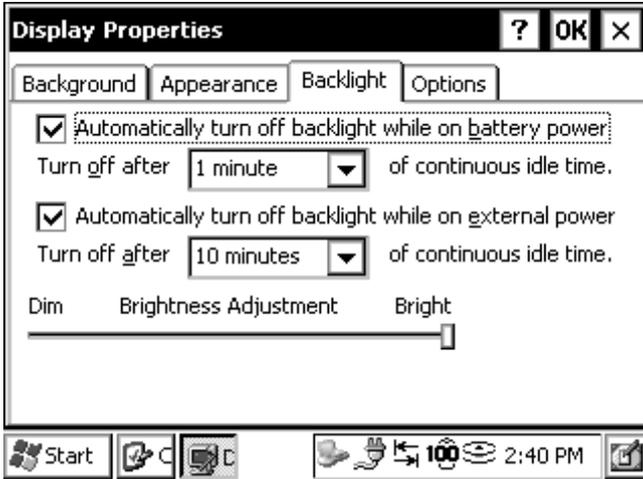
Use the *Appearance* tab to change the color scheme of the display contents (the default is High Contrast White). Windows Standard and High Contrast Black are also recommended.



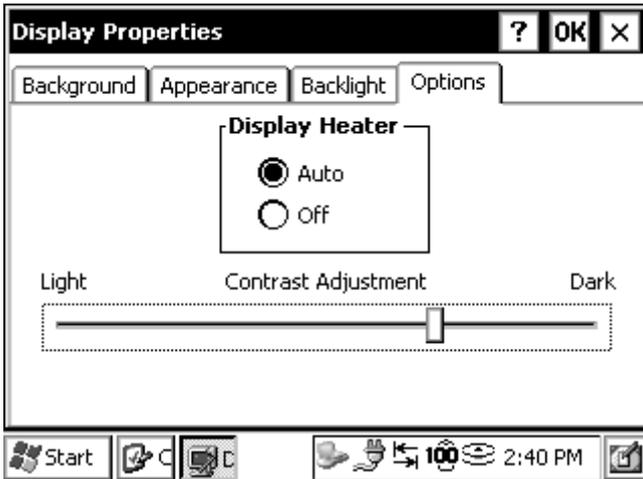
Options such as Eggplant appear as various shades of gray. As you make an appearance selection, the change is shown on the left side of the screen, allowing you to view it before you apply your selection.

Customize the display by clicking on an element shown on the left, Window Text for example, or selecting it from the pull down list shown in the upper right. Tap on the Color button below the Item box and a palette with available shades of gray appears.

The *Backlight* tab allows you to select the length of time you want the backlight to remain on while the Allegro is in an idle state. The Backlight tab also allows you to set the brightness of the backlight.



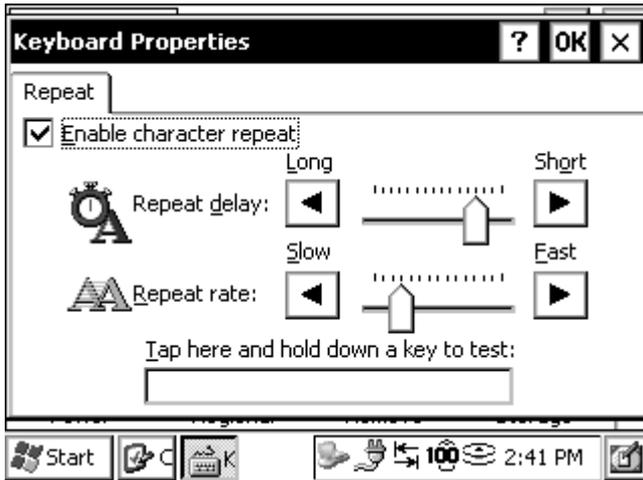
The *Options* tab is used to set the display heater and contrast. The heater options are Auto and Off. Auto is the default setting, which turns on the heater automatically. Adjust the display contrast by moving the slide bar left or right.



❖ *Note: The display heater cannot be used if you are using alkaline batteries. The Auto option is not available.*

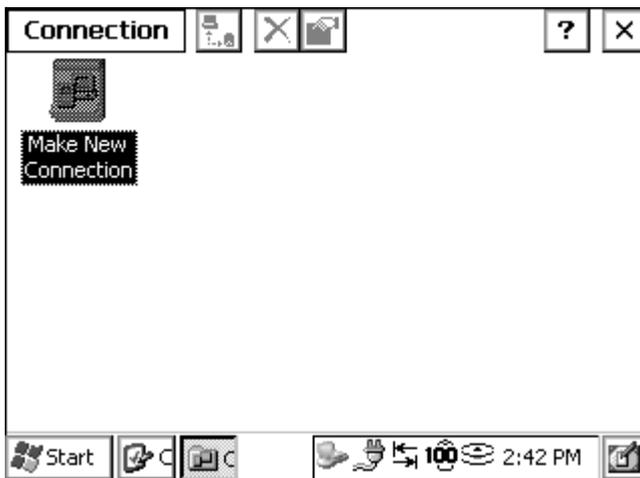
Keyboard

The *Keyboard Properties* has a *Repeat* tab used to enable or disable character repeat when you hold down a key on your Allegro keyboard. If the Enable character repeat is selected, you can set the repeat delay and repeat rate.



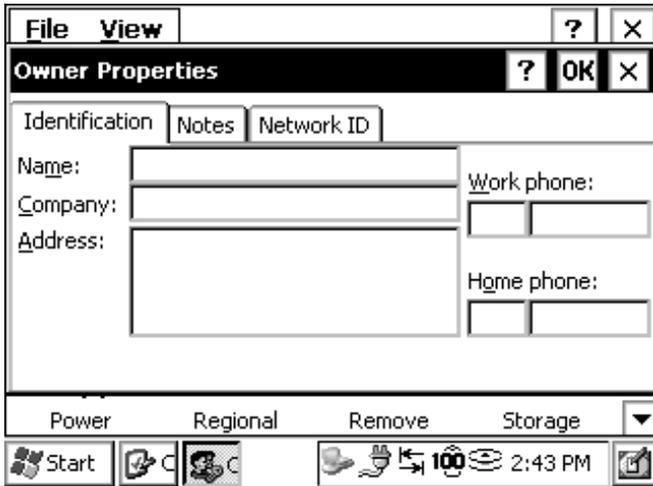
Network and Dial-up Connections

The *Network and Dial-up Connections* applet allows you to create a connection for your Allegro to access the Internet. You can choose from a dial-up connection or a direct connection.

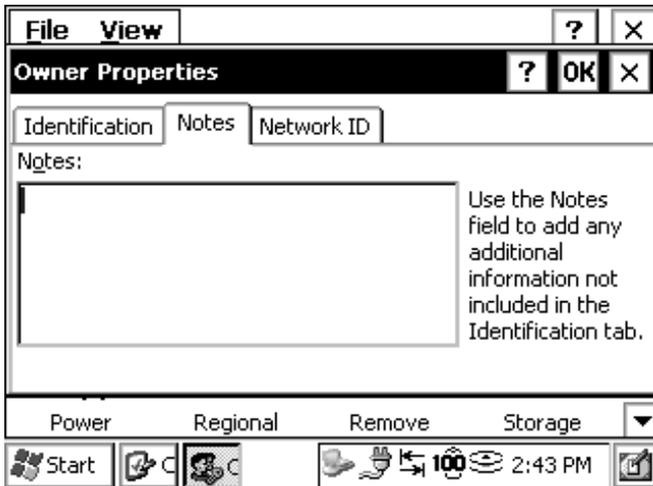


Owner

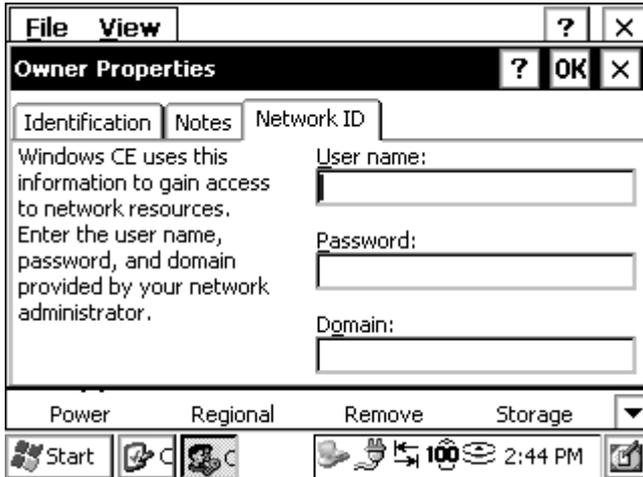
The *Owner Properties* applet uses the *Identification* tab to specify personal information, such as your name, address, and phone number.



The *Notes* tab provides a place to add any additional information that is not included in the *Identification* tab.

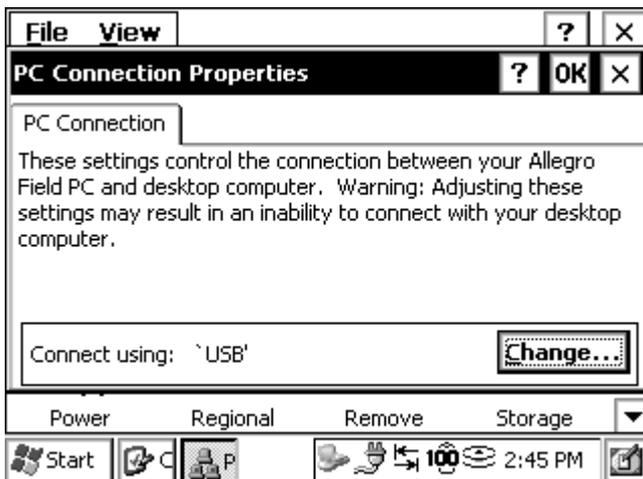


A *Network ID* tab is used to create a personal, unique identifier you receive for accessing a remote network. In the *Network ID* tab, enter the same user name, password, and domain name you use to log onto the remote network at the office. This ID allows you to access the remote network with your Allegro.

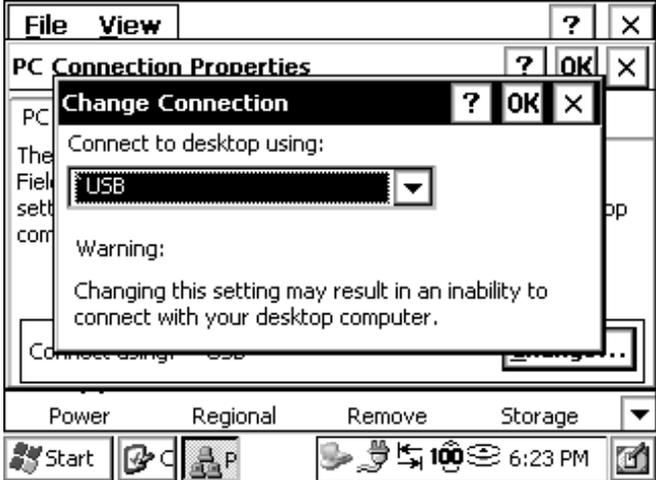


PC Connection

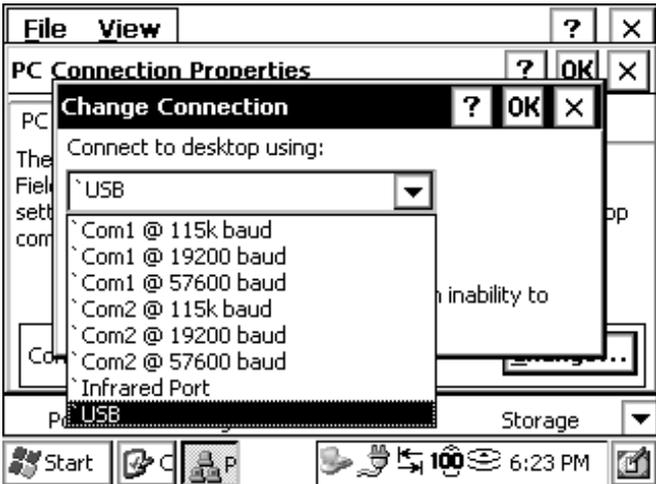
The *PC Connection Properties* applet allows you to change the port and baud rate used for communicating with your Allegro and PC through ActiveSync. The USB port is the default setting.



If you are not using a USB Power Dock to connect your Allegro with your PC, tap on the *Change* button to access the change connection screen.

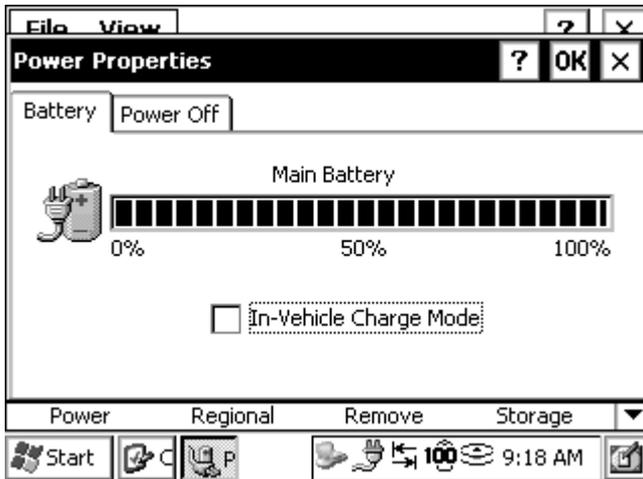


Tapping on the down arrow accesses the drop-down list of available connection options. Tap on the Com type your Allegro is using and tap on OK to save the new setting. If you do not want to change the COM port, tap on X to cancel out of the Change Connection screen and return to the *PC Connection Properties* screen.

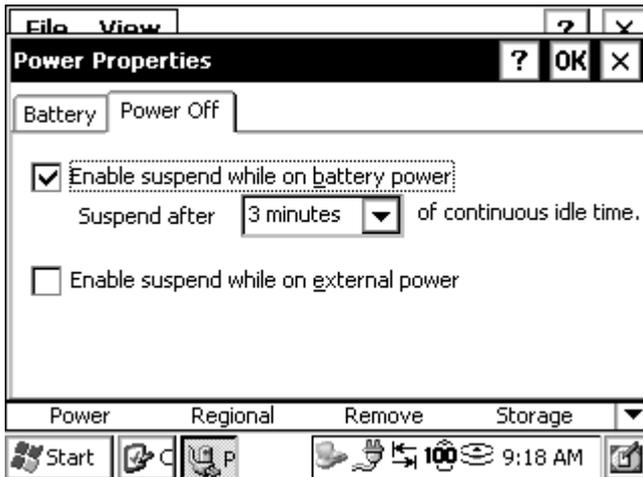


Power

The *Power Properties* applet shows information about the power level of the batteries in your Allegro. The *Battery* tab shows the status of the main battery.



The *Power Off* tab allows you to specify how much time will pass before the Allegro goes into suspend mode. The Allegro can also be suspended while it is running on external power.



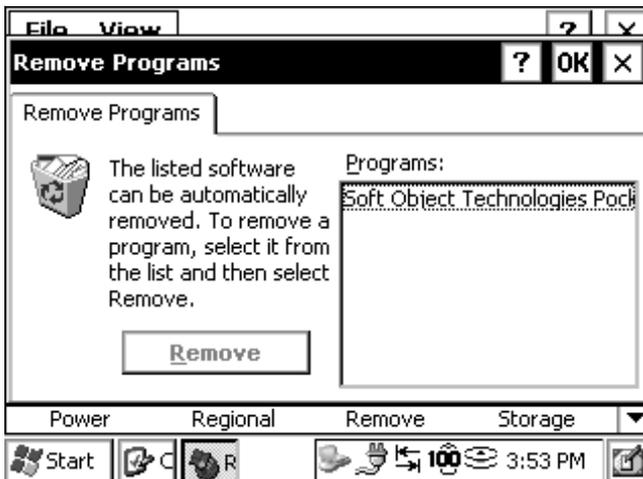
Regional Settings

Changes made in the *Regional Settings Properties* applet mainly affect programs that support international settings. In this applet, you can change how these programs are displayed and how the numbers, currency, time, and dates are sorted.



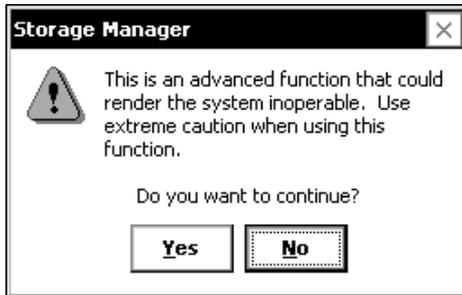
Remove Programs

The *Remove Programs* applet allows you to remove programs that you have installed on the Allegro. You cannot remove programs that were factory installed, such as WordPad.



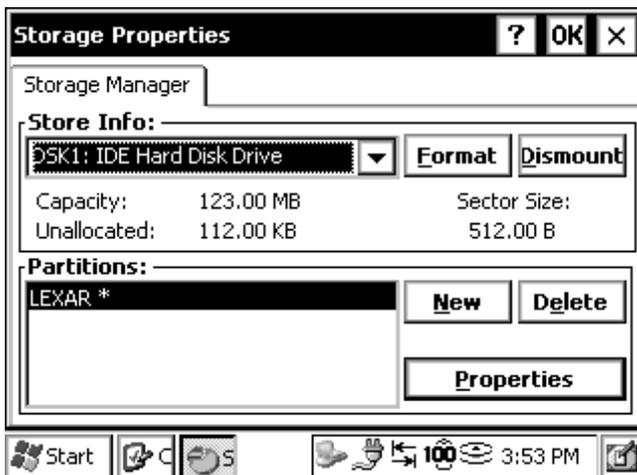
Storage Manager

The *Storage Properties* applet uses the *Storage Manager* tab to set up and view storage devices on your Allegro. This applet allows you to scan and defrag partitions on your Allegro, and format PC Cards and gives you the option to format your C_Drive. This applet is an advanced function and should be used with extreme care and caution, because of this when you open this applet, you will get the following warning:



To format a PC card, complete the following steps:

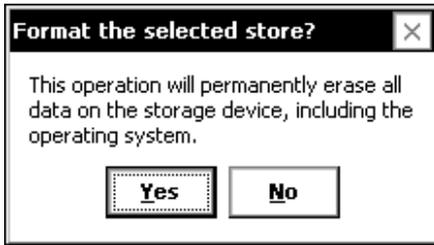
1. Insert the PC card into the PC card slot in your Allegro and turn on your Allegro.
2. Tap on *Start / Settings / Control Panel* and double-tap on the *Storage Manager* icon.



3. Tap on the drop-down box under *Store Info:* and select *DSK2: PCMCIA/Compact Flash Device*.



❖ *Important Note: **Do not select DSK1.** The DSK1 is your C_Drive. Formatting it will erase all of your Allegro applications as well as your entire operating system. If you attempt to format DSK1 (your C_Drive) the following warning appears:*



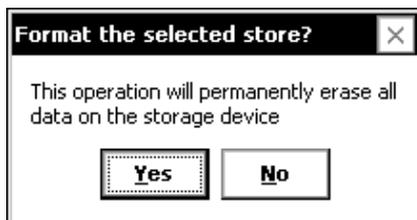
Make sure you select No when this message appears.

4. Tap on the *Dismount* button. Dismounting the PC card allows you to format it.

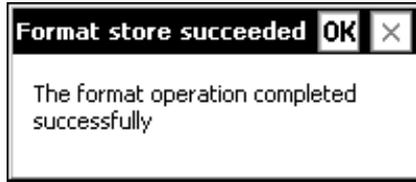
Each time a PC card is placed in the Allegro, it automatically mounts, or loads, all the necessary items you need to access the card. When mounted, the card is unable to be formatted. If you attempt to format the PC card, you will get this error message:



5. Tap on *Yes* to continue the formatting of the PC card. Tapping on *No* cancels the formatting process.



6. Tap on *OK* to return to the Storage Properties applet.



After formatting your PC card, it remains inaccessible until a partition is made.

7. Tap on *New* in the *Partitions* section of the Storage Properties applet to create a new partition. The partition is the accessible part of the PC card.
8. Enter the name of the new partition on the PC card and tap on *OK* to save. Tapping on the *X* cancels out of naming the partition and returns to the Storage Properties applet screen.

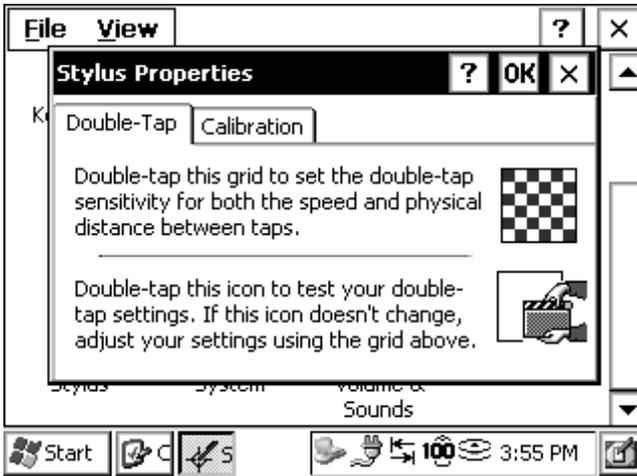
Once a partition is created and saved, your PC card is accessible and ready to use.

If you do format your C_Drive, you must reload your operating system to get your Allegro to working again. To install your .NET operating system, complete the following steps:

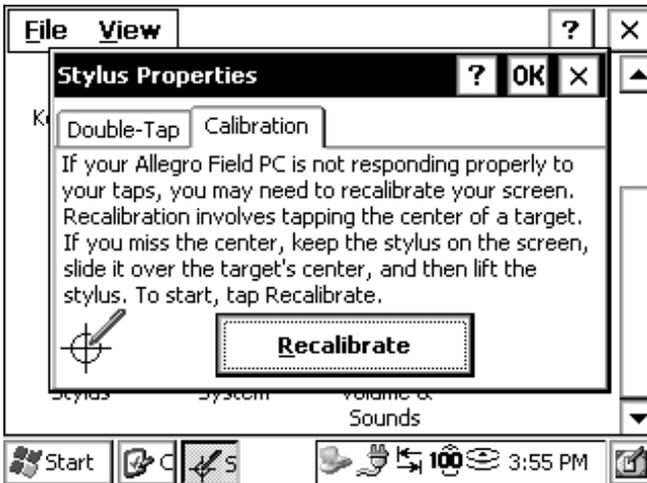
1. Open the CD-ROM drive on your PC.
2. Place your Allegro CE .NET Utilities CD into your PC's CD-ROM drive.
3. Close your PC's CD-ROM drive and wait for a pop-up to appear on your PC's screen.
4. Follow the CE .NET install instructions on the pop-up window.

Stylus

The *Stylus Properties* applet uses the *Double-Tap* tab to set up and test the double-tap sensitivity for speed and distance between taps.

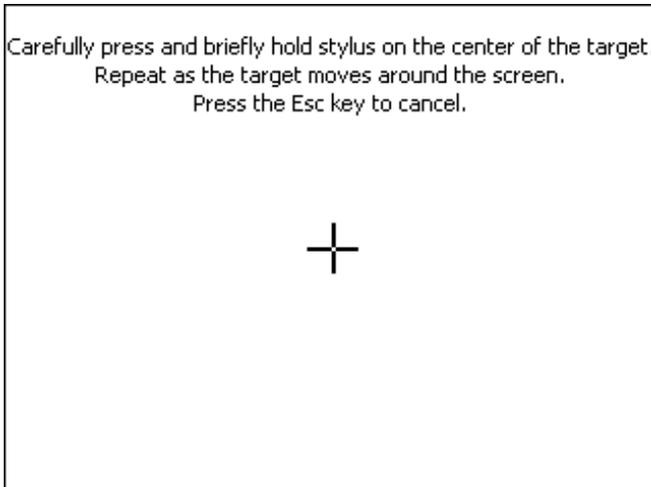


From the *Calibration* tab, the touchscreen is recalibrated. If you have trouble selecting an item when you tap on it, the touchscreen may need to be recalibrated.



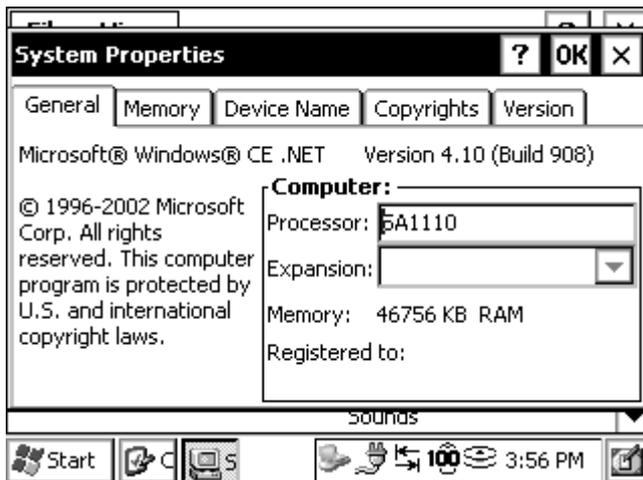
The *Recalibrate* option can be accessed from the *Recalibrate* button and may be accessed if the Allegro has been without any batteries for longer than 15 minutes and without saving the system.

When calibrating the touchscreen, hold the stylus down on the plus mark (+) for two seconds. Complete this procedure for each + mark shown on the touchscreen. Press *Enter* when prompted.

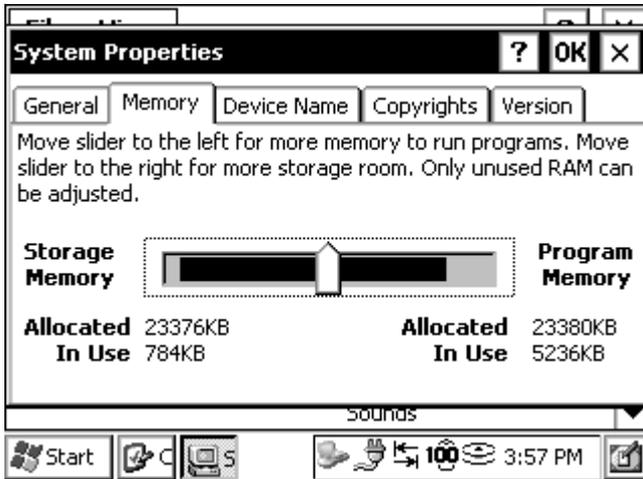


System

The *System Properties* applet displays general information about the hardware and software configurations for your Allegro. The *General* tab gives you system information including the processor type, etc.



The *Memory* tab allows you to adjust the allocation of RAM between program memory and storage memory.



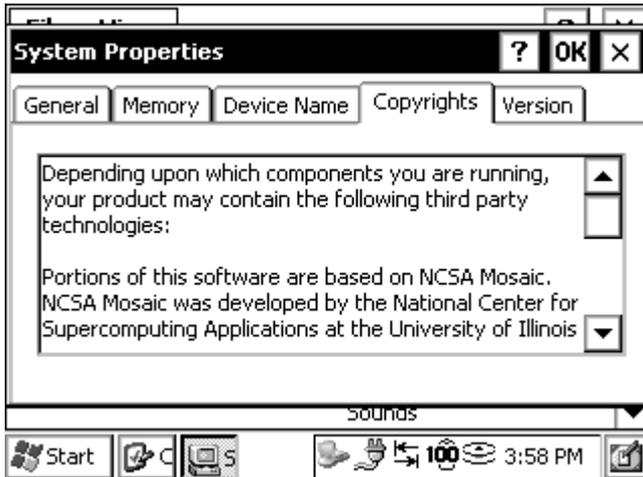
The majority of RAM should be allocated to program memory so the applications have plenty of execution space. Define the amount of usable RAM by subtracting the *In Use* figure from the *Allocated* figure.

The *Device Name* tab allows you to view or change the name of your Allegro. In the Device name box, AllegroCE_##### (##### = serial number) is entered automatically. This unique identification makes it possible for individual Allegros to be identified by other computers, and in situations where multiple Allegros are connected together.

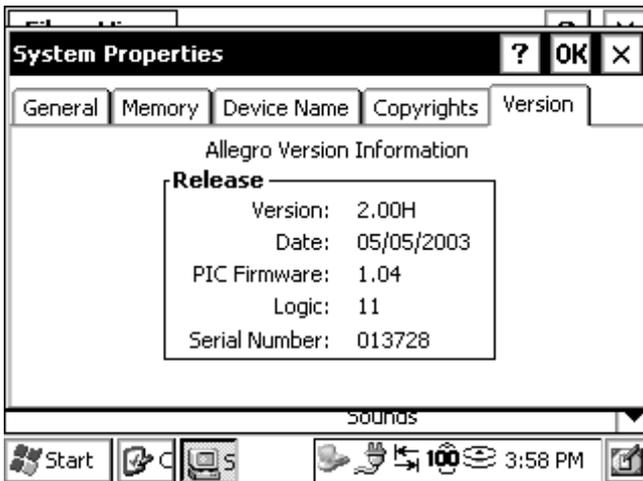


To change the name of your Allegro, highlight the name in the *Device name* box and type in the new name of your Allegro.

The *Copyrights* tab contains copyright information for specific programs on your Allegro.

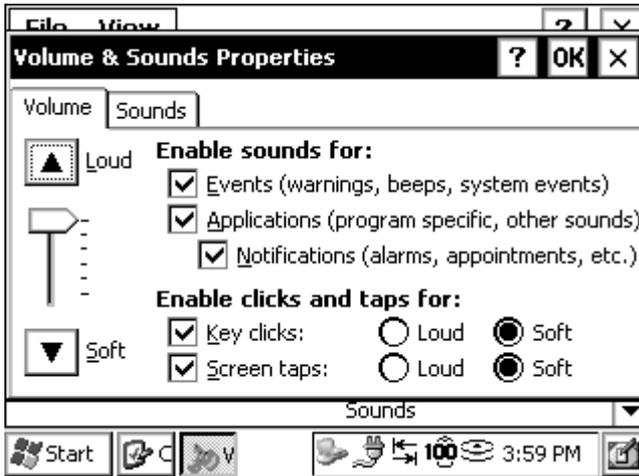


The *Version* tab displays the Allegro system version number and release date.

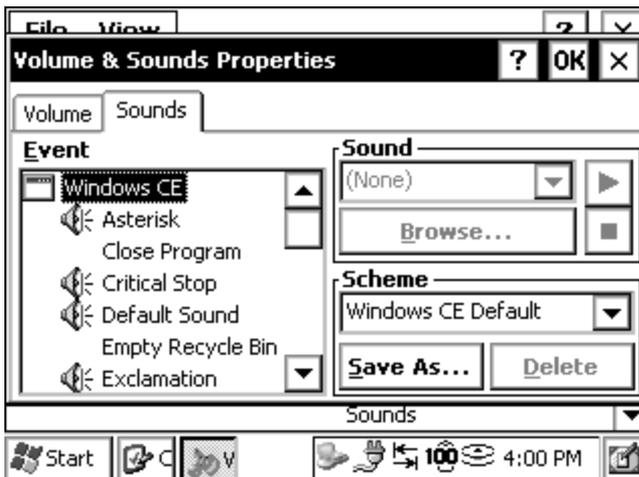


Volume and Sounds

The *Volume & Sounds Properties* applet *Volume* tab, is used to adjust the speaker volume and turn on and off the sounds associated with different system events.



From the *Sounds* tab, you can associate a sound with an action. The actions are listed on the left. The actions that have sounds associated with them, have a speaker icon next to them (like an Asterisk in the screen shown below).

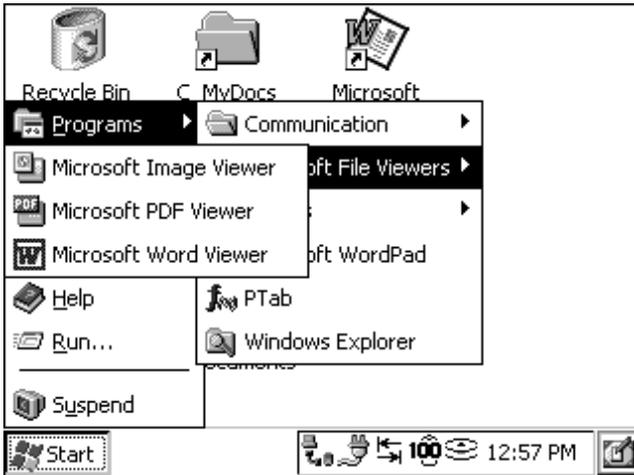


To edit, add, or listen to a sound, make a selection from the list on the left. The name of your selection is shown in the Sound box if a sound is already associated with it. Otherwise, it says *None*.

Select *Browse* to find and select the desired sound WAV file that you want associated with the selected action. To listen to the new sound (or existing sound), press the right arrow button next to the Sound box. Changes you make can be saved as a new sound Scheme or you can choose an existing sound scheme from the drop down list.

CE .NET Viewers

Windows CE .NET provides three viewer applications. These viewers open Word files, PDF files and a variety of image files, depending on the viewer you use. To access the viewers available in CE .NET, turn on your Allegro and tap on *Start / Programs / Microsoft File Viewers*.



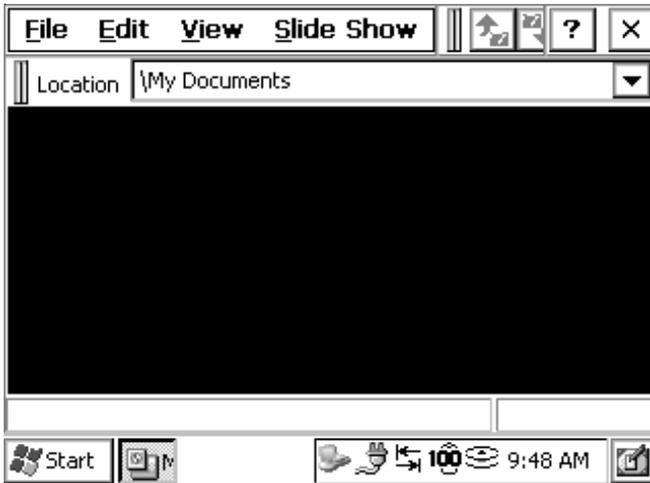
▲ Microsoft Image Viewer

The Microsoft Image Viewer application gives you the ability to set up and create a Slide Show of images on your Allegro. The images can be sorted, rotated, and zoomed. The timing for slide advancement can be set to your needs, and you can choose from a variety of transition effects.

The Image Viewer supports the following graphic formats:

.GIF
.BMP
.JPEG

Open the Image Viewer by tapping on *Start | Programs | Microsoft File Viewers | Microsoft Image Viewer*. The Image Viewer will open to the following screen:



The Image Viewer defaults to the *My Documents* folder located on your Allegro's desktop. When viewable image files are placed in this folder, thumbnails of the images appear in the Image Viewer program.

The Image Viewer has the following program menu titles:

File

Edit

View

Slide Show

Tapping on each of these options accesses a drop down box with available functions in the Image Viewer. The *Location* box shows which folder the Image Viewer is looking in. The *Location* box can also be used as a history reference. Tapping on the arrow in the right side of the *Location* box accesses a drop down box showing the location and name of folders that you have accessed with the Image Viewer.

File

The file options are designed to locate image files or slide show image files on your Allegro and to save files that you have opened or created. Tap on the File option to access the following functions:

Look In...

Open Show Settings...

Save Show Settings

Save Show As...

About...

Close

Look In

Selecting the *Look In...* function accesses the following screen:



Navigate through your Allegro on the *View Files in...* screen by tapping on the + to open folders that contain additional folders, or double-tap on the folder to open it.

Once you have located the folder containing the images you want to look at, tap on that folder so the title of the folder is highlighted. Tap on the *OK* button to accept your selection or double-tap on the image to open it. Tap on the *X* button to cancel and close the *View Files in...* screen.

Thumbnails of the graphics in the folder you have selected are now viewable in the Image Viewer.



Open Show Settings

Selecting the *Open Show Settings...* opens a navigation application for locating Slide Shows already created in the Image Viewer. The folder selected in the navigation box of the main viewer screen opens when this option is selected. The file you are viewing is labeled at the top of the navigation box. Additional folders and any Show Settings File documents appear in the navigation box. Slide Show files are saved in a *.wss format.

Navigate through the folders on your Allegro to locate the .wss file you want and tap on it so it is highlighted. Tap on OK to open the saved slide show into the Image Viewer or double-tap on the saved slide show to open it. Tap on the X to cancel and return to the Image Viewer.

Save Show Settings

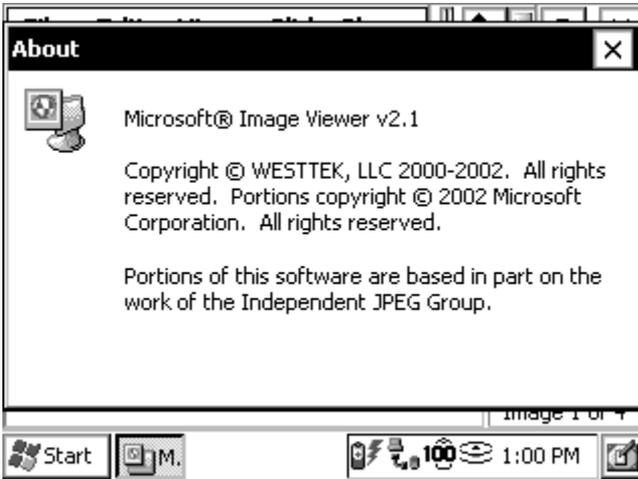
The Save Show Settings becomes active only if a .wss file is available. If a .wss file is not created or available, you cannot access this option. Once a .wss file has been created and is opened by using the *Open Show Settings...* function, you can make changes to the file and use Save Show Settings to save the changes made to the existing file.

Save Show Setting As

The *Save Show Setting As...* function is used for saving new .wss files or saving existing .wss files with a new name in any location on your Allegro.

About

Selecting the *About...* function accesses a pop-up window showing information about the Image Viewer, including version number and copyright.



Close

Selecting the *Close* function closes the Image Viewer application and returns you to the desktop of your Allegro.

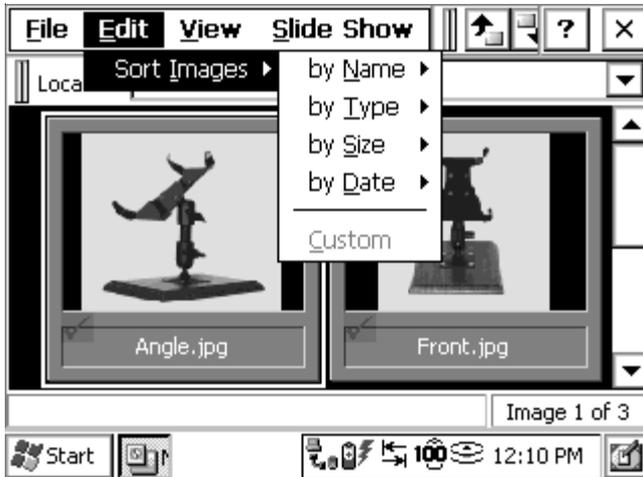
You can also tap on the X in the top right corner of the Microsoft Image Viewer screen to close the program.

Edit

The *Edit* options are for sorting the order the image files are presented in the Image Viewer or in a slide show file. The *Sort Images* function is available by tapping on the *Edit* option.

Sort Images

The *Sort Images* function allows various options for arranging images for a slide.



To select the order you want the images viewed in, tap on the *Edit | Sort Images*. A drop-down menu appears with options for the order you want to view the images. Tap on the option you want and a drop-down menu appears with *Ascending* or *Descending* options. Tap on the desired order, the drop down menus then closes. The order you selected is now shown in the main Image Viewer screen.

The *Custom* option appears checked when you manually use the stylus to drag and drop the images to create the slide show. Otherwise, the *Custom* option appears grayed out.

View

The *View* options are designed to show the information about an image or to enlarge an image to fill the Allegro's screen. The following functions are available by tapping on the *View* option:

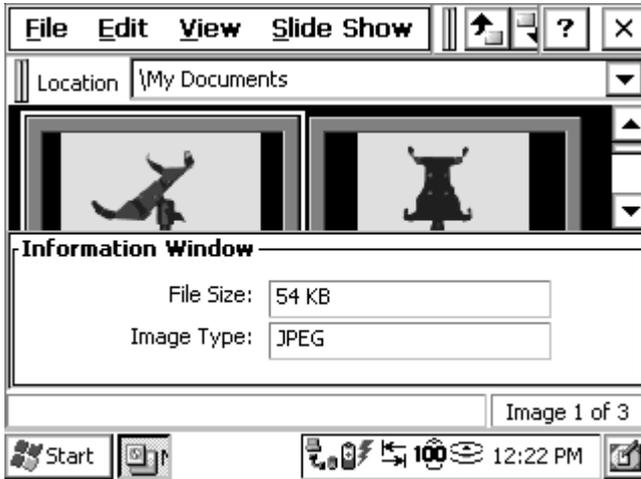
Information Window

Full Screen

Information Window

Tapping on the *Information Window* function opens a screen that covers the bottom half of the thumbnail's viewing area. The file size and image type are presented in this screen for the selected image.

Use the navigation bar on the right side of the screen to scroll down and select each image. Tapping on the thumbnail selects the image. A thin white border will surround the selected image.

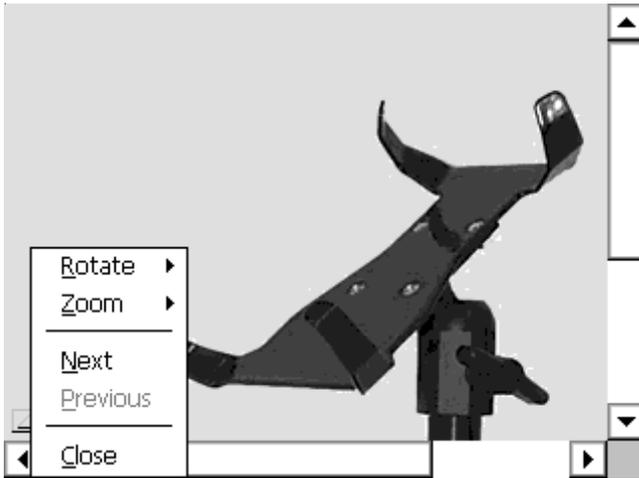


To remove the Information Window, tap on the View option. The Information Window function has a checkmark beside it, tap on it to deselect the Information Window.

Full Screen

The *Full Screen* function enlarges the image file to the full screen size. Images that are larger than the Allegro's screen include navigation bars for moving the image up and down, and left and right.

The image shown below is larger than the Allegro's screen. The arrows on the right side of the image allow you to move it up or down. The arrows on the bottom of the image allow you to move it left or right. These arrows give you access to sections of the image that you cannot see on the Allegro's screen when you open the image.



Once the image is open, there is a small box with an arrow pointing up in the bottom left hand corner of the image. Tapping on the arrow accesses a pop-up window with the following options:

Rotate

Zoom

Next

Previous

Close

Rotate

Tapping on *Rotate* opens a pop-up window with the following options for rotation the image:

L90°

R90°

180°

Flip horizontal

Flip vertical

Zoom

Tapping on *Zoom* opens a pop-up window with the following options for zooming the image:

200%

150%

125%

100%

75%

50%

25%

Fit to width

Fit to window

Next

Tapping on *Next* advances forward from the current image to the next image.

Previous

Tapping on *Previous* advanced backward from current image to the previous image.

Close

Tapping on *Close* closes the full-sized image and returns to the Image Viewer.

Slide Show

The Image Viewer gives the option of putting images together in to a slide show. The Slide Show options are designed for creating and viewing slide shows on the Allegro. The following functions are available by tapping on the Slide Show option:

View Show

Set Up Show...

Hide Image

View Show

The View Show function is used to set up the way you want your images to advance in a slide show. Those three options are:

Manual Advance

Automatic Advance

Automatic Advance (Loop)

Manual Advance

Tapping on *Manual Advance* advances images manually by tapping on the image.

Automatic Advance

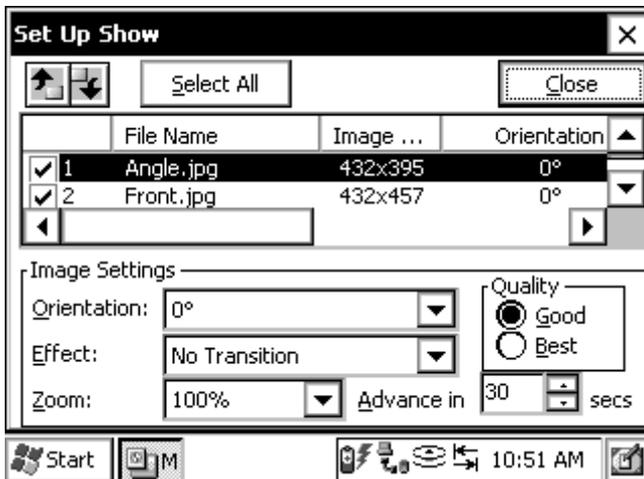
Tapping on *Automatic Advance* advances images automatically after a set amount of time. The set amount of time is defaulted at 30 seconds, but is adjustable in the *Set Up Show* section.

Automatic Advance (Loop)

Tapping on *Automatic Advance (Loop)* advances images automatically after a set amount of time, but continues back to the beginning and does not stop until manually closed. The Automatic Advance options are also manually advanceable. Tapping on the image being viewed advances to the next image.

Set Up Show...

Selecting *Set Up Show* opens a *Set Up Show* screen. There is an image box showing each image in the folder you are looking in, and all the settings for each image.



The *Set Up Show* screen allows you to set up how images can be sorted, rotated, zoomed, the amount of time an image is shown before it advances to the next image, and the type of transition effect when an image advances to the next. The following functions are available in the *Set Up Show* screen:

Select All

Orientation

Effect

Zoom

Quality

Advance in

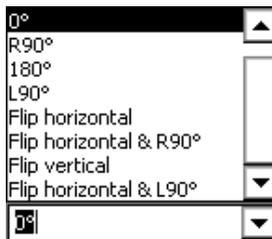
Select All

Tapping on the *Select All* function allows you to select all of the images at once. This function enables you to select the same *Image Settings* for every image at the same time.

Orientation

The *Orientation* setting offers various options for setting an image's rotation in a slide show. To select and set a new image rotation, complete the following steps:

1. Tap on the image you want to alter so it is highlighted.
2. Tap on the down arrow at on the right side of the *Orientation* box to access a drop-down menu.



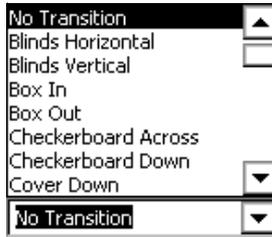
3. Tap on the rotation or flip option you want the image to be shown with during the slide show.
4. Tap on *Close* to save the orientation setting, or tap on another image to select it for a slide show orientation adjustment.

Effects

The *Effect* setting offers multiple options for setting how a selected image transitions onto the Allegro's screen. This option includes the transition over the previous image. To select and set a new image transition, complete the following steps:

1. Tap on the image you want to alter so that it is highlighted.

2. Tap on the down arrow at on the right side of the *Effects* box to access a drop-down menu.

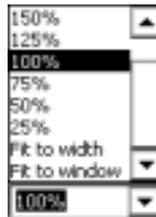


3. Tap on the transition style you want the image to use in the slide show.
4. Tap on *Close* to save your setting, or tap on another image in the image box to select it for a transition type adjust in a slide show.

Zoom

The *Zoom* setting offers multiple options for setting the size a selected image appears on to the Allegro's screen. To select and set an images zoom size, complete the following steps:

1. Tap on the image you want to alter so it is highlighted.
2. Tap on the down arrow at on the right side of the *Zoom* box to access a drop-down menu.



3. Tap on the image size you want the image to be shown at in the slide show.
4. Tap on *Close* to save your setting, or tap on another image in the image box to select for adjusting its size in a slide show.

Quality

The *Quality* option allow you choose the quality of the image shown in the slide show. To select and set an image's quality, complete the following steps:

1. Tap on the image you want to alter so it is highlighted.
2. Tap on the circle next to *Good* or *Best* in the *Quality* section of the *Image Set Up* screen. The selected quality has a dot in the circle you selected. The *Best Quality* option gives the best image display and takes longer to load the image than the *Good Quality* option.
3. Tap on *Close* to save your setting, or tap on another image in the image box to select it for a quality adjustment in the slide show.

Advance in

The *Advance in* function allows you to set the amount of time, in seconds, that an image stays on the Allegro's screen before advancing to the next image. To select and set the amount of time an image is shown in a slide show, complete the following steps:

1. Tap on the image you want to alter so that it is highlighted.
2. Tap on the up or down arrows on the right side of the *Advance in* box to raise or lower the amount of time you want an image to stay on the Allegro's screen during a slide show.
3. Tap on *Close* to save your setting, or tap on another image in the image box to select it for an adjustment to the amount of time it is shown in the slide show.

Hide Image

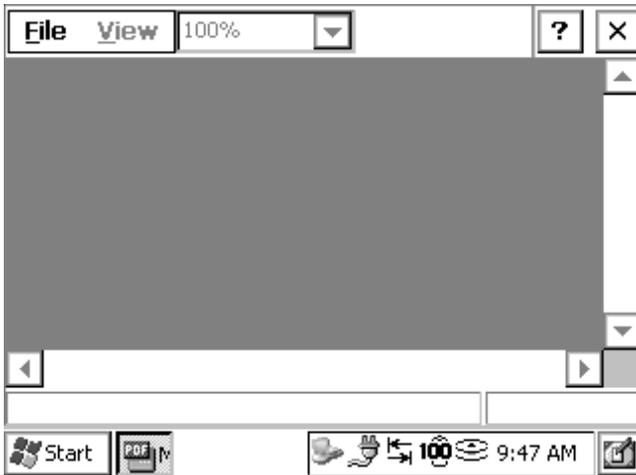
The *Hide Image* function takes selected images and prevents them from appearing in a created slide show. To use the *Hide Image* function, tap on the thumbnail of the image you want hidden. There is a small checkmark in the top left corner of the title box of each thumbnail. Select *Slide Show | Hide Image*. An *X* is now where the checkmark used to be, indicating that the slide will not appear in the slide show.

To make the image viewable again in a slide show, tap on the *Slide Show* menu. A checkmark is next to the *Hide Image* function. Tap on the *Hide Image* function to deselect it. The checkmark has now returned to the thumbnail in the Image Viewer, confirming that the image is now viewable again in slide shows.

▲ Microsoft PDF Viewer

The Microsoft PDF Viewer application gives you the ability to open and view portable document format (.pdf) files on your Allegro.

To open the PDF Viewer, you can double-tap on a PDF file that has been placed on your Allegro, or you can tap on *Start / Programs / Microsoft File Viewers / Microsoft PDF Viewer*, and follow the directions for opening files in PDF Viewer later in this section.



The PDF Viewer has the following menu:

File

View

Tapping on each of these options accesses a drop down box with the functions available in the PDF Viewer. Once a PDF file is opened, a box at the bottom of the PDF Viewer shows the folder the PDF Viewer is looking in and the PDF file name. A small box next to the PDF title box has the page number you are on and the total number of pages in the PDF file.

The PDF file opens up at 100% *Zoom* size. If a PDF is 8.5" x 11", you need to use the navigation arrows to move the PDF so it is in the Allegro's screen. The document size and length will depend on the amount of scrolling needed to read the PDF. The smaller the zoom percentage the fainter the words, until they are not viewable.

File

The file options are designed to locate PDF files on your Allegro. The following functions are available by tapping on the File option:

Open...

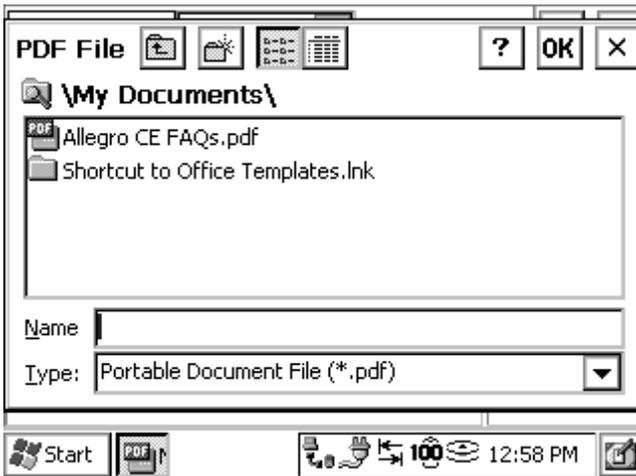
Recent Files

About...

Close

Open...

Selecting the *Open...* function opens a browser window for locating PDF files on your Allegro. Browse through the folders on your Allegro to the desired PDF file and double-tap on it to open the file.

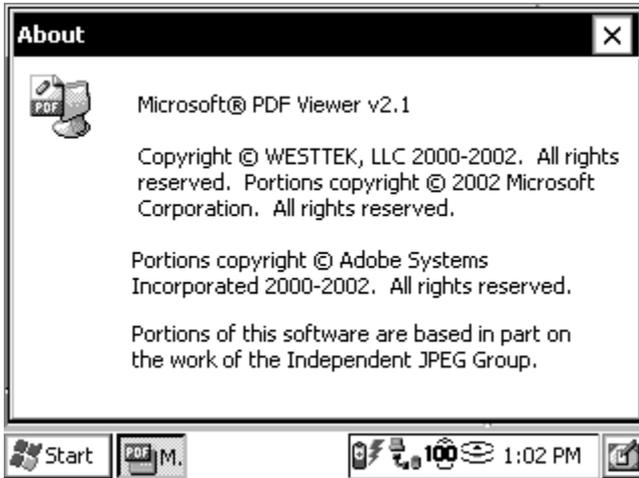


Recent Files

Selecting the *Recent Files* function accesses a drop-down box showing a list of the recent PDF files that have been looked at. Tapping on one of the listed PDF files opens the PDF into the PDF Viewer.

About

Selecting the *About...* function accesses a pop-up window showing information about the PDF Viewer, including the version number and copyright.



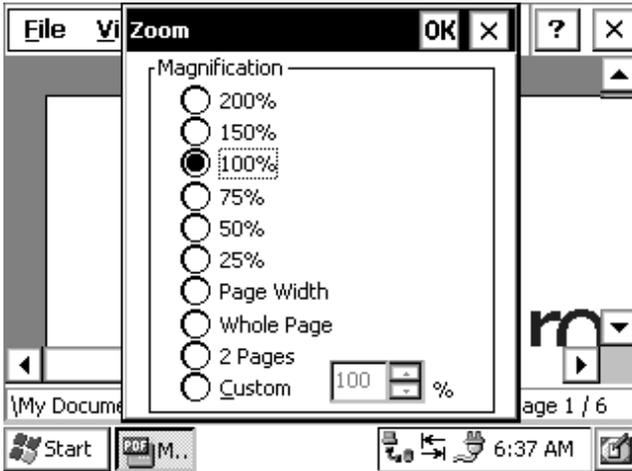
Close

Selecting the *Close* function closes the PDF Viewer application and returns you to the desktop of your Allegro.

You can tap on the X in the top right corner of the Microsoft PDF Viewer screen to close the program.

View

The *View* function allows you to view the PDF in a variety of different zoom sizes. There are two ways of selecting the viewing size of your PDF. The first way is to tap on *View* then *Zoom...* The following pop-up window appears with a variety of zoom options:



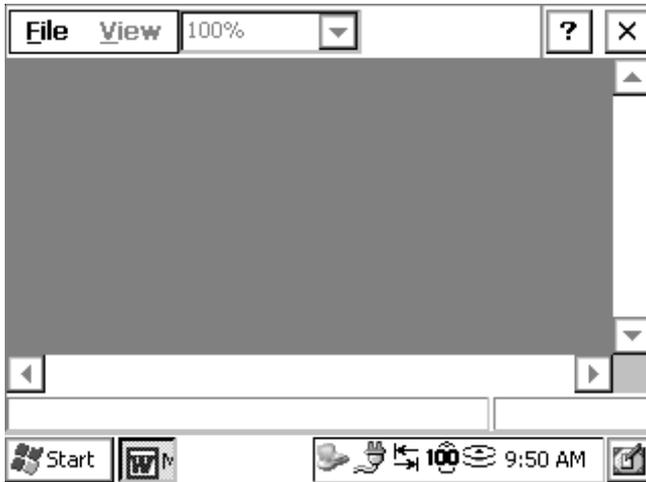
Tap in the circle next to the zoom size and tap *OK* to accept your selection, or *X* to cancel it and return to the PDF Viewer main screen. The accepted zoom option is displayed in the view size box next to the *View* option at the top of the screen.

The second way to select the viewing size of a PDF is to tap on the view size box next to the *View* option at the top of the screen. A drop-down box opens, allowing you to scroll through the available zoom options for the PDF. Tap on the view size option in the drop down box to select your option.

▲ Microsoft Word Viewer

The Microsoft Word Viewer application gives you the ability to open and view either a Word File or a Rich Text File on your Allegro.

To open the Word Viewer you can double tap on a Word or a Rich Text File located on your Allegro or you can tap on *Start / Programs / Microsoft File Viewers / Microsoft Word Viewer*, and follow the directions for opening files in Word Viewer described later in this section.



The Word Viewer has the following menu:

File
View

Tapping on each of these options accesses a drop down box with the functions available in the Word Viewer. Once the specific file is opened, the box at the bottom of the Word Viewer shows the folder the Word Viewer is viewing and the name of the Word file. A small box next to the Word title box has the page number you are on and the total number of pages in the Word file.

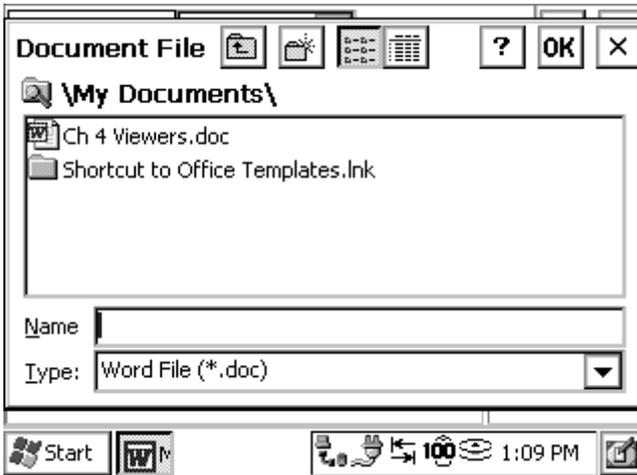
File

The file options are designed to locate Word files on your Allegro. The following functions are available by tapping on the File option:

Open...
Recent Files
About...
Close

Open...

Selecting the *Open...* function opens a browser window for locating Word files on your Allegro. Browse through the folders on your Allegro to the desired Word file, then double-tap on the file to open it.



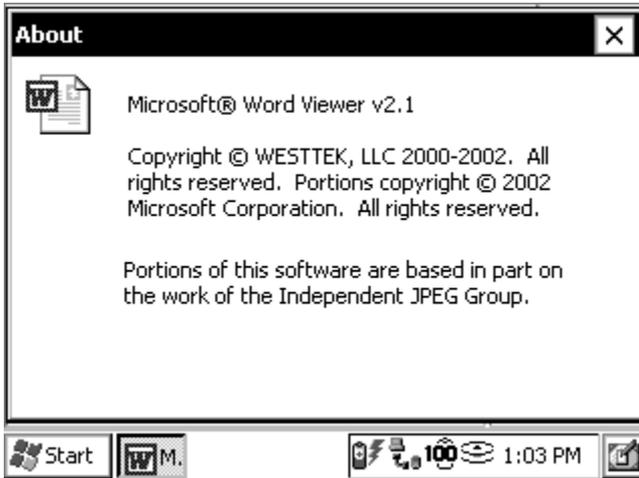
The *Type:* box accesses a drop-down box allowing you to specify Word Files (*.doc) or Rich Text Files (*.rtf). Only files with the selected type are shown in the browse window.

Recent Files

Selecting the *Recent Files* function accesses a drop-down box showing a list of the recent Word or Rich Text files you have looked at. Tapping on one of the listed document files opens the file in the Word Viewer.

About

Selecting the *About...* function accesses a pop-up window showing information about the Word Viewer, including version number and copyright.



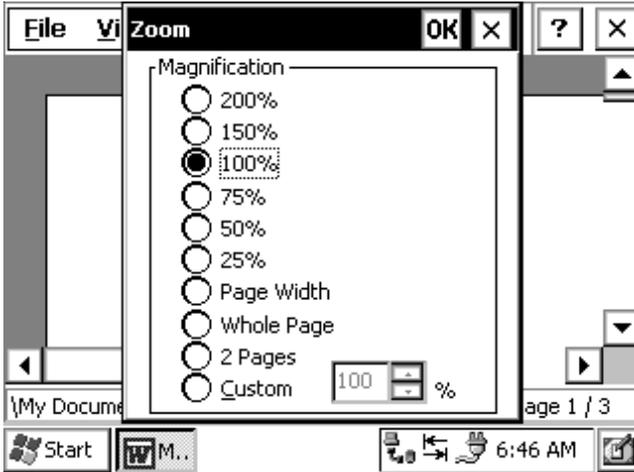
Close

Selecting the *Close* function closes the Word Viewer application and returns you to the desktop of your Allegro.

You can tap on the X in the top right corner of the Microsoft Word Viewer screen to close the program.

View

The *View* function allows you to view the text file in a variety of different zoom sizes. There are two ways of selecting the viewing size of your document. The first way is to tap on *View* then *Zoom...* The following pop-up window appears with a variety of zoom options:



Tap in the circle next to the zoom size and tap on *OK* to accept your selection or *X* to cancel it and return to the Word Viewer main screen. The accepted zoom option is displayed in the view size box next to the *View* option at the top of the screen.

The second way to select the viewing size of a document is to tap on the view size box next to the *View* option at the top of the screen. A drop-down box opens allowing you to scroll through the available zoom options for the document. Tap on the view size option in the drop down box to select your option.

ActiveSync Transfer Program

Instructions on establishing communication between the Allegro and a desktop PC using ActiveSync, and synchronizing files are described in this section.

Microsoft ActiveSync® program runs on your desktop PC, allowing you to:

- Transfer and copy files between your desktop PC and the Allegro
- Manage the files on the Allegro remotely from your desktop PC
- Synchronize saved files between your desktop PC and Allegro

Obtain ActiveSync in one of the following ways:

- 1) Download the program from Microsoft's web site free of charge.
- 2) Purchase a CD-ROM of ActiveSync from your sales representative.

ActiveSync 3.7 or above is required for Allegros using applications not certified for the Windows CE .NET operating system and above. This version of ActiveSync allows you to install older applications but does not guarantee that they will run.

We recommend downloading ActiveSync from the Internet to ensure you have the most recent version. Typing in ActiveSync in the search engine at the Microsoft web site helps find the most recent version of ActiveSync available.

This is a large file and a minimum of a DSL or cable modem Internet connection is highly suggested. If you only have a 56K dial-up modem connection, the downloading process takes a couple of hours.

Install ActiveSync on your desktop PC before installing any of the programs on the Allegro CE Utilities CD-ROM. The installation process is the same regardless of whether you download it from the Internet or install it from the CD-ROM.

❖ *Note: Depending on which Microsoft applications you have installed on your desktop PC and whether or not you have previously downloaded ActiveSync, the screens you see during installation could vary from those described in this section. Carefully read and follow the directions given to you from the ActiveSync installation program.*

▲ Downloading ActiveSync from the Internet

To download ActiveSync from Microsoft's Internet site, start with the web address below and complete the following steps:

<http://www.microsoft.com/mobile/pocketpc/downloads>

- 1) Select *ActiveSync* from the *Microsoft Downloads* list.
- 2) The first screen asks you to select a language to view the download instructions.
- 3) Once you select a language, the Microsoft End-User's License Agreement is shown. If you agree to the terms of the agreement, click on the *I Accept >>* button located at the end of the agreement.
- 4) The *Download ActiveSync* screen is shown. You must have Internet Explorer 4.01 or later to install. Read the instructions and press the *Download Now* button.
- 5) Follow the instructions given to you by the ActiveSync Setup program.

❖ *Note: Periodically check with Microsoft's web site for updates to ActiveSync.*

▲ Installing ActiveSync

To install ActiveSync on your PC, complete the following steps:

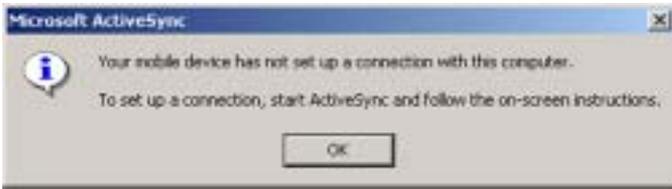
- 1) Open the downloaded copy of ActiveSync or insert your Microsoft ActiveSync CD into your PC's CD-ROM drive and select the *Install ActiveSync* option. The following screen is shown:



- 2) Click on the *Next* button and follow the instructions given to you by the ActiveSync Setup program. When ActiveSync is installed the following screen appears:



- 3) Click on the *Cancel* button on the “Get Connected” screen so you can continue to set up the communication settings. The following screen appears:



- 4) Click on the *OK* button.

❖ *Note: If you have problems connecting, restart your desktop PC before completing the connection process.*

▲ Establishing a First Time ActiveSync Connection

There are two procedures for establishing a connection between the Allegro and your PC. The first is the initial ActiveSync connection and the second is for all connections after the first one.

If you have just downloaded and installed ActiveSync then complete the following steps. If you already have ActiveSync installed proceed to *Establishing Additional ActiveSync Connections* section found later in this chapter.

The Allegro CE has four communication ports available for establishing an ActiveSync connection between the Allegro and desktop PC. The communication ports available are:

COM 1 and 2

Infrared

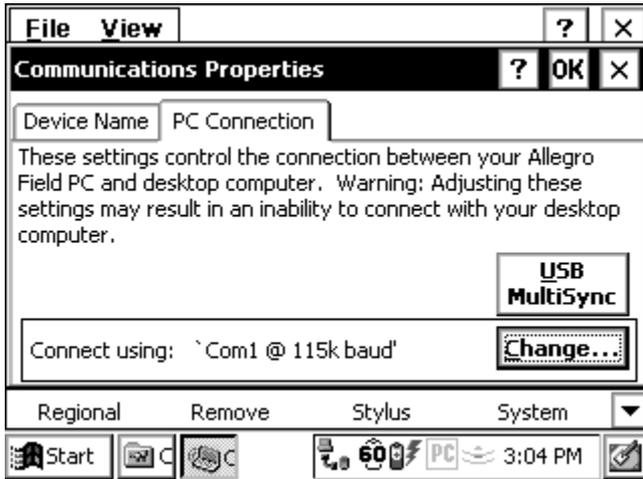
USB

ActiveSync COM 1 or 2 Connection

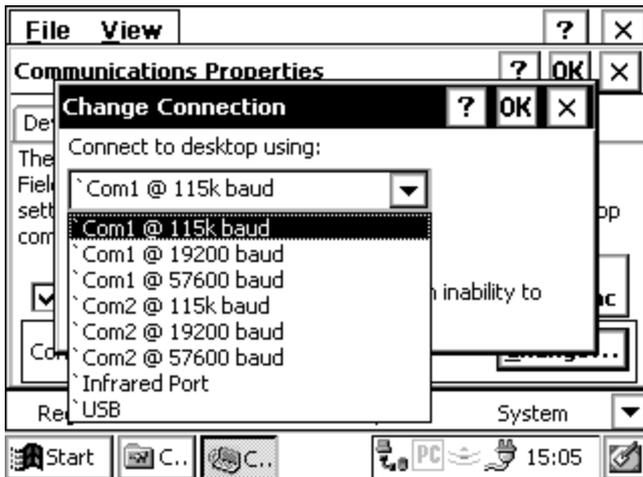
When establishing a COM 1 or 2 connection between the Allegro and your desktop PC for the first time, complete the following steps, all additional connections can be made by following the steps in the *ActiveSync Connection Process* section found later in this chapter.

- 1) Using COM 1 or 2, attach one end of the serial communication cable to the COM port on your desktop PC. Plug the other end of the communication cable into COM 1 or 2 on the Allegro. You must use the communication cable included with the Allegro CE, part number 12446.

- 2) Turn on the Allegro. Tap the *Start* button and select *Settings / Control Panel / Communications Properties*. Tap the *PC Connection* tab. At the bottom of the dialog box under *Connect using*, the COM port the Allegro is set on for the connection process is shown. If the communication port you are using is not listed in the bottom dialog box under *Connect using*, tap the *Change* button.



Select the correct port and baud rate from the drop-down list. Tap on the *OK* button.



3) Double-click on the ActiveSync icon on the desktop PC.



The following screen is shown:



4) Click on the *Next* button on the *Get Connected: Checking COM Ports* screen. The following screen is shown:



- 5) If the cable is connected to COM 1 on the PC, the *Progress* box of the *Checking COM Ports* screen says *Looking for a Mobile device... Checking on COM Port 1*, double-tap on the PC Link icon on your Allegro desktop.



After tapping the *PC Link* icon on the Allegro desktop, a screen that says *Connecting to Host* is shown. After a connection is made, the following screen briefly shows on the Allegro:



If you are unsuccessful in your connection go to the *An Unsuccessful Connection* section found later in this chapter.

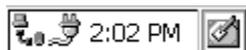
If using COM 2 on the Allegro, wait for the *Progress* box of the *Checking COM Ports* screen indicating *Looking for a Mobile device... Checking on COM Port 1* to advance to *Checking on COM Port 2*.



Now double-tap on the PC Link icon on your Allegro desktop.



Once connected, this screen is automatically minimized and placed in the status box on the Taskbar.



If the Allegro becomes disconnected from the desktop PC by choice or inadvertently, this symbol disappears, letting you know the Allegro is not connected to the computer.

A screen on the desktop PC that says *Connecting* is shown. The *New Partnership: Set Up a New Partnership* screen appears. Proceed to the *Setting Up a Partnership* heading of this section.

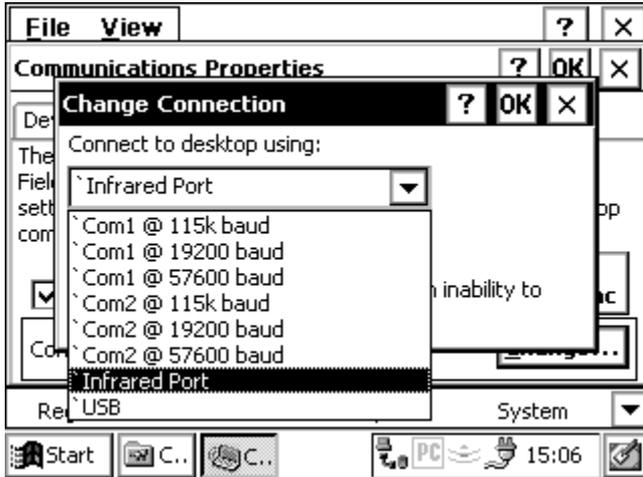
ActiveSync IrDA Infrared Connection

When establishing an infrared connection between the Allegro and your desktop PC for the first time, complete the following steps, all additional connections can be made through the *ActiveSync Connection Process* section and follow the steps there.

Complete the installation instructions that came with your IrDA infrared adapter. Depending on your desktop's Windows operating system you may need to access your desktop PC's wireless communications setup by selecting *Settings | Control Panel* and the wireless option (the name varies between operating systems). After the infrared settings are set, you will then follow the same connection process as COM 1 or COM 2.

To select the infrared COM port as the COM port you will be using, tap the *Start* button and select *Settings | Control Panel | Communications Properties*. Tap the *PC Connection* tab. At the bottom of the dialog box under *Connect using* you see which COM port the Allegro is set on for the connecting process. If the communication port you are using is not listed in the bottom dialog box under *Connect using*, tap the *Change* button.

Select the IrDA port from the drop-down list. Tap the *OK* button.



Using USB/Power Dock Connection

If you already have ActiveSync installed and for all additional connections go to the *ActiveSync Connection Process* section found later in this chapter. When establishing a USB connection between the Allegro and the desktop PC for the first time, complete the following steps:

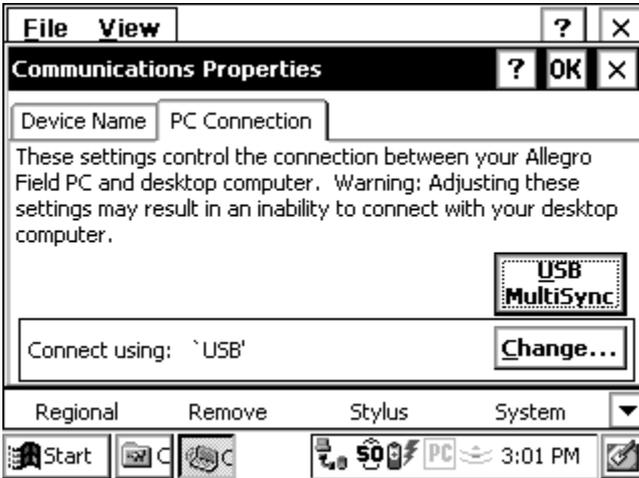
- 1) Plug in the USB cable into the desktop PC and then into USB/Power Dock.
- 2) Double-click on the ActiveSync icon on the desktop PC.



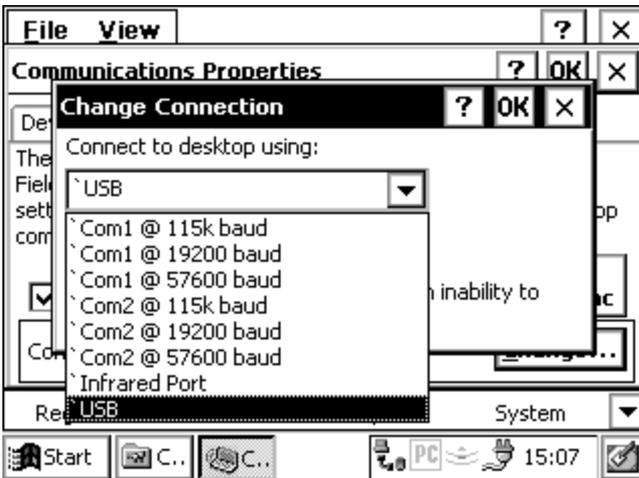
- 3) Place the Allegro into the USB/Power Dock. The Allegro automatically turns on and the *Getting Connected* screen disappears.

The USB is the default port and should already be selected. To double check the setting, tap the *Start* button and select *Settings | Control Panel | Communications Properties*. Tap the *PC Connection* tab. At the bottom of the dialog box under *Connect using* you see the COM port the Allegro is set on for the connection process.

If the communication port you are using is not listed in the bottom dialog box under *Connect using*, tap the *Change* button.



If the USB default is not selected, select the USB port from the drop-down list. Tap the *OK* button.



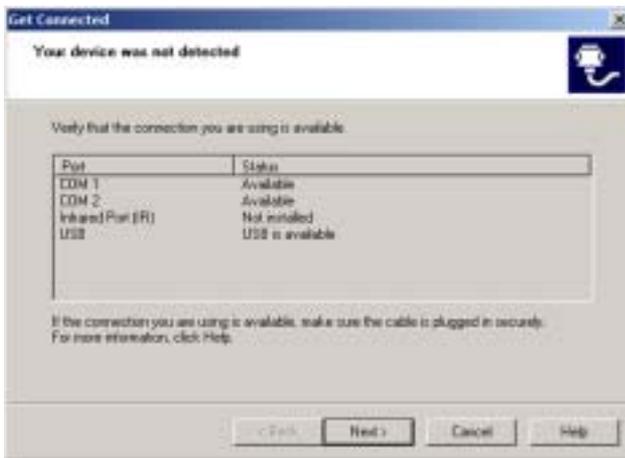
To connect remove the Allegro from the USB/Power Dock then place it back into the USB/Power Dock. This will automatically start the connection process.

A screen on the desktop PC that says *Connecting* is shown. The *New Partnership: Set Up a New Partnership* appears. Proceed to the *Setting Up a Partnership* section of this chapter.

❖ *Note: If you are having problems with the Allegro connecting to the desktop PC while using the USB connection, perform a reset on the Allegro and repeat the USB connection process.*

An Unsuccessful Connection

If the connection was not successful, the following screen appears on the PC:



From here, click on the *Next* button on the *Your device was not detected* screen and the *Getting Connected* screen appears again. Repeat the connection instructions for the COM port you are using until a successful connection is made.

▲ Establishing Additional ActiveSync Connections

If you already have ActiveSync installed on your desktop PC, complete the following steps for connecting the Allegro to the desktop PC. These instructions are also designed for all additional connections to between the Allegro and desktop PC using ActiveSync. You do not need to set up the communication settings each time, as described in *Establishing a First Time Connection Using ActiveSync*.

- 1) Turn on the Allegro and the desktop PC.
- 2) Connect the communication cable to the ports you set up on each computer during the file transfer program installation process.

- 3) Press the *PC Link* icon on the Allegro's desktop. If you are using the USB/Power Dock, place your Allegro into the Power Dock to initiate an ActiveSync connection. The following screen is briefly shown on the Allegro display:



If you set up a partnership between the Allegro and desktop PC, the connection is made automatically. When the connection is complete the following screen is shown:



- 5) Press the *Explore* button to view the contents of the Allegro from the desktop PC.



If you did not initially set up a partnership you are shown the *Set Up a Partnership* screen. Select *Yes* to set up a partnership now or *No* to connect as a guest.

Troubleshooting

If you have any problems establishing communication between the Allegro and the desktop PC, check the communication settings on both computers and make sure the communication cable is firmly connected to the correct ports. Refer to the installation instructions for ideas on settings to review.

▲ New Partnership Set Up

After you have successfully connected the Allegro to the desktop PC the following screen will appear:

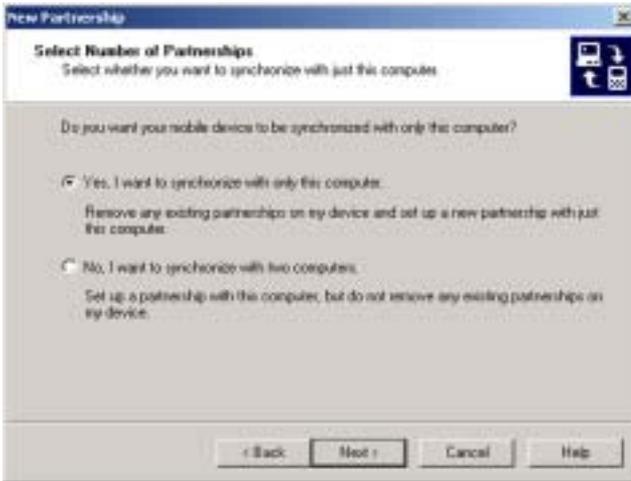


You can select *Yes* to set up a partnership or *No* to connect as a guest. The advantage to setting up a partnership is that each time you connect the Allegro to the desktop PC you are not asked which type of connection you want. The Allegro automatically connects as a partner. If you select *Yes* continue on to the *Setting Up a Partnership* section. If you select *No*, and want to connect to the Allegro and desktop PC as a guest, read steps for *Connecting as a Guest* later in this chapter.

Setting Up a Partnership

To set up a partnership between the Allegro and desktop PC, complete the following steps:

- 1) Select the *Yes* option and press the *Next* button on the *Setting up a Partnership Screen*. The following screen appears:

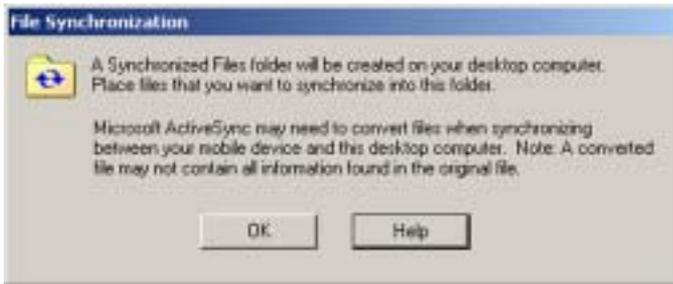


- 2) Select *Yes* if you want the Allegro to share a partnership with the desktop you are connected to, or *No* if you want to connect to more than one computer. Press the *Next* button. The following screen appears:

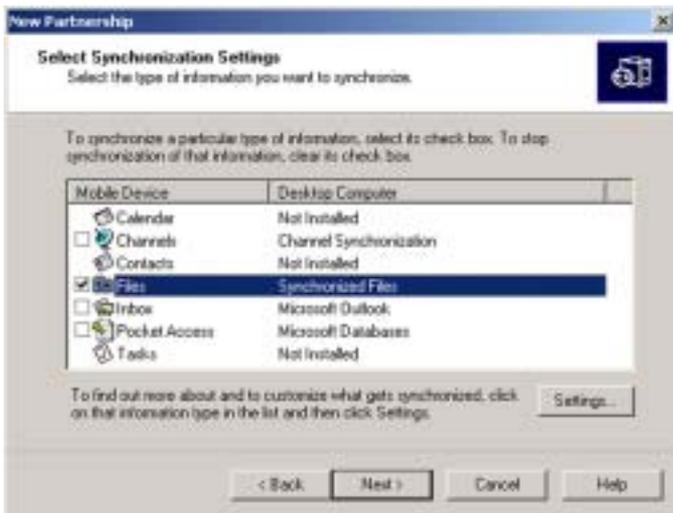


The *Synchronized Files* option is the only synchronization function currently operational with the Allegro. Additional options are not available.

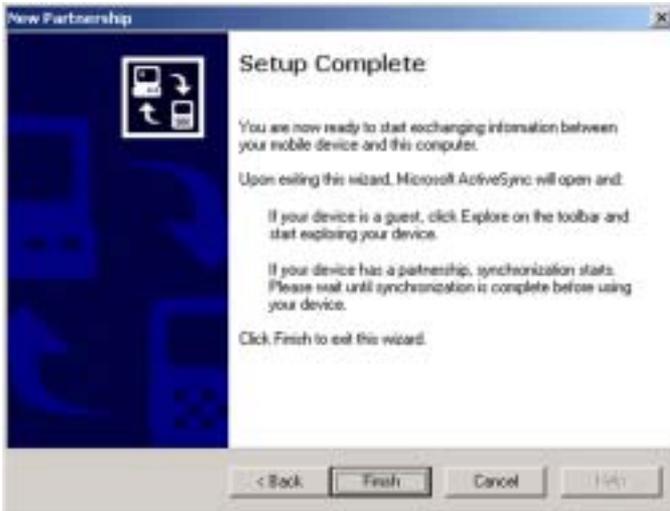
- 3) Select the *Files Synchronized Files* option. The following screen appears:



- 4) Press *OK* to return to the *Select Synchronization Settings* screen. The *Files / Synchronized Files* option is now selected.



5) Press the *Next* button. The *Setup Complete* screen appears:



6) Press the *Finish* button to complete the new partnership setup and begin the synchronization process.

A shortcut to a new folder created in the *AllegroCE_#### My Documents* (#### = serial number) folder appears on the PC's desktop. This is the file synchronization folder which holds all of the files which are automatically transferred from the Allegro to PC or vice versa.

After a Partnership is set up perform the *Save System* utility on the Allegro before you take the Allegro out into the field.

This is necessary in case a restart is required where RAM is lost on the Allegro, you will be able to restore the system and still connect to the desktop PC through ActiveSync.

If the system is not saved and RAM is lost, the *Synchronize* function will not be set up and will stop the connection between the Allegro and desktop PC. If you are using *MultiSync* it can block all other Allegros from connection to the desktop.

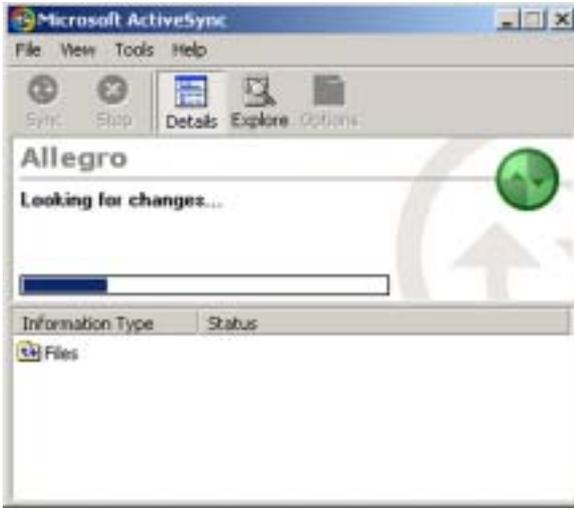
ActiveSync begins connecting the Allegro to the desktop PC. The following screen appears:



The Allegro and the desktop PC are connected to each other through ActiveSync. The following screen appears:



The synchronization program looks for changes between the folder on the Allegro and desktop PC. The following screen appears:



ActiveSync informs you if there are files that are not synchronized with the Allegro and desktop PC. The following screen appears:



ActiveSync automatically synchronizes files between the Allegro and the desktop PC. The following screen appears:



The Allegro and desktop PC are now connected and the files synchronized.



❖ *Note: If the connection message on the Allegro does not disappear, press Cancel and double-tap on PCLink again.*

Unresolved Files through File Synchronization

It is very important to note that the synchronize files option always replaces all old files with the most recent file. If you have saved a document on the Allegro in the *My Documents* folder, it automatically transfers to the *Allegro My Documents* synchronization folder on the desktop PC with the same name.

After disconnecting communication between the Allegro and desktop PC, the synchronized file can be altered. When reconnecting the Allegro to the desktop PC after, ActiveSync's file synchronization will replace the unaltered document with the master updated file.

The synchronization process stops when both documents, the one on the Allegro and the one on the desktop PC, are altered and ActiveSync is unsure which one is the master document. The following screen appears:

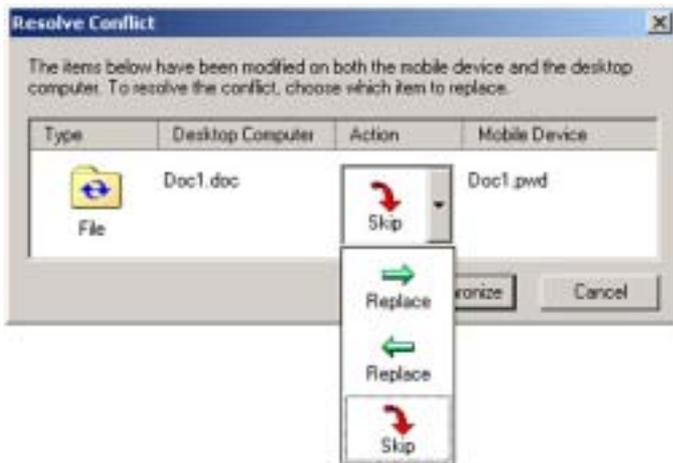


To specify which file is the master file, complete the following steps:

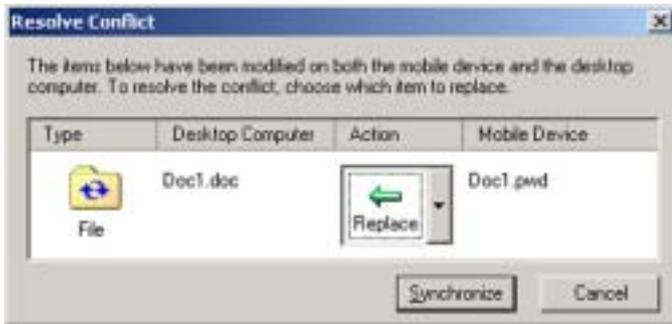
- 1) Click on the *Resolve items...* option to continue the file synchronization process. The following screen appears:



- 2) Click on the drop-down box next to Skip in the *Action* section of the “Resolve Conflict” screen. The following options appear:



- 3) Select which computer you want to synchronize with the master file. The right arrow synchronizes the file on the desktop PC to the Allegro. The left arrow synchronizes the file on the Allegro to the desktop PC. The selection appears in the action box, shown in the following example:



- 4) Click on the *Synchronize* button. The following appears:



The file you select to be synchronized now replaces the existing file with the file chosen as the master file. In this example, the left arrow is selected and the file on the Allegro is transferred to the desktop PC, replacing the file on the desktop PC with the master file on the Allegro.

The files are now synchronized. The following screen appears:



Renaming Files

Renaming the files helps to avoid the unresolved notification. Renaming is also an option available for keeping both altered files when the unresolved file notice appears, to do this complete the following steps:

- 1) Disconnect the Allegro from the desktop PC.
- 2) Rename one of the altered files.
- 3) Reconnect the Allegro to the desktop PC.

Both files can now synchronize.

Connecting as a Guest

ActiveSync also allows you to connect as a guest and interact between both computers without setting up a partnership. To connect as a guest complete the following steps:

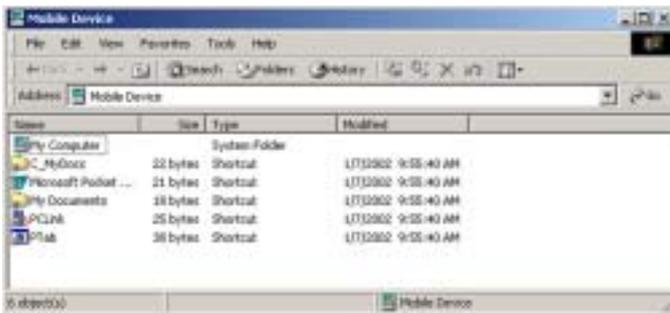
- 1) Select the *No* option on the *Set Up a Partnership* screen, and click on the *Next* button. ActiveSync goes through the connection process. When connected, the following screen appears:



- 2) Click on the *Explore* option on the *Microsoft ActiveSync* screen.



- 3) Begin viewing the contents of the Allegro.



▲ USB MultiSync

USB MultiSync is an Allegro feature that allows multiple Allegros to communicate with a single desktop PC through the USB/Power Dock and ActiveSync. The purpose for MultiSync is to allow users of multiple Allegros to automate data retrieval.

❖ *Note: MultiSync only works with the Windows 2000 operating system (at the time). Single unit USB connections work in all Windows operations systems.*

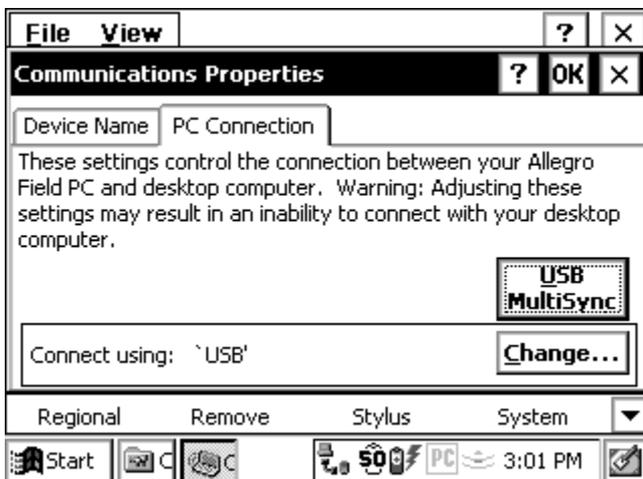
With MultiSync, after collecting data on multiple Allegros, they are each placed in a USB/Power Dock. MultiSync commands each Allegro to connect to the desktop PC, through ActiveSync. When one Allegro connects to the desktop PC ActiveSync synchronizes files.

Without MultiSync, users with Multiple Allegros, would have to manually place each Allegro, one by one, into one USB/Power Dock to connect to the desktop PC.

Accessing MultiSync Settings

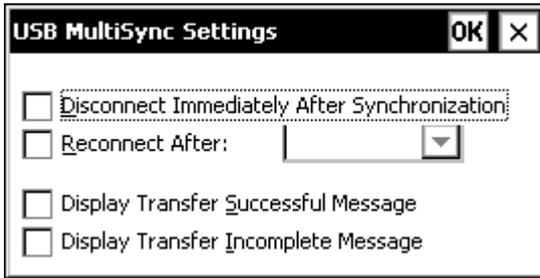
To access the MultiSync settings complete the following steps:

- 1) Plug the USB cable into the Power Dock and desktop PC.
- 2) The USB is the default port and should already be selected. To double check, tap the *Start* button and select *Settings / Control Panel / Communications Properties*. Tap the *PC Connection* tab.



At the bottom of the dialog box under *Connect using*, you see which communication port the Allegro is set to for the connection process. Check the box next to the *Connect to desktop when attached* option if it is not already checked. If the USB port is not listed in the bottom dialog box under *Connect using*, tap the *Change* button.

- 3) Tap on the *USB MultiSync* button. The following screen appears:

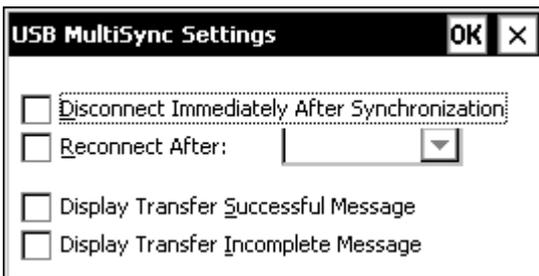


You can now choose the MultiSync settings you want to be active while using the USB/Power Dock. Tap on the *OK* button when you have made your settings selection. For a full explanation see the *USB MultiSync Functions* section of this chapter.

- 4) Tap on the *OK* option on the *Communications Properties PC Connection* tab screen. Tapping on *OK* activates all the selections you have made.

USB MultiSync Functions

MultiSync has four selectable features. Access the MultiSync options screen by tapping on *Start / Settings / Control Panel* and double-tapping on the *Communications* icon. Tap on the *PC Connection* tab. Tap on the MultiSync button, the following screen appears:



Disconnect Immediately After Synchronization

This function disconnects the Allegro from the desktop PC immediately after synchronization between the Allegro and the desktop PC is completed.

Reconnect After

The Allegro can be set to automatically connect twice. This function allows you to select a time frame that the Allegro reconnects to the desktop PC a second time. The Allegro does not attempt to connect again until it is removed and placed back into the USB/Power Dock.

This function is useful when every Allegro needs to load all of their data onto the desktop PC before the next day's data collection routes can be created and transferred back to the Allegro.

Display Transfer Successful Message

This optional setting displays a pop-up screen on the Allegro that tells you a successful connection, file synchronization, and disconnection has been completed.

If the reconnect option is selected, the *Transfer Successful Message* is not displayed until the second connection, file synchronization, and disconnection has been completed.

Display Transfer Incomplete Message

This is an optional setting that displays a pop-up screen on the Allegro. It only appears if the Allegro is removed from the Power Dock before a successful connection, file synchronization, and final disconnection has been completed.

Setting up Partnerships for File Synchronization

A partnership with file synchronization needs to be set up with each Allegro through ActiveSync before MultiSync can work. The partnerships need to be set up one at a time. As a result, a synchronization folder is created for each Allegro you are connecting to on the desktop PC. Example: If you have 5 Allegros connecting to the desktop PC you have 5 synchronization folders on the desktop PC after each partnership is made.

Each Allegro receives its own unique device name before it is shipped, which is *AllegroCE_####* (# = serial number). The name can be changed, but it should be a unique name to set it apart from all the other Allegros. The unique name is necessary when connecting multiple Allegros to a single desktop PC.

Avoiding Unresolved Files through File Synchronization

When connecting multiple Allegros to a desktop PC, it is important that they do not experience unresolved files in ActiveSync. If this situation occurs, it continues the current ActiveSync connection with the Allegro and MultiSync is not be able to disconnect. If the Allegro is unable to disconnect, the other Allegros can't connect and synchronize their files with the desktop PC.

To prevent this from happening, you must set up which device has the master file, the Allegro or desktop PC. This must be set up in ActiveSync and in each Allegro partnership. To do this, open ActiveSync and complete the following steps:

- 1) Select *Tools / Options*.
- 2) Click on the *Rules* tab on the *Options* screen.
- 3) Select either the *Always replace the item on my device* setting or the *Always replace the item on this computer* setting in the *Conflict Resolutions* box on the *Options* screen:



Always replace the item on my device

This selection makes all files on the desktop PC the master files. In the event of a possible unresolved file, the same named file on the Allegro is always replaced with the file on the desktop PC.

Always replace the item on this computer

This selection makes all files on the Allegro the master files. In the event of an unresolved file, the same named file on the desktop PC is always replaced with the file on the Allegro.

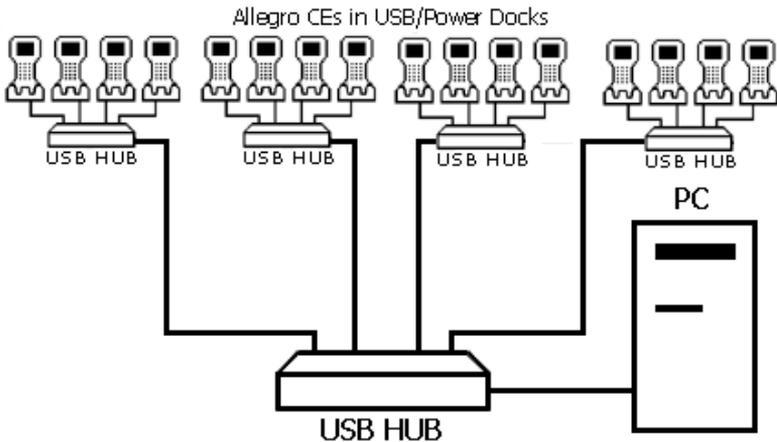
▲ USB MultiSync Connections

To use the USB MultiSync feature, you will need the following:

- USB/Power Dock for each Allegro
- Desktop PC running Windows 2000
- ActiveSync installed on the desktop PC
- USB hubs for the multiple USB/Power Docks

To prepare the Allegros for using MultiSync you must first connect all of the USB/Power Docks to the desktop PC through the use of USB hubs.

Configuration for Multiple Allegro CEs and USB/Power Docks



Begin using MultiSync by placing the Allegros into the USB/Power Docks. The Allegros start a connection attempt to the desktop PC. When the first Allegro connects to the desktop PC the other Allegros attempting a connection receive a signal that they cannot connect. The Allegros stop their connection attempt and try again a short time later. Once an Allegro has successfully connected and synchronized files MultiSync disconnects for the night.

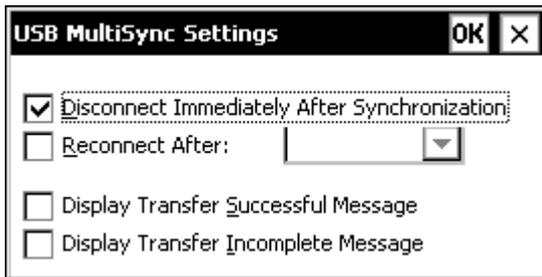
❖ *Note: While connecting multiple Allegros to one desktop PC, do not connect any other Windows CE devices to the desktop PC. These devices include pocket PC's and other handheld PC's. The Allegros may not get their turn to connect to the desktop PC if one of these other devices connects through ActiveSync to the desktop PC and does not disconnect.*

MultiSync Connection Types

There are two types of automated methods of data retrieval that MultiSync provides: A semi-automated method and a fully-automated method, which has two different capabilities. The fully-automated data retrieval method is only available through a user-made, custom-designed program that runs on the desktop PC.

Semi-Automated Mode

Semi-automated mode means there is a step that requires user interaction. The *Disconnect Immediately After Synchronization* option must be selected for the semi-automated mode, which is on the desktop PC.



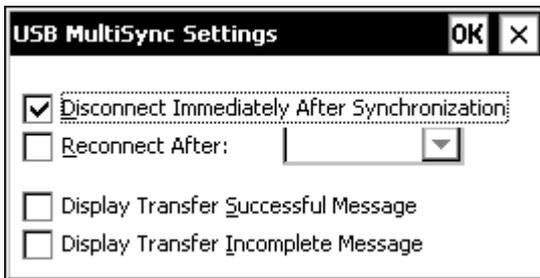
The user takes the information from the synchronized files and combines the multiple files into one report. The following day's data collection sheet for each Allegro is set up and saved into the correct synchronization folder on the desktop PC. At the end of the day, each Allegro connects to the desktop PC, sends the collected data, and receives the next day's data sheet that needs to be completed.

Fully-Automated Mode

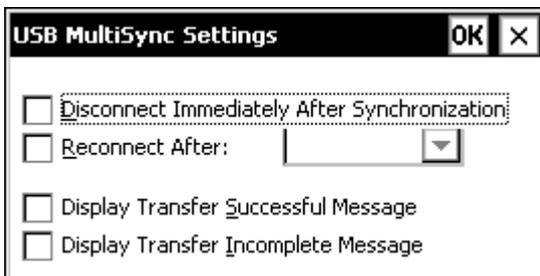
As stated previously, the fully-automated mode is only available if a user creates a custom program, which runs on the desktop PC. The fully-automated mode takes the transferred information, compiles it, transfers new data to the Allegro, and prompts the Allegro when to disconnect. The following MultiSync settings apply to the fully-automated connections (based on the type of program being used):

Disconnect Immediately After Synchronization

Selecting the *Disconnect Immediately After Synchronization* setting uses ActiveSync's file synchronization as part of the user-written program. The program runs the same way as the semi-automated method and disconnects immediately after file synchronization, allowing the other Allegros to connect and synchronize their files. The created program completes all of the data gathering and compiles the next day's data collection sheet for each Allegro. This program never directly communicated with the Allegro.



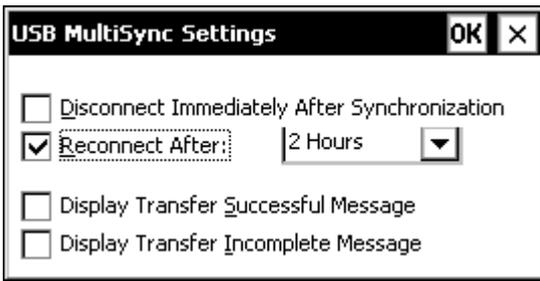
If *Disconnect Immediately After Synchronization* is not selected, the user-made program is not using the file synchronization, and will not need to be activated in the ActiveSync partnership. The program discovers which Allegro is connected and communicates with it. The program transfers data from anywhere on the Allegro to anywhere on the desktop PC or the other way around. The custom-written program sends the disconnect command to the Allegro.



Reconnect After

This option allows the desktop PC to reconnect the Allegro to the desktop PC after a designated time. This setting is used when a custom-made program needs to collect all the data from each Allegro, process the gathered information, manipulate the existing data or create new data for each Allegro from the processed information, and reconnect to transfer the new data back to the Allegros.

For example, leaving the Allegros in the Power Docks and selecting *2 Hours*, sets the desktop PC to wait two hours before reconnecting to the Allegro. With the file manipulations complete, the user-made program automatically reconnects the Allegro to the desktop PC, synchronizes the files, and disconnects for the night.



USB Hub Restrictions

Using multiple Allegros on a single desktop PC requires the use of USB hubs. This method is discussed in *Chapter 2* under the *Using USB Hubs for Multiple Connections* section. The following restrictions apply when using USB hubs with Allegros and the USB/Power Dock with MultiSync:

- 1) Do not connect any devices that use ActiveSync while using the MultiSync function. It cancels the MultiSync function and the Allegros do not connect and synchronize files.
- 2) The number of Allegros you can connect to one desktop PC depends on the connection and synchronization time, and the amount of time the Allegros will be in the USB/ Power Dock.

For example: You have several large files to transfer between the Allegro and desktop PC. The average time for the connection, synchronization, and disconnection is 30 minutes per Allegro. The Allegros are placed in the USB/Power Docks over night (approx. 14 hours). This results in a total of 28 Allegros for connecting to one desktop PC in the available time.

❖ *Note: This restriction depends on the time it takes for the connection, synchronization, and disconnect process. If the process takes only five minutes, the number of Allegros you can connect to the desktop PC is greatly increased. But the maximum number of USB devices you can connect to a desktop PC through USB hubs are 127 units.*

▲ Transferring Files Between the Allegro CE and the Desktop PC

Once the Allegro and the desktop PC are communicating, files can be transferred between the two computers. On the desktop PC, use *My Computer*, *Windows Explorer*, or another file management program to view and navigate through the contents of the desktop PC. On the Allegro double-tap on the *My Computer* icon to view and navigate through the folders and stored files. Use the drag and drop, cut, copy, and paste functions to move files between the Allegro and the desktop PC. On the Allegro, we recommend that you use the internal non-volatile storage, C_Drive, as the primary storage area. Refer to the *Storing Files and Programs* section later in this chapter for details.

File Conversion

When transferring files between the Allegro and the desktop PC, file conversion may be necessary. From the ActiveSync program on the desktop PC you can set up the file conversion options up as desired. Complete the following steps:

- 1) Select *Tools | Options*.



2) Click on the *Rules* tab on the *Options* screen.



3) Click on the *Conversion Settings...* button in the *File Conversion* box.

- 4) Select the *Convert files when synchronized, copied or moved* to enable that all file conversions are handled automatically, and click on the *OK* button.



*P*Tab File Converter

On the Allegro CE Utilities CD-ROM is a program called *P*Tab File Converter. You must install this converter on the desktop PC to facilitate the conversion of *P*Tab files on the Allegro to Excel files when they are transferred to the desktop PC, and Excel files on the desktop PC to *P*Tab files when they are transferred to the Allegro. Insert the Allegro CE Utilities CD-ROM into the computer, select *P*Tab File Converter, and follow the installation instructions.

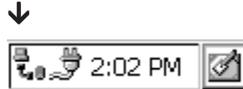
❖ *Note: ActiveSync must be installed on the desktop PC before you installed the PTab File Converter. ActiveSync deletes the Converter during installation.*

Remote Allegro File Maintenance

You can perform many convenient Allegro file maintenance operations remotely from the desktop PC using ActiveSync. Move, copy, and delete files from the Allegro window simply by dragging and dropping them or by using the cut and paste functions. You cannot start programs remotely. If you double-click on an executable file, the properties of that file are shown.

Disconnecting

When you are finished transferring files between the Allegro and the desktop PC, disconnect the Allegro by double-tapping on the *Connected* symbol located in the status box on the Taskbar.



The following type of screen is shown:



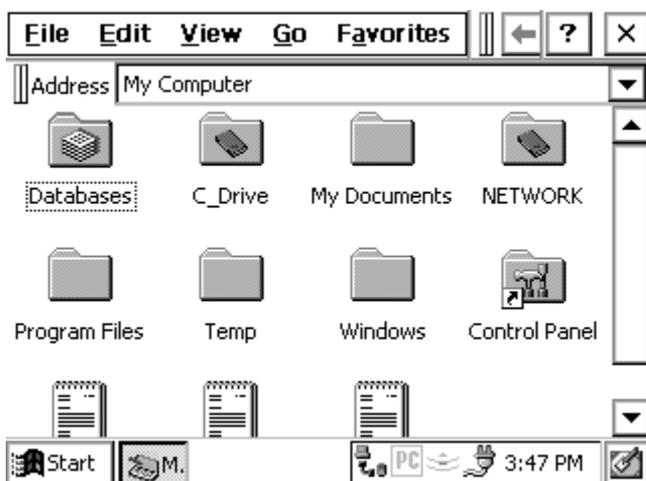
Tap on the *Disconnect* button. If you are using a serial port, you can now disconnect the communication cable.

❖ *Note: In addition to the steps outlined previously, the following actions cause the Allegro to disconnect from the desktop PC:*

- *Turning the Allegro or the desktop PC off*
- *Disconnecting the communication cable*
- *Misaligning the IrDA ports while using infrared communication*
- *Removing the Allegro from the USB/Power Dock*

Windows Explorer

Windows Explorer® allows you to browse the files and folders on the Allegro CE Field PC. To launch Windows Explorer double-tap the My Computer icon on the desktop, or tap on the Start button and select *Programs / Windows Explorer*. When Windows Explorer opens the contents of the My Computer folder are displayed:



The menu options and buttons available on the Allegro are similar to the options in Windows Explorer on the desktop PC. The buttons on the toolbar are only partially visible when Explorer is first opened. To see the extended toolbar, tap on the double bar that appears to the right of the menu options. To hide the buttons, tap the double bar that appears at the far left of the toolbar. Many of the options that can be accessed using the buttons can also be accessed through one of the menus.

▲ Moving and Copying Files

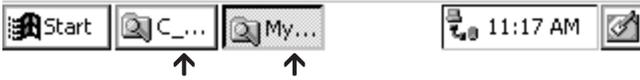
Using the Edit Menu Options

You can use the cut, copy, and paste commands to move and copy files. Select the file you want to act on and tap on *Edit / Cut* or *Edit / Copy*. Go to the location you want to move or copy the file to and tap on *Edit / Paste*.

Opening Two Explorer Screens

You can open two Windows Explorer screens, one open to the source folder or file and the other opens to the destination folder.

Both Explorer screens are shown as active application buttons in the Taskbar as shown below:



Both of these active application buttons represent Explorer screens

Open the Explorer screen with the source file or folder in it. Select the file you wish to move or copy and drag it to the destination folder's button on the taskbar. Continue to hold down the stylus on the button until the destination window opens, then drag the file or folder to the desired location in the window.

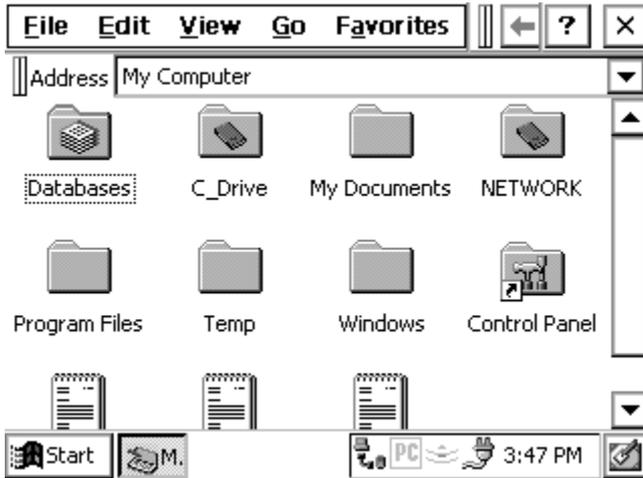
❖ *Note: When you are dragging a file or folder, it may not appear to be moving, even though it is. You may need to experiment with this procedure.*

Help

Use the on-line Help [?] for more details about the Windows Explorer program.

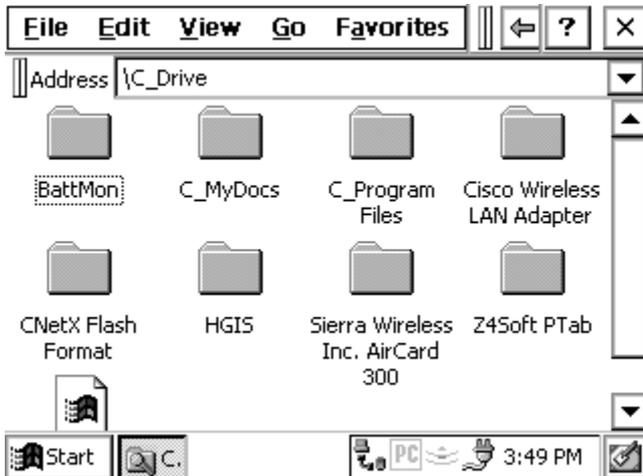
Storing Files and Programs

It is important that you understand the difference between storing data on the internal non-volatile storage versus RAM. From the Desktop, double-tap on the *My Computer* icon. The following folders have been created:



C_Drive, Solid State Storage

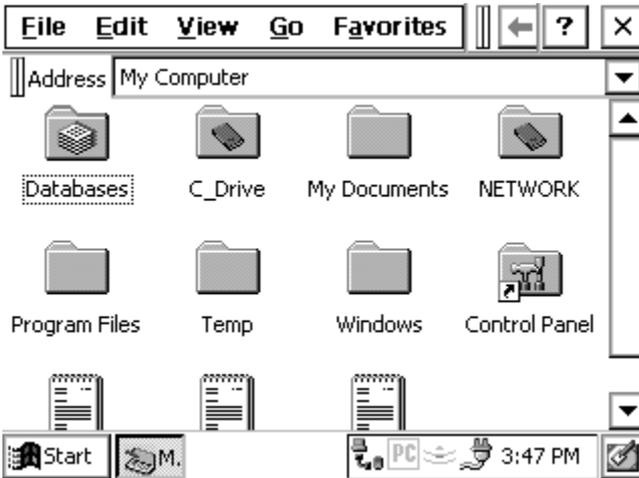
The solid state storage is non-volatile. Information is retained even when no power is supplied to the Allegro. We recommend that you use the internal solid state storage as your primary storage area. From *My Computer* double-tap on *C_Drive*. The following folders are shown:



The *C_MyDocs* and *C_Program Files* folders were created for you to use in place of the *My Documents* and *Program Files* folders that are in the RAM file system. The *C* reminds you that these files are on the *C_Drive*, which is a safe area to store data.

RAM File System

The storage ability of RAM may be temporary. If the batteries are drained or removed, or a *Restore System* utility is performed on the Allegro, information stored in RAM can be lost. (The super capacitor behaves like a backup battery and can maintain the RAM for up to five minutes while you change the batteries.) From the Desktop, double-tap on the *My Computer* icon. The following folders have been provided:

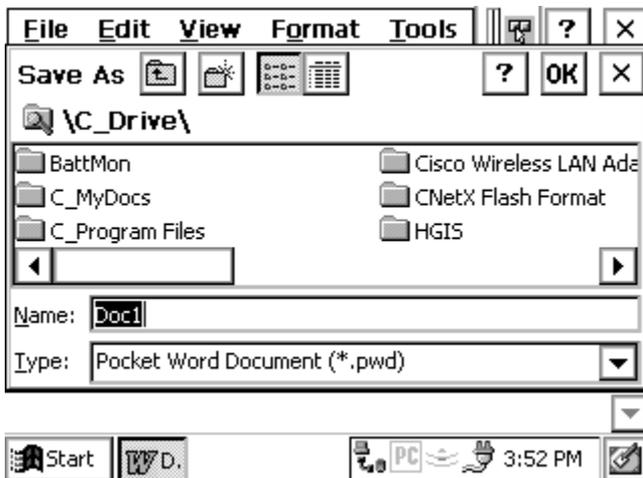


All of the folders are stored in RAM except for *C_Drive* and *PC Card*.

Some applications automatically bring up the *My Documents* folder when you save a file as shown in the example below. *My Documents* is stored in RAM, not on the internal non-volatile storage.



To save files to the internal non-volatile storage, switch the drive to the C_Drive before you save the file:



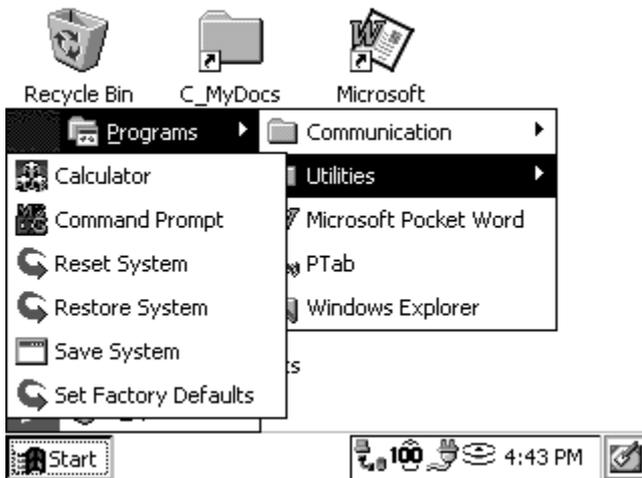
For more information about data storage options, refer to *Chapter 3, Memory Configuration and Data Storage Options*.

System Save/Restore Utilities

The Utilities Menu has multiple restart/save system options designed for the Allegro. The following are the restart/save options available to you:

▲ Save System

The Save System option creates a copy of RAM and saves it to a location on the C_Drive. This saved image of RAM is used when a Restore System is either executed by the menu selection, or when the operating system is loaded and an automatic restore is performed. It is located at *Start | Programs | Utilities | Save System*.



When Save System utility is selected, the following message is shown:



▲ Reset System

Reset System will cause all running applications to close unexpectedly and data may be lost. It then reloads all drivers and programs that run at start-up time. A reset leaves all RAM intact.

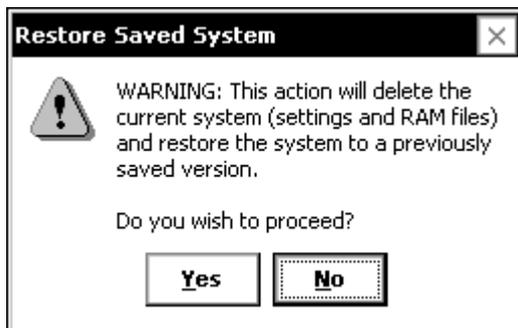
Installation programs often request a *reset* so that the changes the program made to the registry can be honored by system components as they reload. A reset is also useful when applications misbehave and render the system unusable.

You can execute a reset by selecting *Start / Programs / Utilities / Reset System*, or by holding down the *On/Off* key for more than eight seconds.

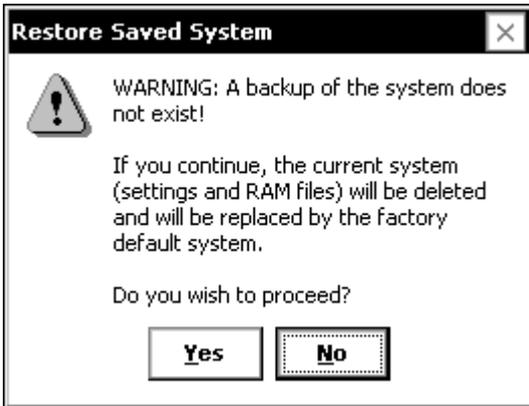
▲ Restore System

Restore System erases RAM, including all running programs and settings, and reloads the operating system.. When the operating system reloads, it will automatically restore the Saved System Backup from the C_Drive.

Make sure you save all valuable data to the internal non-volatile storage before executing this menu option. You can execute a Restore System by selecting *Start / Programs / Utilities / Restore System*. You will receive the following Warning screen, explaining to you what will happen if you proceed with this function, with the option of completing or canceled process.



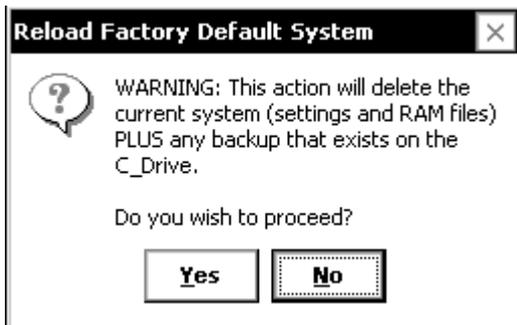
If you tap on yes to proceed but have not previously performed a Save System, the following screen will pop up. This screen tells you that a system backup does not exist, and will give you the option to cancel the Restore System.



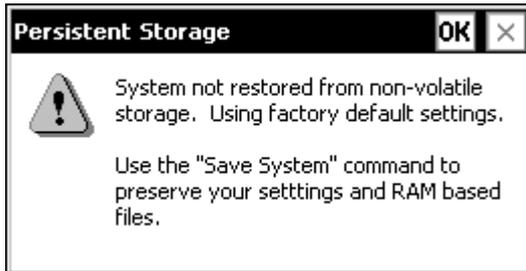
▲ Set Factory Defaults

Set Factory Defaults deletes the existing Saved System that is on the C_Drive, erases RAM, and reloads the operating system. When the operating system is reloaded, the automatic restoration won't find a backup, so the system will come up and in the factory default condition.

Before this selection is executed, the following message will pop up describing what is about to happen with the option and if you wish continue with or cancel the operation.



After performing this option you will need to recalibrate the Allegro's touchscreen. After recalibrating the touchscreen the following screen is a system notification that the Allegro is loading from the factory defaults. The message appears when the Allegro is restarted for the first time or after you perform the Load Factory Default System function.



Application Command Bars

Active applications display a command bar across the top of the screen. The command bar for Pocket Word is shown below:



This command bar contains drop-down menus, a help button [?] and an exit button [X] on the first line and a slider [|||] and a toolbar on the second line.

Use the menus and toolbar buttons as you would on the desktop or notebook PC. Refer to the information about a particular program later in this chapter for more specific details.

▲ Gaining More Viewing Area on the Screen

You can gain additional viewing area on the screen by hiding the menu bar, toolbar, and taskbar.

Moving the Menu Bar and Toolbar

The slider [|||] is used to adjust how much of the menu bar or toolbar is displayed. Touch the slider with the stylus and drag it directly into the upper left-hand corner to combine the menu bar and the toolbar into one line. Part of the toolbar is shown:



Once you have combined them, tap once on the slider to move the toolbar completely to the right and display the menu bar:



Tap the slider again to move it back to the left, displaying the toolbar again. You can also manually slide it to the right or left to view all of the menu bar, all of the toolbar, or part of each:



To view both bars on separate lines again, move the slider down where the toolbar was originally:



Hiding the Taskbar

You can hide the Taskbar, freeing up room on the display for applications. To do this, tap the Start button and select *Settings / Taskbar*. Under Taskbar options tap the box next to *Auto hide*.



↑ Press the stylus along the edge to view the Taskbar

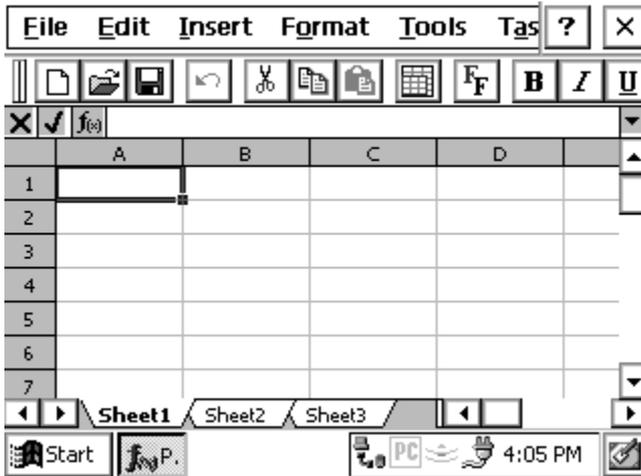
When the Taskbar is hidden, you can get it to appear if you press a stylus along the very bottom of the Allegro screen.

When the Taskbar is hidden you can press the *Start* button on the keyboard to bring up the Start menu. Press the Task Manager button to bring up the Task Manager and move between active applications and tasks.

Press  +  for Start menu,  for Task Manager

PTab Spreadsheet Program

PTab™ is a fully functional spreadsheet program designed to run on Microsoft CE Field PCs. It has the key features of common desktop spreadsheet programs.



You can easily create spreadsheets on the field computer or download an existing Excel® spreadsheet from the desktop PC. Using ActiveSync, files created in PTab are automatically converted to Excel files on the desktop PC and Excel files are converted back to PTab files on the Allegro.

▲ Excel Considerations

Follow these guidelines when you set up and save an Excel file that is going to be converted to PTab on the Allegro:

- If the Excel file has graphics incorporated into it, the spreadsheet cannot be converted to a PTab file. We recommend that you make a copy of the Excel spreadsheet, remove the graphics, then convert the modified copy.
- Do not use macros in the file.
- Save the file as an Excel 97 or version 5.0 file for best results.

▲ PTab File Converter

On the Allegro CE CD-ROM is a program called “PTab File Converter.” You must install this on the desktop PC to facilitate the conversion of PTab and Excel files to and from the Allegro and the desktop PC. Refer to the *Windows CE File Transfer Programs, Transferring Files Between the Allegro CE and the Desktop PC* section found earlier in this chapter for important details.

▲ Saving PTab Files

When you select *File / Save* or *File / Save As*, PTab automatically sets the path to `\C_Drive\C_MyDocs\`. Your file is saved to the non-volatile solid state storage. We recommend that you use the C_Drive as the primary storage area.

▲ Summary of PTab Features

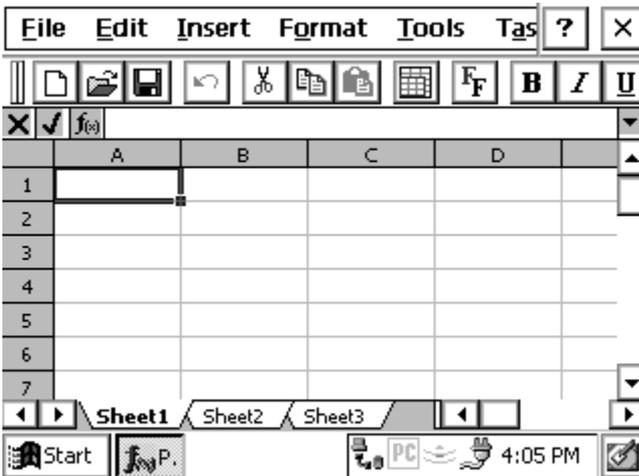
The main PTab version 2.1 features are listed below.

- Charts (Bar, Line, Pie, XY)
- Definable Automating Tasks (Macros)
- Auto Filter
- Protection of Sheet or Workbook
- Locked and Hidden Cells
- Export/Import Microsoft Excel (.xls) Files (Using Desktop Filters) and Microsoft Pocket Excel (.pxl) files directly
- Import CSV (Comma Separated Values)
- 256 Sheets x 16384 Rows x 256 Columns
- Numeric, Text, Date/Time, Boolean Values
- 127 Built-in Scientific, Statistical, Financial, Date/Time, Logical, Database and Text Functions and 32 Task Functions
- Multiple Undo/Redo
- Cut, Copy, Paste, Paste Special, Clear, Fill Cells, Insert/Delete Rows and Columns
- Set Row Height and Column Width, Hide/Unhide Rows and Columns, Autofit Row Heights and Column Widths
- Insert Function, Pointing
- Format: Numbers, Alignment, Font Size, Font Color, Font Style, Background Color, Borders, Protection
- Zoom (25% to 200%) and Full Screen Mode
- Freeze Titles (Row and Column Freezing)

- Use the Formula Bar or Edit Cells on the Spot
- Show/Hide: Column and row titles, Gridlines, Zero values
- Sheets: New, Rename, Delete
- Sort (Ascending, Descending, up to three keys), Go to Cell, Find/Replace
- Names (Define and Insert)
- Custom lists (e.g. Monday, Tuesday, Wednesday...)
- On-line help
- Password Protection

▲ Opening a PTab file

When you double-tap the PTab icon on the desktop, PTab opens and automatically brings up a new workbook, as shown below. If you would like to open an existing workbook choose *File / Open* and then specify the location of the file you wish to open.

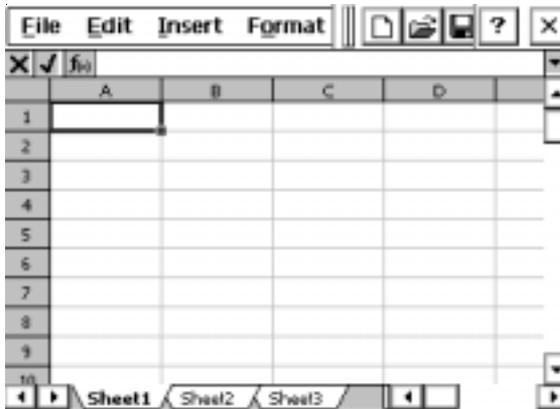


Adjusting the Viewing Area on the Display

A standard PTab screen is shown above with the menu bar, toolbar, formula bar, and taskbar showing. You can view seven lines of the spreadsheet on the screen.

When the menu bar, toolbar, formula bar, and taskbar are hidden, as shown below, you can view eight lines of the spreadsheet. Refer to the *Application Command Bars* section found earlier in this chapter for details on how to adjust the viewing area.

It is possible to view nine lines if you move the tool bar up to a line to share with the File, Edit, etc line. Refer to the *Application Command Bars* section found earlier in this chapter for details



▲ Entering Data/Editing Cells

A cell can contain: a number, text, date/time, Boolean value or formula. Tap on the formula bar (or double-tap the cell if the formula bar is off) to edit the cell's value/formula. If the number or date begins with a single quote ('), it is treated as text.

- Number (examples: 123.45, -1.2e55)
- Text
- Date/Time: The format is taken from the FPC regional settings. Go to *Start | Settings | Regional Settings*, then choose the *Number* tab and the *List separators* combo box. You must specify a year in the date. (Examples: 8/22/99 in the U.S.A. vs. 22.8.99 in Germany, 10:44, 12/30/1999 14:25:30.)
- Boolean: True or false
- Formula: Formulas begin with an equal sign (=). PTab evaluates the value. (Example: =A5+2, =Sum(B2:C7)). Formulas can contain:
 - Number, text, date/time, Boolean values
 - Cell references (examples: A4, \$B7, \$C\$3, Sheet1!A3, '2ndSheet'!\$C\$7)
 - Cell ranges (examples: A1:B4, 'Year 1999'!C5:D7)
 - Arithmetic operations: +, -, /, *, %, ^ (examples: A1*B5%, C7*100-5)
 - Comparative operators: =, <, <>, >, <=, >= (example: if(A1>B1, A1, B1))
 - Text joining operators: & (example: A1 & "years")
 - Functions

▲ PTab Menu Options

The PTab pull-down menu options include: File, Edit, Insert, Format, Tools, and Task. Each menu option is described in detail on the following pages. On-line help is accessed by pressing the [?] in the upper right- hand corner of the screen.

File Menu Options

The following functions are available from the File Menu option:

- *File / New*: Creates a new workbook.
- *File / Open*: Opens an existing workbook. You can open a PTab file (.pt), a Microsoft Pocket Excel file (.pxl) or a CSV file (.csv). Microsoft Excel files (.xls) are converted to PTab files during the desktop PC to Allegro file transfer. CSV files are ASCII text files containing values separated by a separator taken from the Allegro's regional settings. Select *Start / Settings / Control Panel / Regional Settings*, then choose the *Number* tab and the *List separators* combo box. To open a CSV file select *Text Files (*.csv)* from the *Type* combo box.
- *File / Save*: Saves the current workbook. If you have not previously saved the workbook, *Save* works the same as *Save As*.
- *File / Save As*: Saves the current workbook with a specified name.
- *File / Delete*: Deletes the specified file.
- *File / Recent Files*: Displays a list of recently opened files.
- *File / Password*: Sets or changes the password.
- *File / Close*: Closes the current workbook.

Edit Menu Options

The following functions are available from the Edit Menu option:

- *Edit / Undo*: Undoes the last action.
- *Edit / Redo*: Redoes the last action.
- *Edit / Cut*: Cuts the selected cells to the clipboard.
- *Edit / Copy*: Copies the selected cells to the clipboard. If you paste the copied contents of the clipboard into another application, cell texts separated by tabs are pasted.
- *Edit / Paste*: Pastes the clipboard contents to the sheet. You can paste text separated by tabs from another application.
- *Edit / Paste Special*: Pastes the clipboard contents to the sheet using special options (paste contents, paste formats, paste only the results of formulas, skip empty cells).
- *Edit / Clear All/Contents/Format*: clears contents+format/contents/format of selected cells.
- *Edit / Fill Right/Down/Series*: Fills the selected cells by the leftmost/topmost cell contents or fill series: linear, growth, date (date unit: day, weekday, month, year) or autofill (e.g. January, February, March).
- *Edit / Delete Cells*: Removes the selected rows/columns.

Insert Menu Options

The following functions are available from the Insert Menu option:

- *Insert / Cells*: Inserts the same number of rows/columns as selected.
- *Insert / Function*: Inserts a function to the current cell.
- *Insert / Chart*: Creates a simple chart (bar, line, pie, Y) from selected cells that contain that data and labels the chart.
- *Insert / Name*: Inserts a name in a formula.
- *Insert / Define Name*: Defines a name.

Format Menu Options

The following functions are available from the Format Menu option:

- *Format / Cells*: The *Format* tab lets you select the numeric format or date & time format for a cell(s). Set the horizontal and vertical cell alignment with the *Alignment* tab. Use the *Font* tab to select the font and the font size, color, and style. Format the borders from the *Border* tab. Protect locked or hidden cells from the *Protect* tab.
- *Format / Row*: Sets row height and hides or unhides rows.
- *Format / Column*: Sets column width and hides or unhides columns.
- *Format / Sheets*: Adds, renames, or deletes sheets.
- *Format / Zoom*: Changes the magnification of the sheet. You can specify 25 - 200 percent.
- *Format / Full Screen*: Toggles the full screen mode on and off.
- *Format / Freeze Titles*: Allows row and/or column titles to stay visible as you scroll the sheet. To freeze the vertical titles, select the column to the right of where you want the split to appear. To freeze the horizontal titles, select the row below where you want the split to appear. To freeze both titles, select the cell below and to the right of where you want the split to appear.

Tools Menu Options

The following functions are available from the Tools Menu option:

- *Tools / Go to*: Selects specified cell or range.
- *Tools / Find*: Finds a cell in the current sheet containing the specified text. You can search by rows or columns, look in values or formulas, search case sensitive/insensitive, and search entire cells.
- *Tools / Replace*: Finds a cell as outlined above and replaces the text as specified.
- *Tools / Sort*: Sorts a selected range of cells: ascending or descending, case sensitive/insensitive, sorts rows or columns, exclude header row from sort.
- *Tools / Filter*: Toggles the auto filter on and off.
- *Tools / Name / Insert/Define*: Defines and inserts a name in a formula.

- *Tools / Protection*: Toggles the Protect Sheet and Protect Workbook features on and off. Go to *Format / Cells / Protection* to lock/unlock and hide/unhide cells. Use Protect Sheet or Protect Workbook to activate these settings.
- *Tools / Options*: View options: enables/disables formula bar, showing of column and row titles, gridlines and zero values. General options: move after enter (none/right/down), full screen zoom. Custom lists: import from selection, delete list.

Task Menu Options

- *Task / Tasks*: Lets you create and run automating tasks (see *Automating Tasks* later in the section). User defined tasks can be added to this menu.
- *Tools / About*: Gives information about Z4Soft PTab spreadsheet: copyright, version and contact info.

▲ Converting Microsoft Excel Files (.xls)

To convert PTab files to Microsoft Excel files or Microsoft Excel files to PTab files, follow these steps:

- 1) Check conversion properties:
 - If you are using ActiveSync: Open ActiveSync. From the menu *Tools/Options* open the Options dialog box. Select the Rules tab and press the Conversion Settings... button.
 - Select (or confirm you have selected) Conversion from Excel(*.xls) to PTab(*.pt) in the Desktop-Device tab. Select "Microsoft Excel Worksheet in the list box, press the Edit button, and select "PTab filter (*.pt)" in the combo box.
 - Select Conversion from PTab(*.pt) to Excel(*.xls) in the Device-Desktop tab. Select "PTab file" in the list box, press the Edit button, and select "PTab filter (*.xls)" in the combo box.
- 2) Convert your files: Conversion is done by dragging the files from/to the desktop computer to/from the document folder on the Allegro.

▲ Spreadsheet Functions

The following sections are the available spreadsheet functions available in PTab.

Math & Trig Functions

Abs(number) Returns the absolute value of a number. Example: Abs (-3) equals 3.

Acos(number) Returns the arccosine of a number. The number must be from -1 to 1.

Example: Acos(-0.5) equals 2.094395.

Acosh(number) Returns the inverse hyperbolic cosine of a number. The number must be greater or equal to 1.

Example: Acosh(1) equals 0.04613.

Asin(number) Returns the arcsine of a number. The number must be from -1 to 1.

Example: Asin(-0.5) equals -0.5236.

Asinh(number) Returns the inverse hyperbolic sine of a number. Example: Asinh(8) equals 2.77647.

Atan(number) Returns the arctangent of a number.

Example: Atan(0.5) equals 0.46365.

Atan2(x,y) Returns the arctangent of the specified x and y coordinates.

Example: Atan2(1, 1) equals 0.785398.

Atanh(number) Returns the inverse hyperbolic tangent of a number. The number must be between -1 and 1 (excluding -1 and 1).

Example: Atanh(-0.1) equals -0.10034.

Ceiling(number, significance) Returns the number rounded up to the nearest multiple of the significance.

Example: Ceiling(10.43, 0.1) equals 10.5.

Combin(number, numberChosen) Returns the number of combinations. Number is the number of items, numberChosen is the number of items in each combination.

Example: Combin(10, 2) equals 45.

Cos(number) Returns the cosine of the given angle.

Example: Cos(0.5) equals 0.87758.

Cosh(number) Returns the hyperbolic cosine of a number.

Example: Cosh(5) equals 74.20995.

Degrees(number) Converts radians into degrees.

Example: Degrees(Pi()/2) equals 90.

Even(number) Returns the number rounded up to the nearest even integer.

Example: Even(1.3) equals 2.

Exp(number) Returns e raised to the power of the number.

Example: Exp(Ln(2)) equals 2.

Fact(number) Returns the factorial of a number. The number must be nonnegative number.

Example: Fact(5) equals 120.

Floor(number, significance) Rounds the number down, toward zero, to the nearest multiple of the significance.

Example: Floor(3.5, 1) equals 3.

Int(number) Rounds a number down to the nearest integer. Example:

Int(1.7) equals 1.

Ln(number) Returns the natural logarithm of a number.

Example: Ln(Exp(2)) equals 2.

Log(number, base) Returns the logarithm of a number to the base you specify. If the base is omitted, it is assumed to be 10.

Example: Log(100, 10) equals 2.

Log10(number) Returns the logarithm (base 10) of a number.

Example: Log10(100) equals 2.

Mod(number, divisor) Returns the remainder after the number is divided by the divisor.

Example: Mod(5, 2) equals 1.

Odd(number) Returns the number rounded up to the nearest odd integer.

Example: Odd(2) equals 3.

Pi() Returns the number 3.14159265358979, the mathematical constant PI.

Power(number, power) It raises the number to the power. You can also use the “^” operator (e.g. 4^2).

Example: Power(4,2) equals 16.

Product(number, number, ...) Multiplies all the numbers given as arguments and returns the product.

Example: A1 contains 2, Product(A1, 5) equals 10.

Radians(number) Converts degrees to radians.

Example: Radians(180) equals 3.14159.

Rand() Returns a random number greater than or equal to 0 and less than 1. A new number is returned every time the workbook is recalculated.

Round(number, number) Rounds a number to the specified number of digits. Example: Round(5.46, 1) equals 5.5.

RoundDown(number, numDigits) Rounds the number down, toward zero, to the specified number of digits.

Example: RoundDown(40.8, 0) equals 40.

RoundUp(number, numDigits) Rounds the number up, away from zero, to the specified number of digits.

Example: RoundUp(39.1, 0) equals 40.

Sign(number) Returns 1 if the number is positive, 0 if the number is 0, and -1 if the number is negative.

Example: Sign(-5) equals -1.

Sin(number) Returns the sine of the given angle.

Example: Sin(Pi()/2) equals 1.

Sinh(number) Returns the hyperbolic sine of the number.

Example: Sinh(3) equals 10.01787.

Sqrt(number) Returns the square root.

Example: Sqrt(4) equals 2.

Sum(number, number, ...) Return the sum of all the numbers in the list of arguments.

Example: Sum(10, 20) equals 30.

SumIf(range, criteria, sumRange) It sums up the values of only those cells from the sumRange for which the corresponding cells in the range satisfy the criteria.

Example: Sumif(A1:A5, ">100000", B1:B5).

Tan(number) Returns the tangent of the given angle.

Example: Tan(5) equals -3.38051.

Tanh(number) Returns the hyperbolic tangent of the number.

Example: Tanh(1) equals 0.76159.

Trunc(number, numDigits) Truncates the number to an integer. The argument numDigits is the precision of the truncation. The default value for the numDigits is 0.

Example: Trunc(-7.8) equals -7.

Statistical Functions

Average(number, number, ...) Returns the average of the arguments.

Example: Average(1, 2, 3) equals 2.

Count(number, number, ...) Counts how many numbers are in the list of arguments.

Example: B1 contains 5, B2 contains 3, Count(B1:B2) equals 2.

CountA(number, number, ...) Counts the number of nonblank values in the list of arguments.

Example: A1 contains 2, A2 is blank, CountA(A1:A2) equals 1.

CountBlank(range) Counts empty cells in the specified range of cells.

CountIf(range, criteria) Counts the number of cells within the range that meets the given criteria.

Example: A1 contains 6, A2 contains 3, CountIf(A1:A2, ">5") equals 1.

Max(number, number, ...) Returns the maximum value in the list of arguments.

Example: Max(1, 2, 3) equals 3.

Min(number, number, ...) Returns the minimum value in the list of arguments.

Example: Min(1, 2, 3) equals 1.

Permut(number, numberChosen) Returns the number of permutations. Number is the number of objects, numberChosen is the number of objects in each permutation.

Example: Permut(10, 2) equals 90.

Stdev(number, number, ...) Estimates the standard deviation based on a sample.

StdevP(number, number, ...) Calculates the standard deviation of the entire population.

Var(number, number, ...) Estimates the variance based on a sample.

VarP(number, number, ...) Calculates the variance of the entire population.

Financial Functions

Ddb(cost, salvage, life, period, factor) Returns the depreciation of an asset for a specified period using the double-declining balance method (you can specify another method). Cost is the initial cost of the asset. Salvage is the value at the end of the depreciation. Life is the number of periods over which the asset is being depreciated. Period is the period for which you want to calculate the depreciation. Period must use the same units as life. Factor is the rate at which the balance declines. If factor is omitted, it is assumed to be 2. All the arguments must be positive numbers.

Example: Ddb(30000, 500, 3650, 10) equals 16.357.

Fv(rate, nper, pmt, pv, type) Returns the future value of an investment. Rate is the interest rate per period. Nper is the total number of payment periods in an annuity. Pmt is the payment made each period. Pv is the present value. Type can be 0 or 1 (0 - payments at the end of the period, 1 - at the beginning). If type is omitted, it is assumed to be 0.

Example: Fv(0.01, 12, -500) equals 6341.25.

IPmt(rate, per, nper, pv, fv, type) Returns the interest payment for an investment. Per is the period for which you want to find the interest (must be $1 \leq \text{per} \leq \text{nper}$). For more information see Pmt.

Example: Ipmt(0.01, 1, 24, 5000) equals -50.

Irr(values, guess) Returns the internal rate of return. Values is a reference to cells that contain the numbers for which you want to calculate the internal rate of return. Guess is your guess of the result. If guess is omitted, it is assumed to be 0.1.

Example: A1:A6 contain the following values: \$-100,000, \$10,000, \$16,000, \$20,000, \$22,000 and \$24,000 Irr(A1:A6) equals -2.43%.

Nper(rate, pmt, pv, fv, type) Returns the number of periods for an investment. For more information see **Pmt**.

Example: Nper(0.01, -100, -1000, 20000) equals 101.

Npv(rate, value1, value2...) Returns the net present value of an investment. Rate is the rate of discount over the length of one period. Value1, value2, are arguments representing the payments (negative values) and income (positive values).

Example: Npv(10%, -10000, 4000, 5000, 6000) equals 2069.53.

Pmt(rate, nper, pv, fv, type) Returns the periodical payment for an annuity. Rate is the interest rate per period, nper is the number of payment periods in an annuity, pv is the present value, fv is the future value, type see **Fv**.

Example: Pmt(0.01, 10, 10000) equals -1055.82.

PPmt(rate, per, nper, pv, fv, type) Returns the payment on the principal for a given period of an investment. For more information see **Pmt**. Example: Ppmt(0.01, 1, 36, 1000) equals -23.21.

Pv(rate, nper, pmt, fv, type) Returns the present value of an investment. For more information see **Pmt**.

Example: Pv(0.01, 5*12, 1000, 0) equals -44955.04.

Rate(nper, pmt, pv, fv, type, guess) Returns the interest rate per period of an annuity. For more information see **Pmt**. Guess is your guess for what the rate will be.

Example: Rate(36, -300, 10000, 0) equals 0.42%.

Sln(cost, salvage, life) Returns the straight-line depreciation of an asset for one period. Cost is the initial cost of the asset. Salvage is the value at the end of the depreciation. Life is the number of periods.

Example: Sln(40000, 5000, 8) equals 4375.

Syd(cost, salvage, life, period) Returns the sum-of-years' digits depreciation of an asset for a specified period. Cost is the initial cost of the asset. Salvage is the value at the end of the depreciation. Life is the number of periods. Period is the period.

Example: Syd(40000, 5000, 8, 8) equals 972.22.

Date & Time Functions

Date(year, month, day) Returns a particular date.

Example: Year(Date(1999, 1, 1)) equals 1999.

DateValue(dateText) Converts a date in the form of text to a serial number.

Example: DateValue("1/1/99") equals 36161.

Day(date) Returns the day of a date.

Example: Day(1/1/99) equals 1.

Hour(time) Returns the hour of a time.

Example: Hour(2:45) equals 2.

Minute(time) Returns the minutes of a time.

Example: Minute(2:45) equals 45.

Month(date) Returns the month of a date.

Example: Month(1/1/99) equals 1.

Now() Returns the current date and time.

Second(time) Returns the seconds of a time.

Example: Second(Time(1, 45, 20)) equals 20.

Time(hour, min, sec) Returns a particular time. *Time(1,45,0)* equals 1:45.

TimeValue(timeText) Converts a time in the form of text to a serial number.

Example: TimeValue("1:45") equals 0.072917.

Today() Returns the current date.

Weekday(date, type) Returns the day of the week corresponding to a date.

If type = 1 or omitted returns: 1 (Sunday) through 7 (Saturday). Example: Weekday(Date(1999,8,15)) equals 1.

Year(date) Returns the year of a date.

Example: Year(Date(1999, 1, 1)) equals 1999.

Logical Functions

And(logical1, logical2, ...) Returns TRUE if all its arguments are TRUE, otherwise returns FALSE.

Example: And(FALSE, TRUE) equals FALSE.

If(condition, trueValue, falseValue) Returns trueValue if condition evaluates to TRUE or falseValue if condition evaluates to FALSE. Example: If(A1>A2, "OK", "Cancel").

Not(logical) Reverses logical value.

Example: Not(TRUE) equals FALSE.

Or(logical1, logical2, ...) Returns TRUE if any argument is TRUE, otherwise return FALSE.

Example: Or(FALSE, TRUE) equals TRUE.

Text Functions

Char(number) Returns the character specified by a number.

Example: Char(66) equals B.

Code(text) Returns a numeric code for the first character in a text string.

Example: Code("ABC") equals 65.

Exact(text1, text2) Returns TRUE if two text strings are identical (case sensitive).

Example: Exact("palm", "PALM") equals FALSE.

Find(findText, withinText, start) Finds string (findText) within another text string (withinText), and returns its starting position.

Example: Find("A", "CBA", 1) equals 3.

Left(text, num_chars) Returns the leftmost characters from a text string.

Example: Left("Allegro", 2) equals "Al".

Len(text) Returns the number of characters in a text string.

Example: Len("Allegro") equals 7.

Lower(text) Converts text to lowercase.

Example: Lower("Allegro FPC") equals "allegro fpc".

Mid(text, start, count) Returns a specific number of characters from a text string, starting at the position start.

Example: Mid("Allegro", 3, 2) equals "le".

Proper(text) Capitalizes the first letter of all words. Converts all the other letters to lowercase.

Example: Proper("this CHAPTER") equals "This Chapter".

Replace(oldText, start, count, newText) Replaces part of a text string oldText, based on the number of characters you specify (start, count), with a newText.

Example: Replace("Allegro", 5, 1, "-Size") equals "Alle-sizero".

Rept(text, nTimes) Repeats text the given number of times.

Example: Rept("-", 5) equals "-----".

Right(text, num_chars) Returns the rightmost characters from a text string.

Example: Right("Allegro", 2) equals "ro".

Substitute(text, oldText, newText, n) Substitutes newText for oldText in a text string. N specifies which occurrence of the oldText you want to replace.

Example: Substitute("1/1/1999", "1", "2", 2) equals "1/2/1999".

T(value) Returns the text referred to by value.

Example: A1 contains "AAA" then T(A1) equals "AAA".

Upper(text) *Converts text to uppercase.*

Example: Upper("Allegro FPC") equals ALLEGRO FPC.

Value(text) *Converts a text that represents a number to the number.*

Example: Value("1000") equals 1000.

Information & Lookup Functions

Column(reference) *Returns the column number of the given reference.*

Columns(range) *Returns the number of columns in an array or reference.*

Example: Columns(A1:D1) equals 4.

HLookup(lookupValue, data, row) *Searches for a value in the top row of a data table and then returns a value in the same column from a row you specify. LookupValue is the value to be found in the first row of the data table. Data is the table of data. Row is the row number in the data table from which the matching value is returned.*

Index(range, rowNum, colNum) *Returns a reference to a specified cell within range.*

IsBlank(value) *Returns TRUE if the value is blank.*

IsErr(value) *Returns TRUE if the value is any error value except !!NA.*

IsError(value) *Returns TRUE if the value is any error value.*

IsLogical(value) *Returns TRUE if the value is a logical value.*

IsNA(value) *Returns TRUE if the value is error value !!NA.*

IsNonText(value) *Returns TRUE if value is any value that is not text.*

IsNumber(value) *Returns TRUE if the value is a number.*

IsRef(value) *Returns TRUE if the value refers to a reference.*

IsText(value) *Returns TRUE if the value is text.*

Match(lookupValue, lookupRange, matchType) *Returns the position of an item in a range that matches a specified value in a specified order.*

LookupValue is the value you want to match in the range.

N(value) *Returns a value converted to a number.*

NA() *Returns the error value !!NA (no value is available).*

Row(reference) *Returns the row number of the given reference.*

Rows(range) *Returns the number of rows in a reference or array. Example: Rows(A1:A5) equals 5.*

VLookup(lookupValue, data, column) *Searches for a value in the leftmost column of a data table, and then returns a value in the same row from a column you specify. LookupValue is the value to be found in the first column of the data table. Data is the table of data. Column is the column number in the data table from which the matching value is returned.*

Database Functions

Daverage(database, field, criteria) Averages the values in the specified database column matching the conditions.

Dcount(database, field, criteria) Counts the cells containing numbers in the specified database column matching the conditions.

Dcounta(database, field, criteria) Counts nonblank cells in the specified database column matching the conditions.

Dget(database, field, criteria) Extracts a single value from the specified database column matching the conditions.

Dmax(database, field, criteria) Returns the largest number in the specified database column matching the conditions.

Dmin(database, field, criteria) Returns the smallest number in the specified database column matching the conditions.

Dproduct(database, field, criteria) Multiplies the values in the specified database column matching the conditions.

Dstdev(database, field, criteria) Estimates the standard deviation based on a sample, using the numbers in the specified database column matching the conditions.

Dstdevp(database, field, criteria) Calculates the standard deviation of a population based on the entire population, using the numbers in the specified database column matching the conditions.

Dsum(database, field, criteria) Adds the numbers in the specified database column matching the conditions.

Dvar(database, field, criteria) Estimates variance based on a sample, using the numbers in the specified database column matching the conditions.

Dvarp(database, field, criteria) Calculates the variance of a population based on the entire population, using the numbers in the specified database column matching the conditions.

Help

Use the on-line Help [?] located in the upper right-hand corner of the display for more details about the PTab spreadsheet program.

▲ Automating Tasks

The Tasks function allows you to create simple spreadsheet applications (macros) to automate tasks.

Task Dialog Box

Use the Tasks function to define, modify, and run automating tasks. To open the Task dialog box, go to *Task / Workbook Task*.



The Task options are described below:

Run: *Runs the selected task*

New: *Creates a new task*

Edit: *Edits or renames the selected task*

Delete: *Permanently deletes the selected task*

Run on

To start a task, select one of the following events:

(no event): *Selecting this option runs the task only from this dialog using the Run button.*

Menu Item: *Selecting this option adds a new item to the menu task. In the following edit line enter the label of the menu item you are using.*

Tap On Cell: *Selecting this option executes a task by tapping on a cell or cell range. In the following edit line enter the cell or cell range reference. Example: Task body: Zoom(80), select Tap on Cell: A1. Now by tapping on A1 your workbook zooms to 80%.*

New Value In: *Selecting this option to execute this task when a cell value is entered. In the following edit line enter a cell or cell range reference.*

Tutorial

To create a simple task, follow these steps:

- 1) Select *Task / Task Workbook* to open the Task Workbook dialog box.
 - 2) Tap the *New...* button to open Define Task dialog box.
 - 3) Type in the word *Hello* to name your task (*Task Name* is highlighted and is overwritten with your word)
 - 4) Tap on the *fn()* button to open the Insert Function dialog box.
 - 5) Select the function *MsgBox* (message box) from the list and click *OK*.
 - 6) Type "Hello World" between the parenthesis (the cursor should already be between the parenthesis):
`MsgBox("Hello World")`
- ❖ *Note: you must include the quotation marks.*
- 7) Tap *OK* to close the Define Task dialog box and return to the Task dialog box.
 - 8) Select *Run on Menu Item* and tap the close button.
 - 9) When you open the Task menu, Hello is now listed. Select Hello to run your new task. A message box saying Hello World is displayed.

Cell Automating Tasks

Use Cell Task menu item (Task>Cell Task) to define or modify automating tasks stored in a cell.

Cell Text: *Text to display in a cell.*

Task Icon: *Choose an icon you want to display in a cell. You can run the task by tapping on this icon. Choose (no icon) if you want to execute this task by tapping on the cell.*

Task Definition: *Task source. Example: ShowPicture("myBMW.jpg").*

fn(): Tap on this button to open Insert function dialog box.

PTab uses cell tasks to insert pictures, sounds or hyperlinks into cells (see Insert in Cell>Picture.../Sound.../ Hyperlink...) or to save charts (see Chart/Options). You can use cell tasks for short "macros" that you can execute by tapping on a cell or cell icon.

Variables

You can use variables in tasks.

Example:

```
ok = YesNoBox("Finish task?")
if ok then
  Return()
end
```

There are no global variables. Use a workbook to store global data.

How to Set and Get Cell Values

Use Set(reference, value) function to set cell value.

Example:

```
Set(A1,1000)
```

If you need to create a cell reference using row and column numbers (column A has number 1) use function CellRef(col, row [, sheetIndex]).

Parameter sheetIndex is optional.

Example:

```
i = 1
while i < 100
  Set(CellRef(1,i), i)
  i = i+1
end
```

If Command

```
if condition then
  commandsTrue
end
if condition then
  commandsTrue
else
  commandsFalse
end
```

Executes commandsTrue if a condition is True or commandsFalse if a condition is False.

Examples:

```
if a1<>0 then Set(c1, b1/a1) end
if a1=0 then
  Set(c1, "Sorry...")
else
  Set(c1, b1/a1)
end
```

While Command

```
while condition
  commands
end
```

Executes commands as long as a condition is True.

Example:

```
while a1>0
  Set(CellRef(2, a1), a1*100)
  Set(a1, a1-1)
end
```

You can structure your code into more simple tasks and then you can *call previously defined task from within a task* using its name.

Example:

```
Set(a1,100)
while a1>0
  Hello
Set(a1,a1-1)
end
```

Automating Tasks Functions Reference

Parameters in [] are optional.

ActiveCell()

Returns the active (highlighted) cell.

Example: Set(ActiveCell(), "Hello World!")

ActiveSheet([index])

Returns the number of the active sheet (1-based) and selects the new one if index is specified. Returns "!!Val" if index is less than 1 or greater than number of sheets.

Example: ActiveSheet(2)

CellRef(col, row [, sheetIndex])

Returns the cell reference.

Example: Set(CellRef(a1,2), 123);

CellTask(text, task [, icon])

Creates cell task in the current cell. Text is cell label visible in sheet, task is task source and icon is number of icon (see Cell Task dialog for more info). If icon=0 (or if this parameter is omitted) cell task is executed by tapping on cell. If icon>0 then cell task is executed by tapping on icon.

Example: CellTask("Picture", "ShowPicture("pic.jpg"), 3)

```
Chart(["Type:Bar/Line/LineMarkers/Pie/XY/XYLines/XYLinesMarkers",  
"Title:ChartTitle",  
"XTitle:XaxisTitle",  
"YTitle:YaxisTitle",  
"Series:Rows" or "Series:Columns",  
"Legend" or "Legend:No",  
"Xaxis" or "Xaxis:No",  
"Yaxis" or "Yaxis:No",  
"Xgrid" or "Xgrid:No",  
"Ygrid" or "Ygrid:No",  
"AutoScale" or "AutoScale:No"])
```

Shows the chart of the selection. All parameters are optional and their order is not important.

Default values of parameters: Chart("Type:Bar", "Series:Rows", "Legend", "Xaxis", "Yaxis", "Xgrid:No", "Ygrid:Yes", "AutoScale").

Example: Sel(a1:c20)

```
Chart("Type:XY", "Title:Sin(x)", "Xgrid", "Ygrid")  
Sel(b2:f5)  
Chart("Series:Columns", "AutoScale:No")
```

Clear()

Clears contents in the current selection.

Example: Clear()

ClearFormat()

Clears format in the current selection.

Example: ClearFormat()

ColHide([hideUnhide])

Returns whether the first column of current selection is hidden and hides (true) or unhides (false) selected columns if hideUnhide is specified.

Example: Sel(B1:B1)

```
ColHide(true)
```

ColWidth([width])

Returns column width of the first column of current selection and sets width of selected columns if width is specified.

Example: Sel(B1:C1)

```
ColWidth(100)
```

Copy()

Copies the current selection to the clipboard.

Example: Sel(A1:A5)

Copy()

Sel(B1)

Paste()

DeleteCells(colsRows)

Deletes cells (true - columns, false - rows).

Example: DeleteCells(true)

FileBox(title [,filter])

Opens a file dialog box with the title and the file type filter.

Example: picture=FileBox("Pictures",
"*.jpg;*.gif;*.bmp;*.2bp;*.xbm")
ShowPicture(picture)

Filter(onOff)

Sets auto filter (true = autofilter on, false = autofilter off). Auto filter range is the current selection.

Example: Filter(true)

FindDialog()

Shows Find dialog box.

Example: FindDialog()

FormatPainter(cellRef)

Formats the current selection using the format from the specified cell (cellRef).

Example: FormatPainter(f2)

FreezeTitles(onOff)

Freeze/unfreeze titles.

Example: Sel(a2)

FreezeTitles(true)

FullScreen(onOff)

Returns the current screen mode and sets it if onOff is specified (true = full screen, false = normal).

Example: FullScreen(true)

IBrowser([webpage])

Runs Internet browser.

Example: IBrowser("www.z4soft.com")

InputBox(title)

Shows input dialog box with the title.

Example: age = InputBox("Enter your age")

InsertCells(colsRows)

Inserts cells (true - columns, false - rows).

Example: InsertCells(false)

LastCol([rowNumber])

Returns the last nonblank cell in the whole sheet (if rowNumber is not specified) or in the specified row.

Example: last = LastCol()

last = LastCol(15)

LastRow([columnNumber])

Returns the last nonblank cell in the whole sheet (if columnNumber is not specified) or in the specified column.

Example: last = LastRow()

last = LastRow(15)

ListBox(title, range)

Shows list box dialog with items from range and with the title and returns the index of the selected item.

Example: med = ListBox("Choose medicine",

Medicines!a1:a50)

ListBox2(title, item, item2, item3... item29)

Shows list box dialog with items: item1, item2, item3... and with the title and returns the text of the selected item.

Example: car = ListBox("Choose car",

"BMW", "Jaguar", "Ferrari")

Modified([onOff])

Returns true if the Modified flag is true (workbook was modified) and sets the Modified flag to onOff (true or false).

Example: Modified(false)

MsgBox(text)

Shows the Message Box with the text.

Example: MsgBox("Hello")

Paste([contents, format, skipBlanks, onlyResults])

Pastes the clipboard to the current selection.

Example: Sel(A1:A5)

Copy()

Sel(B1)

Paste()

All arguments are optional. Paste() function without arguments works as Edit/Paste menu command. The Paste() function with arguments works as Edit/Paste Special menu comment. The Default values for arguments are Paste(true, true, false, false).

Example for paste contents, preserve previous format:

```
Paste(true, false)
```

PlaySound([filename])

Plays a sound (file of type *.wav). If you use this function without parameter, any currently playing sound is stopped.

Example: PlaySound("Song1.wav")

RangeRef(col1, row1, col2, row2 [, sheetIndex])

Returns the range reference.

Example: MsgBox(Sum(RangeRef(a1,2,20,2)))

Return()

Stops task execution.

Example: if a1=0

```
MsgBox("A1 must not be 0")
```

```
Return()
```

```
end
```

RowHeight([height])

Returns row height of the first row of current selection and sets height of selected rows if height is specified.

Example: Sel(A2:A7)

```
RowHeight(10)
```

RowHide([hideUnhide])

Returns whether the first row of current selection is hidden and hides (true) or unhides (false) selected rows if hideUnhide is specified.

Example: Sel(A2:A5)

```
RowHide(true)
```

RunApp(application [,parameters])

Runs and application (program) with optional parameters.

Example: RunApp("iexplore.exe", "http://z4soft.com")

Sel([range])

Returns the current selection and select the new one if range is specified.

Example: Sel(a2:c12)

Set(reference, value)

Sets cell specified by reference to the value.

Example: Set(a1, 12.34)

SheetName(sheetNum)

Returns name of the specified sheet.

Example: name = SheetName(1)

SheetsCount()

Returns a number of sheets in workbook.

Example: MsgBox("Sheets count is "&SheetsCount())

ShowPicture(pictureFile [,Time])

Shows a picture (file of types: *.jpg, *.gif, *.bmp, *.2bp, *.xbm). Use the second (optional) parameter to close a picture window after time seconds. Without specifying the time parameter a picture can be closed by tapping on it.

Example: ShowPicture("car.bmp")

Sort(firstBy[, ascending, secondBy, ascending, thirdBy, ascending, headerRow, caseSensitive, sortRows])

Sorts the current selection. FirstBy, secondBy, thirdBy - column numbers (or row numbers if sortRows is true). Sorts ascending (ascending = true) or descending (ascending = false).

For more info see Sort dialog in Tools menu.

Example: Sel(a1:c20)

Sort(1)

TopLeftCell(reference)

Returns the top left cell on the screen and sets it if reference is specified.

Example: TopLeftCell(A1)

YesNoBox(text)

Shows the box giving the choice yes or no and returns true if user selects Yes.

Example: if YesNoBox("Stop") then

Return()

end

Zoom([magnification])

Returns current value of zoom magnification and sets it to magnification if specified.

Example: Zoom(65)

Zoom(Zoom()-10)

Automating Task Examples

Selecting cells from a2 to the last cell

```
Sel(RangeRef(1, 2, LastCol(), LastRow()))
```

Selecting column by tapping the cell in the first row (onTap: \$A\$1:\$A\$255)

```
curCol = Column(ActiveCell())  
Sel(RangeRef(curCol, 1, curCol, LastRow()))
```

Entering a product name to the tapped cell in column B from product table in Sheet2 (onTap:\$B\$1:\$B\$16384)

```
choice = ListBox("Select a product", Sheet2!a1:a16384)  
Set(ActiveCell(), CellRef(1, choice, 2))
```

Get current selection coordinates:

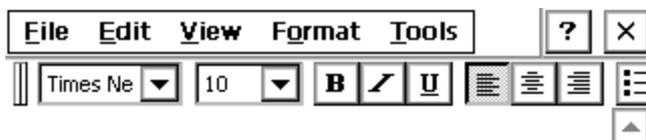
```
col = Col(Sel())  
row = Row(Sel())  
numCols = Cols(Sel())  
numRows = Rows(Sel())
```

Keyboard Shortcuts

Format Cells	Ctrl+1	Fill Right	Ctrl+R
Select All	Ctrl+A	File Save	Ctrl+S
Copy	Ctrl+C	Paste	Ctrl+V
Fill Down	Ctrl+D	Close	Ctrl+W
Find	Ctrl+F	Cut	Ctrl+X
Goto	Ctrl+G	Redo	Ctrl+Y
Replace	Ctrl+H	Undo	Ctrl+Z
File New	Ctrl+N	Clear Contents	Del
File Open	Ctrl+O		

Pocket Word/WordPad

Microsoft Pocket Word®/WordPad® (referred to as Pocket Word in this section) allows you to create and edit documents similar to the way as you do using Microsoft Word on the desktop PC. To open Pocket Word, double-tap the icon on the desktop or go to *Start / Programs* and tap Pocket Word. A new document is automatically opened. To open existing documents, choose *File / Open* and specify the files location.



Pocket Word allows you to open Pocket Word documents (.pwd) and ASCII text files (.txt). If you have more than one document opened, cycle through them by pressing CTRL+< or CTRL+>.

▲ Command Bar

The buttons on the command bar give you quick access to many of the same options that are available in the Format menu such as font attributes and alignment. You can choose whether you would like the command bar to be below the menu bar or to the right of the menus to allow for more viewing space. Refer to the *Application Command Bars* section found earlier in this chapter for details. Use the on-line Help [?] for more details about Pocket Word.

▲ Saving Pocket Word Files

When you select *File / Save* or *File / Save As*, the path is automatically set to: \My Documents\, which stores the file in RAM. We recommend that you change the path to: \C_Drive\C_MyDocs\ so that the file is saved to the non-volatile solid state storage.

Internet Explorer and Inbox

Allegro CE includes Microsoft Pocket Internet Explorer® for accessing the World Wide Web and Microsoft Inbox® for sending and receiving e-mail.



▲ Setting up an Internet Connection

The procedure for accessing the Internet depends on your specific requirements and network environment. For example, you may wish to use a phone line to dial into an Internet Service Provider (ISP). In this case you will need a PC card modem and an established ISP account. Or you may wish to connect the Allegro directly to your office Internet, in which case you need an ethernet PC card and assistance from your network administrator. These are just a few of the possibilities. Regardless of how you decide to make the connection, the following information will assist you in getting the Allegro configured properly.

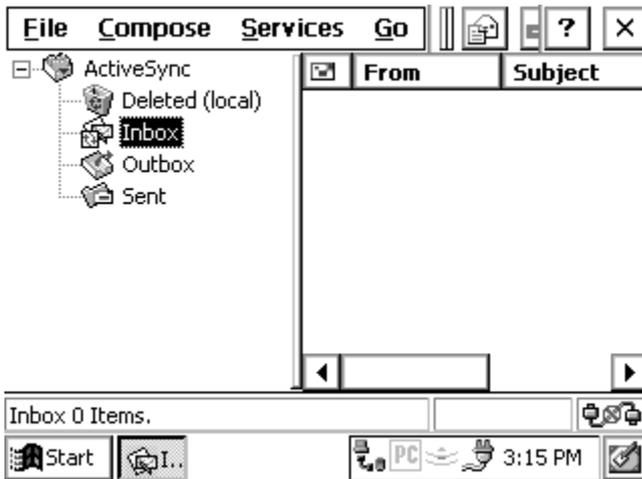
If you plan to use a dial-up connection for Internet access, you need to configure a new connection as follows:

- 1) Install and configure a PC card modem according to the manufacturer's instructions.
- 2) Turn on the Allegro and go to *Start / Programs / Communication / Remote Networking*.

- 3) Double-tap the *Make New Connection* icon. Enter a name for the connection and select *Dial-Up Connection*. Tap the *Next* button. Select the modem you are using in the drop-down box. In most cases, you do not need to make changes under the *Configure* or *TCP/IP Settings* dialogs. Consult with your network administrator if you need to change these settings. Tap the *Next* button and enter the dialing information. Tap the *Finish* button.
- 4) Double-tap the connection icon, enter your user name and password, and tap the *Connect* button. Once the connection is established, you have complete access to the Internet. Start Pocket Internet Explorer to browse the Web, or follow the instructions below to set up Inbox for sending and receiving e-mail.

▲ Using Inbox

Inbox allows you to send and receive e-mail as well as compose outgoing messages and view incoming messages.



First, set up a service so that Inbox knows how you are accessing the Internet by following these steps:

- 1) Start Inbox from the desktop icon or from the *Start* menu.
- 2) Go to *Services / Options* on the main menu. On the *Services* tab, tap *Add*. Choose IMAP4 Mail or POP3 Mail and enter a service name. Tap the *OK* button.

- 3) The Mail Service Definition dialog is displayed. If you are using a dial-up connection, select the connection that you created earlier (see previously) from the drop-down list. If you are using a network connection, select Network Connection. Enter your ISP or network information in the remaining edit boxes.
- 4) Tap the *Next* button to access the Mail General Preferences and Mail Inbox Preferences dialog boxes. Configure the settings in these dialogs according to your needs. For additional information on these settings consult the on-line help. When you are finished, tap the *Finish* button.
- 5) You can establish a connection using Inbox by tapping *Services / Connect* from the main menu.

To send an e-mail, tap *Compose / New Message*. Enter the address, subject, and message and tap the *Send* button on the toolbar. To read your incoming e-mail, tap *Inbox* in the tree view at the left of the screen. This displays a list of your messages in the list view on the right. Double-tap a message in this list to view its content.

Help

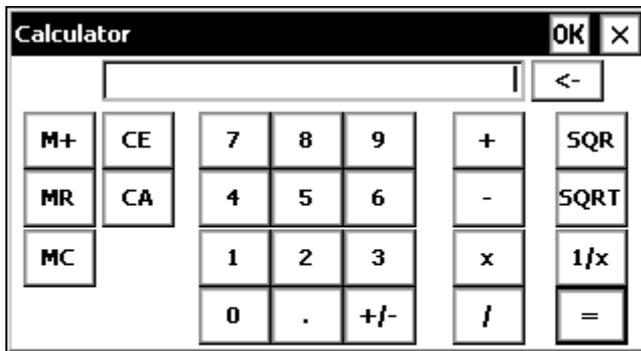
Use the on-line Help [?] for more details about the Internet Explorer and Inbox programs.

Calculator Program

The six-function Calculator program functions like a desktop calculator. To open Calculator, go to *Start / Programs* and select *Calculator* from the list.

Tap on the numbers and mathematical functions required to perform the desired calculation. The numbers appear in the horizontal box at the top of the screen as you type them in. The answer to the calculation also appears in this box. You can enter the numbers from the keyboard if you wish.

The box in the upper-left corner displays an *M* if there is information stored in the memory of the calculator.



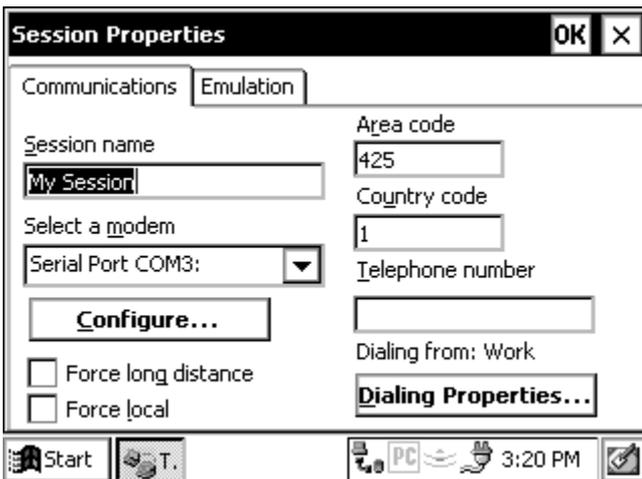
Terminal Program

The Terminal® Emulation program is used to connect the Allegro to an on-line service.



▲ Creating a New Session

- 1) Double-tap on the *Make New Session* icon shown above. A screen called *Session Properties* is shown.



- 2) Enter a name in the *Session Name* box.

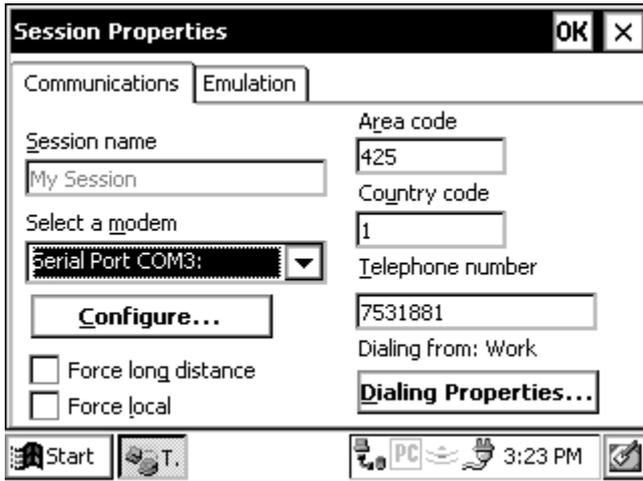
- 3) Select the name of your modem from the pull-down list.
- 4) Enter the telephone number for the remote computer.
- 5) Select *OK* to connect.
- 6) An icon for the new session appears in the Terminal folder.
- 7) To disconnect, select *File / Close*.



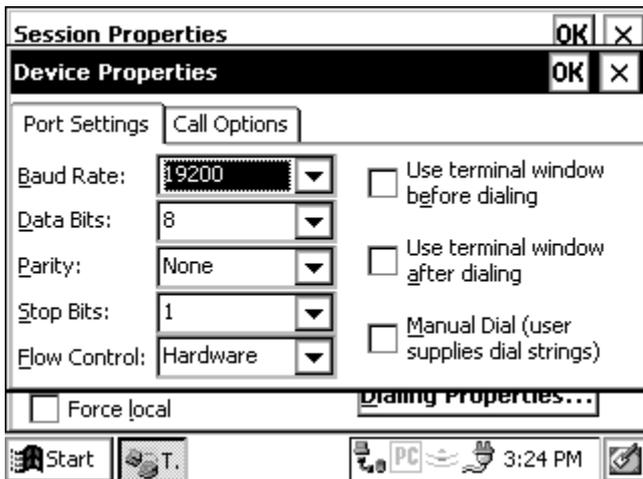
▲ Adjusting the Properties

To adjust the properties, follow these steps:

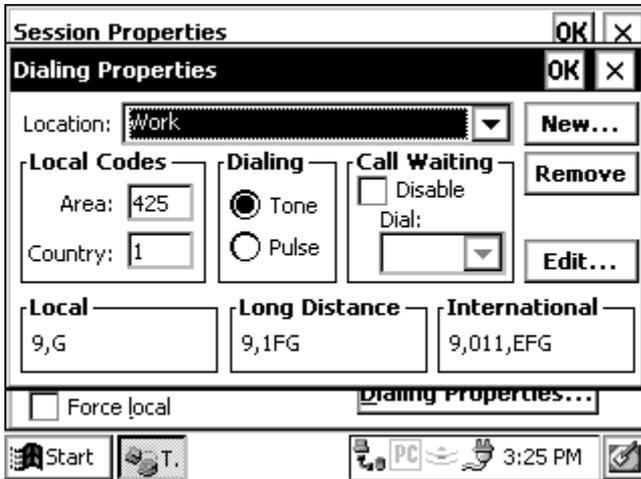
- 1) Select the icon for the session you want to adjust.
- 2) Tap on *File / Properties* to bring up the *Session Properties* screen.



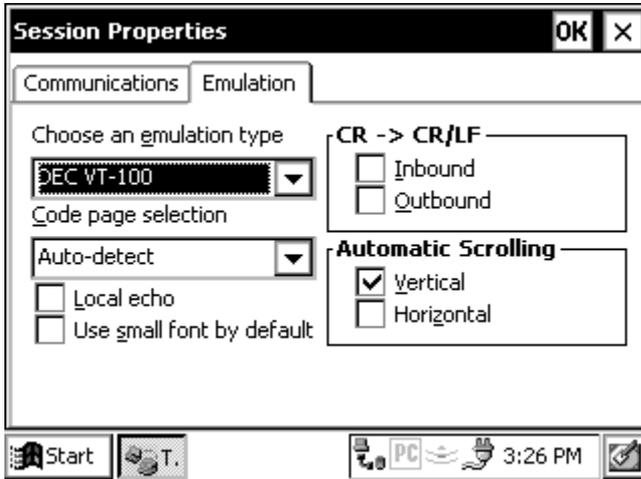
- 3) Make any necessary adjustments on the *Communications* tab. Call options and port settings are adjusted by pressing the *Configure...* button.



Press the *Dialing Properties* button to make dialing property adjustments. Press *OK* when you are finished.



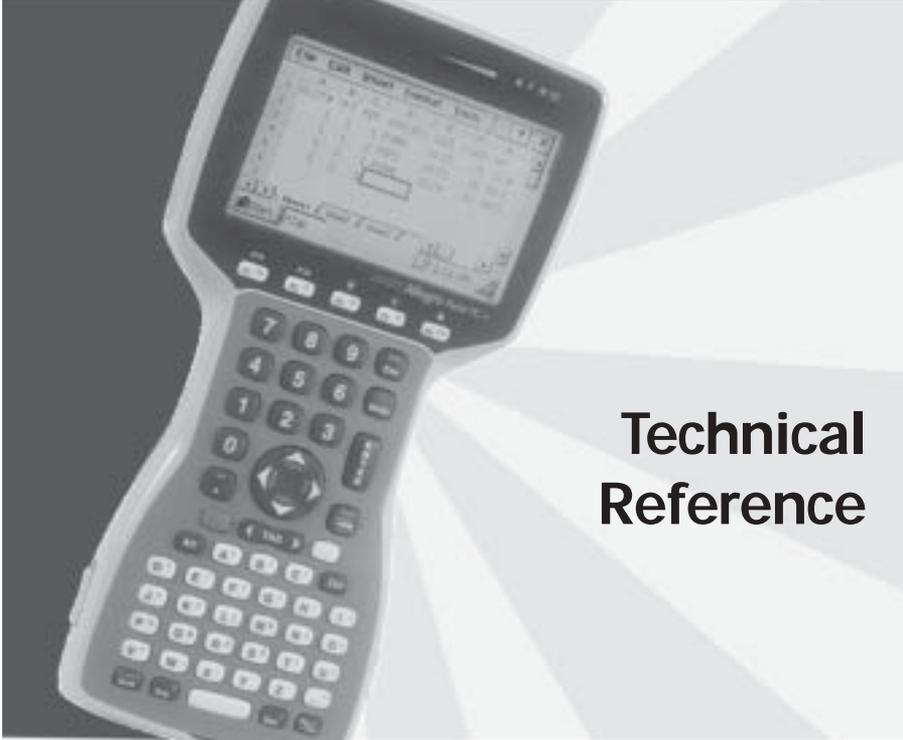
4) Select the Emulation tab to modify the emulation settings. Press *OK* when you are finished.



Help

Use the on-line Help [?] for more details about the Terminal program.

Chapter 5



Technical Reference

Specifications
Communication Cable Schematic

Specifications

Processor

- Intel StrongARM SA1110 processor, 206 MHz

Operating System

- Microsoft Windows CE® 3.0 or CE .NET, loaded from an internal storage card into RAM for the highest execution speed possible

CE 3.0 Programs Included on Allegro

- PTab™ Spreadsheet, Calculator, Microsoft Windows Explorer®, Microsoft InBox® E-mail, Microsoft Pocket Internet Explorer®, and Microsoft Pocket Word®

CE .NET Programs Included on Allegro

- PTab™ Spreadsheet, Calculator, Microsoft Windows Explorer®, Microsoft InBox® E-mail, Microsoft Pocket Internet Explorer®, Microsoft WordPad®, Microsoft Image Viewer®, Microsoft PDF Viewer®, and Microsoft Word Viewer®.

Physical Specifications

- Size: 10" high x 5.25" wide at display x 3.1" wide at narrowest point x 1.5" deep (256 mm x 133 mm x 79 mm x 38 mm)
- Weight: 1.84 lbs or 29.5 oz (836 grams)
- Operating Temperature: -22 to 130° F (-30 to 54° C)
- Storage Temperature: -30 to 140° F (-35 to 60° C)
- Waterproof and Dustproof: Passes MIL-810E-512.3 and IP67 leak (immersion) tests. To pass these tests, the Allegro CE is submerged under the equivalent of 2 meters of water for 2 hours.
- Shockproof: Passes MIL-810E-512.4 shock (drop) test. To pass this test, the Allegro CE is dropped on each face and corner from 5 feet (1.52 m) onto a hard surface.

Communication Ports

- USB Port: connection on base of unit to be used with USB/Power Dock™, multiple docks can be chained through communication hub

- COM 1: Sealed 9-pin D; filtered for EMI; full modem control signals; 5V @ 200 mA available on DTR pin; controlled by DTR
- COM 2: Sealed 9-pin D; filtered for EMI, full modem control
- Infrared Port: Operates both fast IrDA mode (4 M bits/sec) and slow IrDA mode (115 K bits/sec)

Internal Expansion Ports

- COM 3: Internal expansion bus connections, full modem control signals, signal levels 0 to 3.3V straight from UART, no buffering, ring signal causes unit to resume from a suspend state
- Expansion Port: Contains low 3 address bus signals, low 8 bit data bus, bus control signals, COM 3 signals, and GPIO

Display

- High visibility LCD with paperwhite-like background, black on white, high contrast, 10 micron pixel spacing
- 1/4 VGA, 320 x 240 pixels
- LCD has an LED backlight with adjustable brightness capability for visibility in low lighting or changing light conditions
- LCD has extended temperature range to work better in cold or hot environments
- Automatic contrast adjustment with temperature compensation
- Display heater for operation in cold environments; can be set to turn on automatically when temperature is less than -3° C
- Active viewing area: 3.3" wide x 2.5" high (4.1" diagonal), 18% larger than comparable units
- Two onboard mini stylus and a full size stylus
- Touchscreen Disable button allows you to clean the screen or operate unit in heavy rain
- Touchscreen transmissivity of 84%, non-reflective

System Tray Indicators

Indicators are shown in the lower right corner of the Allegro CE screen in the status tray include:

- Data storage activity
- PC card activity
- Caps lock on
- External power input

- Charging indicator
- Remaining battery life
- Touchscreen disable

Keyboard

- 62 large keys advantageous for use with gloved hands; left or right-handed operation
- 12 Function keys: Located directly under the display; convenient for use in applications as soft keys
- Special keys include: Windows Start, Task Manager, Contrast Adjustment, Touchscreen Disable, Display back light on/off
- Large round cursor control button
- Forward and backward tab keys without shifting
- Numeric keys are large and centrally located
- All printable ASCII characters are on the keyboard
- Keys have a snappy tactile feel
- Removeable keyboard bezel for cleaning and customization

Case Design

- Ergonomic with balanced weight distribution
- Rugged, 100% sealed against water and dust
- Designed for one-handed operation (right or left)
- Rings at all four corners of the case for straps
- Adjustable hand strap and shoulder strap
- Multiple strap orientations possible

Memory/Storage

- 32 M, 64 M, or 128 M SDRAM
- Solid state disk storage with 32 M, 64 M, 128 M, or 256 M
- 256KB Flash EPROM for Windows CE boot loader

PC Card Slot

- User-accessible
- 16 bit PC Card, user removeable (not 32 bit Card Bus type cards)
- Accepts Type I or II 3V/5V PC cards (does not accept 3V only cards)
- Compatible with ATA, Compact Flash adapter, micro hard disk, SRAM, modems, wireless networking cards, and other I/O cards
- Compact Flash card adapter is available

Power

- Rechargeable 3.6V 3800 mAHr NiMH high capacity battery pack (Sharp camcorder battery)
- NiMH batteries last 12 to 20 hours depending on the application (maximum continuous use is 30 hours)
- Alkaline battery holder uses three AA alkaline cells (optional accessory)
- Power manager automatically switches unit into low power mode for optimum efficiency
- Separate power input connector for charging and direct power input, 10-20 V DC, 5.5 x 2.1 mm DC power jack
- Vehicle charger is available
- Rapid internal smart-charging in three to five hours; automatic switch to trickle charge mode to preserve charge and protect battery

Sound

- Screen taps, key beeps
- Sounds can be customized and associated with events
- Volume is adjustable

Clock

- Internal real time clock
- +/- three minutes per month accuracy

Certifications

- FCC Class A
- European CE Mark

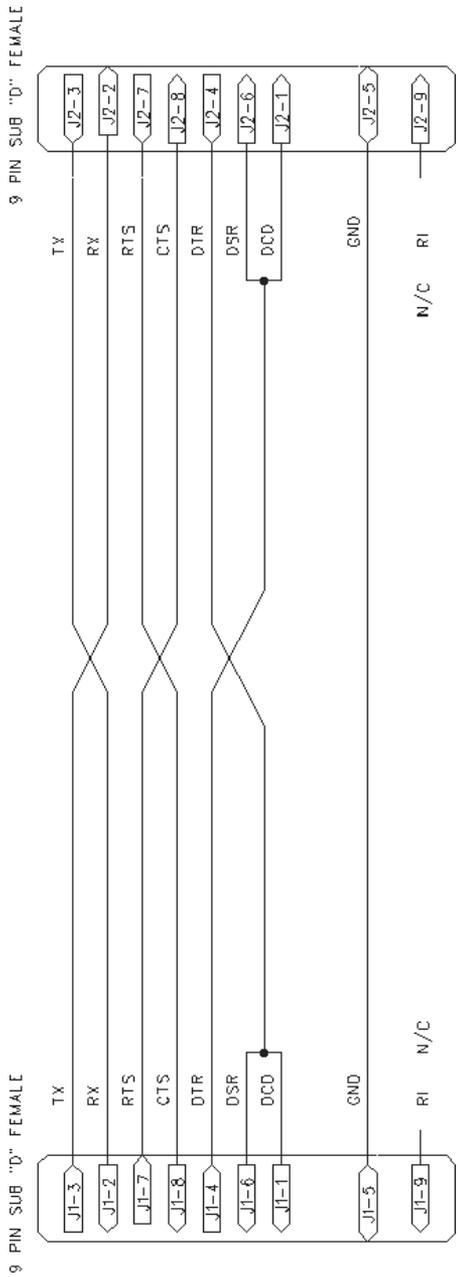
Expandability

- Expansion Pods: Allow you to integrate additional components with the Allegro CE; Pods replace the PC card door and remain fully sealed
- Integrated autonomous GPS expansion pod available
- Future expandability options include an RF network, animal ID reader, bar code scanner, and analog sensor input.

Specifications are subject to change without notice.

Communication Cable Schematic

A wiring diagram for the serial communication cable is shown below.



Chapter 6



Software Developer's Guide for Allegro CE 3.0 and CE .NET

CE 3.0 Software Development Tools

CE .NET Software Development Tools

Software Development Programming Tips

Installing Applications

Options for Program and File Storage

Power Management

Windows CE References

CE 3.0 Software Development Tools

▲ Microsoft CE 3.0 Embedded Visual Tools

To develop Windows CE programs that run on the Allegro CE, you need Microsoft's Embedded Visual Tools 3.0, which includes eMbedded Visual Basic® and eMbedded Visual C++®. These tools can be downloaded free of charge from Microsoft's web site:

www.microsoft.com/mobile/downloads/emvt30.asp

❖ *Note: The download size is over 300 MB.*

Take notice of the desktop PC system requirements that are listed on the same website page.

Embedded Visual Tools is also available on disk from Microsoft for a fee. Go to the following web site for on-line ordering:

<http://msdn.microsoft.com/library/default.asp?url=/library/en-us/dnce30/html/wince30dev.asp?frame=true>

A data sheet explaining the features of Microsoft eMbedded Visual Basic and eMbedded Visual C++ is located on this website:

www.microsoft.com/windows/embedded/ce/tools/factsheet.asp

Installation

To install the development language you are going to use (eMbedded Visual Basic or eMbedded Visual C++), follow the installation instructions that came with the development language from Microsoft.

▲ Allegro CE 3.0 Software Development Kits (SDKs)

The Allegro SDKs are located on the Allegro CE CD-ROM. There is one SDK for eMbedded Visual Basic users and one for eMbedded Visual C++ users. The SDKs that come with eMbedded Visual Tools do not work with the Allegro. Hence, you need to use the Allegro specific SDK in your development.

Installation

Select *Browse* from the Allegro CE CD-ROM and locate the SDK folder. Two SDK files are available: ALLEGRO_CE eVC++ SDK.exe and ALLEGRO_CE eVB SDK.exe. Double-click on the SDK that is appropriate for your development language. (If you have installed both languages, install both Allegro SDKs).

CE .NET Software Development Tools

This section discusses the available software development tools for Allegro CE's that are running CE .NET. Windows CE .NET gives developers the option to use the following software development tools:

Visual Studio .NET 2003
Visual Basic .NET (VB .NET) 2003
C# (C sharp)
Microsoft eMbedded Visual C++ 4.0

▲ Visual Studio .NET 2003

Visual Studio .NET is a purchased software development program available through Microsoft, Inc. It comes with both Visual Basic .NET and C#. The following features are included in Visual Studio .NET:

- Enhanced Visual Studio .NET IDE
- Improved Debugging with IntelliSense
- Build Applications for Mobile Web and Smart Devices
- Trouble-free Deployment of Windows-based Applications
- Enhanced Upgrade Technology
- Powerful, Flexible Data Access
- Native Support for XML Web Services

❖ *Note: Visual Studio .NET 2002 does not work on the Allegro CE. You must use Visual Studio .NET 2003 software to develop for the Allegro CE.*

Visual Studio .NET 2003 System Requirements

Requirements vary for different combinations of components within Visual Studio .NET 2003. Go to the following website to view a table to help determine the minimum system requirements needed for running Visual Studio .NET 2003:

<http://msdn.microsoft.com/vbasic/productinfo/sysreqs/default.aspx>

Ordering Visual Studio .NET

To order Visual Studio .NET go to Microsoft's website at:

<http://msdn.microsoft.com/vstudio/howtobuy/default.aspx#2>

You have the option of upgrading your 2002 Visual Studio .NET to 2003 or purchasing the 2003 Visual Studio .NET.

▲ Microsoft eMbedded Visual C++ 4.0

Microsoft eMbedded Visual C++ 4.0 is a developer program available from Microsoft. The following are some of the options available through eMbedded Visual C++:

- C++ Exception Handling
- Run Time Type Information (RTTI).
- Standard Template Library (STL)
- Attach to Process
- Debugger Can Halt All Threads in a Process
- Out of Process Application Wizard
- Just-in-Time Debugging

eMbedded Visual C++ 4.0 System Requirements

Requirements vary for different combinations of components within eMbedded Visual C++ 4.0. Go to the following website an overview of eMbedded Visual C++ 4.0 and to determine the minimum system requirements needed:

<http://msdn.microsoft.com/vstudio/device/embedded/datasheet.aspx>

Downloading eMbedded Visual C++ 4.0

This program is available as a free download from Microsoft or can be purchased if you want the program sent to you on a CD.

<http://msdn.microsoft.com/vstudio/device/embedded/download.aspx>

This download size is over 300MB. The download time will vary depending on the type of internet connection you have. We recommend using a minimum of DSL or Cable Internet connection for downloading.

Allegro Software Development Kits of eMbedded Visual C++

The Allegro SDK is located on the Allegro CE .NET CD-ROM. There is not an SDK for eMbedded Visual Basic users.

Allegro CE .NET SDK Installation

Select *Browse* from the Allegro CE .NET CD-ROM and locate the SDK folder. Double-click on the SDK file available: ALLEGROCE41_SDK.exe.

Software Development Programming Tips

To help programmers developing software for the Allegro CE, we have included the following programming tips. We recommend that you refer to Windows CE 3.0 or CE .NET (depending on which operating system you are using) programming reference books to assist you in your software development.

▲ Allegro CE Identification

When installing your applications, you need to determine if certain peripherals are available. There could be reasons you need to know the following specific information about your Allegro CE device:

Platform name	Allegro CE
Windows CE version and build number	(go to Windows CE Version)
Internal storage device name	C_Drive
PC card storage device name (English version)	Storage Card

To uniquely identify an Allegro CE device by serial number, refer to the section Allegro Specific APIs.

Platform Name

The combination of Windows CE operating system and the hardware that it runs on is called a platform. Common platform names are Pocket PC, HPC, HPC Pro, etc. The Allegros platform name is Allegro CE.

To discover the platform name in an application program, call `SystemParametersInfo(uiAction, uiParam, pvParam, 0)` with `uiAction` equal to `SPI_GETPLATFORMTYPE`. The `uiParam` parameter specifies the length of the buffer in `pvParam`, which on successful return contains the platform name in Unicode characters.

Windows CE Version

There are two numbers used to identify the operating system, the version number and the build number. An Allegro running Windows CE uses Windows CE version 3.00, Build 126 (sometimes expressed as 3.00.0126). An Allegro running Windows CE .NET uses Windows CE version 4.1, Build 908. To locate your version and build number tap on *Start | Settings | Control Panel* and double-tap on the *System* icon. The *General* tab displays the version and build of the Windows CE operating system.

If you create an installation package (cab file), you need to consider the build number. In general, you should use as wide a range as practical when specifying installation constraints, or consider imposing no limitations at all.

Internal Storage Device Name

Allegro CE's internal (non-removable) non-volatile storage is named C_Drive.

PC Card Storage Device Name

In the English version of the Allegro CE operation system, the PC Card Storage area is named Storage Card. This is the default name for ATA PC Cards in Windows CE 3.0.

It is recommended to avoid hard-coding this name, as it has changed over time, and differs from one language to another. For Allegro cross platform compatibility, look for the name of the PC storage card in the registry at:

(HKEY_LOCAL_MACHINE\Drivers\PCMCIA\ATADisk\Folder).

If this folder does not exist, or has no value, the default name is Storage Card.

Allegro Specific APIs

There are a number of Application Program Interfaces (APIs) that are only available on the Allegro CE. These APIs are used for accessing special or unique features of the Allegro CE platform. These APIs include accessing the serial number, or getting information from the Allegro expansion pod.

To use these APIs, include AllegroAPI.h in the source code and instruct your linker to use AllegroAPI.lib. For Visual Studio .NET you need to p/invoke (platform invoke) these functions for the Allegro CE eVC++ SDK, which contains a file named AllegroAPI.h that describes these APIs.

▲ Selecting the Platform

When selecting a platform in Windows CE 3.0 the development tools, select ALLEGRO_CE as your platform. When using Windows CE .NET, select ALLEGROCE41 as your platform when in development tools.

Options for Program and File Storage

For program and data storage, the Allegro CE has the following options:

RAM

Internal storage device

PC Card storage

The internal storage is referred to as C_Drive, the PC card is referred to as Storage Card. The data and programs stored on these two devices are secure without battery backup.

When designing a program for the Allegro CE, give the user a choice of where to store the application, and where to store the application program's old data.

❖ *Note: Always save data to the C_Drive for maximum safety and security.*

Power Management

Windows CE was designed for efficient battery operation. Windows CE puts the processor to sleep when there are no active threads using the processor. When writing applications, be careful not to use any functions that keep the threads active when not in use.

Power Management Tips:

- Do not spin a loop
- Use the Wait APIs such as `WaitForSingleObject()`
- `Sleep()` may also be used effectively

Windows CE References

▲ Windows CE 3.0 Reference Books

The following books about program development for Microsoft CE 3.0 are available:

Essential Windows CE Application Programming, Robert Burdick, Author, Wiley Computer Publishing, 1999

Programming Microsoft Windows CE, Douglas Boling, Author, Microsoft Press, 2001

The Windows CE Technology Tutorial, Chris Muench, Author, Addison Wesley, 2000

Pocket PC, Handheld PC Developer's Guide with Microsoft Embedded Visual Basic, Nick Grattan, Pearson Education, 2001
Programming Microsoft Windows CE .NET, Third Edition, Douglas Boling, Author, Microsoft Press, 2003

▲ Windows CE .NET Reference Books

Reference Books

The following books about program development for Microsoft CE .NET are available:

Mastering Visual Studio .Net, Ian Griffiths, Jon Flanders, and Chris Sells, O'Reilly & Associates, Incorporated, 2003

Microsoft® Visual C# .NET Step by Step, Version 2003, John Sharp and Jon Jagger, Microsoft Press, 2003

Microsoft® Visual Basic .NET Step by Step Version 2003, Michael Halvorson, Microsoft Press, 2003

These books can be ordered from local book stores or at various online book stores.

The books from Microsoft Press can also be ordered at:
www.mspress.microsoft.com

Microsoft Press
A Division of Microsoft Corporation
One Microsoft Way
Redmond, WA 98052-6299

▲ Web Sites

www.microsoft.com/windowsce

www.microsoft.com/embedded

www.vbce.com

www.vcce.com

Chapter 7



FCC Information, Warranty, and Software License Agreement

FCC Information
Warranty and Repair Information
Software License Agreement

FCC Information

The Allegro CE is a Class A device. The FCC defines a Class A device as a device that may be operated in business or industrial environments only.

▲ FCC Class A Statement

Class A equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference in which case the user will be required to correct the interference at his own expense.

Warranty and Repair Information

▲ Limited Product Warranties

Juniper Systems, Inc. (“Juniper”) warrants that this Allegro CE Field PC shall be free from defects in materials and workmanship, under normal intended use, for a period of 12 months from the date of shipment, excepting that this warranty shall not apply to battery packs, media containing Allegro and desktop PC programs and the Owner’s Manual, and any accessories. Juniper warrants that the following shall be free from defects in materials and workmanship, under normal intended use, for a period of ninety (90) days from the date of shipment: battery packs, media containing the Allegro and desktop PC programs and Owner’s Manual, and any accessories.

▲ Warranty Exclusions

This warranty shall not apply if: (i) the product has been set up improperly or has been improperly installed or calibrated, (ii) the product is operated in a manner that is not in accordance with the instruction manual(s) and/or user guide, (iii) the product is used for a purpose other than for which it was designed, (iv) the product has been used in environmental conditions outside of those specified for the product, (v) the product has been subject to any modification, alteration, or change by or on behalf of customer (except and unless modified, changed or altered by Juniper or under Juniper’s direct supervision), (vi) the defect or malfunction results from misuse or accident, (vii) the serial number on the product has been tampered with or removed, or (viii) the product has been opened or tampered with in any way. Parts that are excessively worn are not covered under warranty. These may include, but are not limited to, the keyboard elastomer and switch matrix, hand straps, and the touchscreen.

This warranty is exclusive and Juniper will not assume and hereby expressly disclaims any further warranties, whether express or implied, including, without limitation, any warranty as to merchantability, fitness for a particular purpose, non-infringement or any warranties arising from the course of performance, dealing, or usage of trade. Juniper specifically makes no warranties as to the suitability of its products for any particular application. Juniper makes no warranties that its products will meet your requirements or

will work in combination with any hardware or applications software products provided by third parties, that the operation of its products will be uninterrupted or error free, or that all defects in the product will be corrected. Juniper shall not be responsible for software, firmware, information, or memory data contained in, stored on, or integrated with any products returned to Juniper for repair, whether under warranty or not.

▲ Remedy

In the event a defect in materials or workmanship is discovered and reported to Juniper within the specified warranty period, Juniper will, at its option, repair the defect or replace the defective product. Replacement products may be new or reconditioned. Juniper warrants any replaced or repaired product for a period of ninety (90) days from the date of return shipment, or through the end of the original warranty period, whichever is longer.

▲ Limitation of Liability

To the fullest extent allowed by law, Juniper's obligation shall be limited to the repair or replacement of the product. Juniper shall in no event be liable for special, incidental, or consequential, indirect, special or punitive damages of any kind, or for loss of revenue or profits, loss of business, loss of information or data, or other financial loss arising out of or in connection with the sale, installation, maintenance, use performance, failure, or interruption of any product. Any responsibility and/or liability of Juniper shall, in connection with a warranted product, be limited in maximum amount to the original purchase price.

▲ Warranty Repairs

In order to obtain repair or servicing, contact our Customer Service Department within the applicable warranty period. The customer must prepay all shipping costs under a warranty repair or replacement.

▲ Governing Law

This warranty will be governed by the laws of Utah, and excluding the United Nations Convention on Contracts for the International Sale of Goods. The courts of Utah shall have exclusive personal jurisdiction in case of any disputes arising out of or in connection with this warranty.

▲ Extended Warranties

Juniper Systems, Inc. offers a variety of warranty options to extend coverage beyond the standard warranty. Contact us for details.

▲ Repairs

If your Allegro CE is in need of repair or servicing, contact our Customer Service Department for an RMA (Return Materials Authorization) number.

Please have this information ready when you contact us:

- Allegro CE serial number
- Your name
- Name and shipping address of company/university/agency
- Phone and fax number
- Clear description of the problem encountered
- Purchase order number and billing address (for equipment that is not under standard or extended warranty)

The customer has the responsibility to ship the equipment to Juniper Systems, Inc. with all shipping costs prepaid. After repairing or replacing the equipment, Juniper Systems, Inc. will ship the equipment, at its cost, back to the customer by the same type of carrier used by the customer to ship the equipment to our facility. Repairs are normally completed within ten working days unless special circumstances exist.

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▲ Manufacture Agreement

This Software License Agreement is between the end-user and the manufacture (Juniper Systems, Inc.) Please read the following terms and conditions before using the Allegro CE Field PC and the software created by Juniper Systems, Inc. for use with the Allegro. This agreement supersedes any prior agreement, written or oral. Programs created by another company and distributed with the Allegro are subject to the license agreements created by these companies for their products. See Microsoft's license agreement on the following page.

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Chapter 8



Expansion Pods

Expansion Pods

GPS Expansion Pod

Bar Code Expansion Pod

802.11b Expansion Pod

Bar Code/802.11b Expansion Pod

Expansion Pods

The expansion pod accessory for the Allegro CE adds capability to the field computer while maintaining the waterproof and dustproof integrity of the rugged unit. Expansion pod added capabilities include:

1. Automatically logging the identification of an inventoried asset using the integrated bar code scanner in an extremely harsh environment.
2. Wirelessly sending or receiving information from the action point to your local area network via the Allegro with the Wi-Fi 802.11b receiver.
3. Mapping your position or navigating to a known location using the integrated GPS receiver.

Custom expansion pods can be designed to meet the specialty needs of system integrators or OEM's. An expansion pod can be installed on the Allegro after purchase if you find that you want to add this capability to the product in the future. Contact your sales representative for details.

The following expansion pods are available:

GPS Pod

The GPS expansion pod integrates the Trimble Lassen LP™ receiver with the Allegro placing GPS technology in the palm of your hand.

Bar Code Pod

The bar code pod takes technology of the Symbol bar code scanner and combines it with the rugged reliability of the Allegro CE. This integrated system eliminates the need for an external bar code scanner with cables that can get in the way.

802.11b Pod

The 802.11b expansion pod integrates wireless LAN technology with the Allegro CE. This combination allows you to collect data outside and transfer it wirelessly into a computer in a nearby building.

Bar Code/802.11b Pod

This integrates both the bar code and 802.11b technology into one expansion pod for the Allegro CE.

GPS Expansion Pod

The GPS expansion pod integrates the Trimble Lassen LP GPS receiver with the Allegro. A compact 3.3 V active micropatch antenna is mounted to the top of the Allegro.



The Lassen LP module is a high-performance, low power, micro GPS receiver that supports both TSIP and NMEA protocols with autonomous accuracy of 5 –10 meters, or 2 – 5 meters after differential correction. The GPS expansion pod is used in conjunction with the following programs:

- GIS/GPS programs for Windows CE including ESRI ArcPad™, TerraSync®, Starpal HGIS™, and others
- LandMark GPS™ mapping and navigation program
- DataPlus™ Professional or EASYDC™ generated applications for data collection

▲ GPS Pod Setup Program

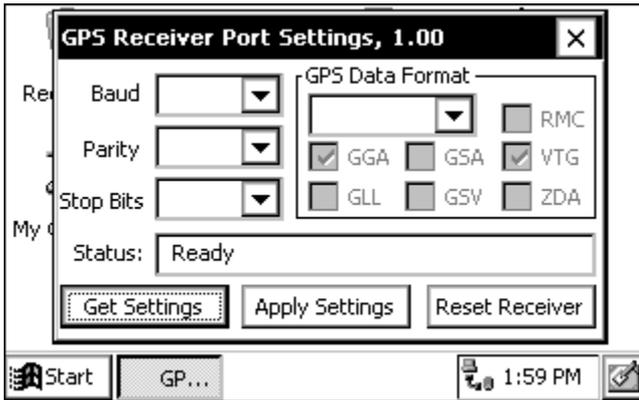
The GPS Pod Setup program is factory installed on your Allegro. The program allows you to configure the parameters of the internal GPS receiver to accommodate the various GPS/GIS programs that run on the Allegro.

The Allegro communicates with the internal GPS receiver via COM 3. The GPS Pod Setup program allows you to change the serial port settings being used (i.e. baud rate, parity, stop bits), and to select between TSIP and NMEA data output formats.

Specifying GPS Receiver Port Settings

To set up the parameters on the *GPS Receiver Port Settings*, complete the following steps:

1. Go to *Start / Programs / Utilities / GPS Pod Setup*, and the *GPS Receiver Port Settings* screen pops up.



2. Tap on the *Get Settings* button and wait approximately one minute for the settings to appear.
3. Record the settings for the following:
 - Com Port: Com3 – not changeable
 - Protocol:
 - Baud:
 - Parity:
 - Data Bit: (Note: Data Bit is always set at 8. The option is not shown in the set up program)
 - Stop Bit:

The following are the default GPS pod settings:

Com Port: Com3 – not changeable
Protocol: TSIP
Baud: 9600
Data Bit: 8 – not changeable
Parity: None
Stop Bit: 1

4. Access the setup or configuration menu in the GPS program.

5. Change the parameters on the GPS/GIS program's configuration menu to match the default GPS pod settings or change the parameters on your Allegro to match your program. If you change the settings on your Allegro, tap on *Apply Settings*.

The Com Port and Data Bit are set and not changable on the Allegro. All GPS programs that offer these settings to be changed must be set to the following Allegro settings:

Com Port: 3
Data Bits: 8

6. Connect the GPS. The Allegro must be outside in clear sky conditions (this means free from tree foliage, buildings, power lines, etc.) to receive a new GPS almanac. The receiver can take up to 20 minutes to establish and receive the almanac.

❖ *Note: If your parameters do not match, some GPS programs (i.e. ArcPad, TerraSync) produce an error message when attempting to activate the GPS pod. This error means the communication parameters in the GPS program are not set to match the GPS pod. Go back to the GPS programs setup page and check to make sure those settings are the same settings as the settings on your Allegro's GPS Receiver Port Settings screen.*

At the bottom of the screen, there are three function buttons: *Get Settings*, *Apply Settings*, and *Reset Receiver*.

Get Settings

The *Get Settings* button is used to see the receiver's current settings without changing the settings. Pressing *Get Settings* does a search for the GPS receiver, which can take up to one minute to find the settings. Once the search is complete, the current settings for the GPS receiver are shown.

Apply Setting

Tap on the *Apply Settings* button to save and apply new settings. To make sure that your settings are applied correctly, press *Get Settings* to check the parameters.

Reset Receiver

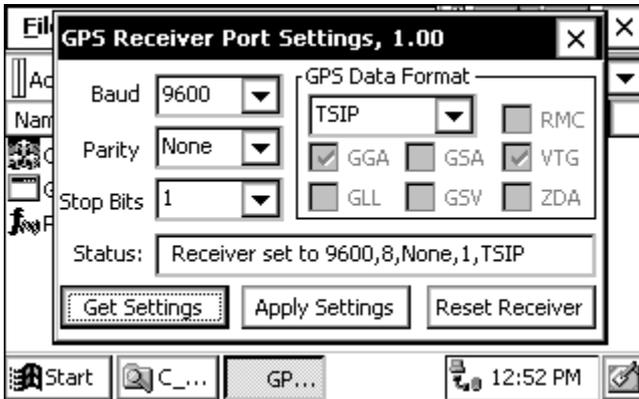
The *Reset Receiver* button returns the settings to their default setting. This function enables you to start over in the event that an error was made.

▲ GPS Data Formats

In the GPS Pod Setup program you can set up the receiver in either the TSIP or NMEA GPS data format.

TSIP Format

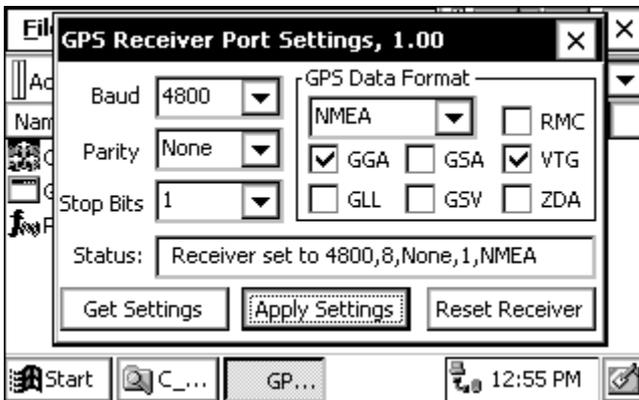
The TSIP is the default setting for the GPS pod. The settings are Com Port: Com3, Protocol: TSIP, Baud: 9600, Parity: None, Data Bit: 8, Stop Bit: 1.



NMEA Format

The NMEA format does not have any default settings and must be selected manually.

When NMEA is selected, you have the ability to enable or disable certain NMEA packet types.



After the settings have been selected, tap on the *Apply Settings* button to save the new settings. Tap on the *Get Settings* button to bring up the GPS pods current settings to double check them.

Reviewing and Editing the Receiver Parameters

Once you determine which data format you are going to use, follow these steps to review and edit the parameters as needed:

1. Click on the *Get Settings* button to reset the parameters to their default setting.
2. Change the parameters, if necessary, by clicking on the down arrow on the right of the *Baud, Parity, Stop Bits, and/or GPS Data Format* box to bring up a list of setting options, and click on the setting you want.
3. Click on the *Apply Settings* button.
4. Click on the X in the top right corner to Exit out of the program.

▲ Tips for Using the GPS Expansion Pod

Keep the following tips in mind while using the Allegro with the GPS expansion pod:

1. When attempting to receive GPS signals, get the clearest view of the sky as possible. Obstructions such as buildings, trees, mountains, and your body can keep signals from reaching the receiver.
2. Do not cover the antenna with anything while you are using the system.
3. The antenna can be mounted on a vehicle or a pole, a longer cable is required to do this. Contact our Sales Department for details.
4. Using the GPS expansion pod, and GPS or GIS software running on the Allegro may cause the Allegro battery to drain at a faster rate. This rate depends on the software and how much processing is taking place.

5. The PC card slot is accessible while the GPS expansion pod is attached to the Allegro. In the Allegro User's Manual, refer to *Section 2, Hardware Features, PC Card Slot* for details on how to use it. There is a flat, brown flex cable that is part of the expansion pod that you will see when you open the pod door. Do not twist, bend, or break this cable while you are using the PC card slot.
6. If you remove the antenna, place the protective cap over the antenna connector to keep dirt and moisture out.

▲ For More Information

Your GPS is now configured correctly to use the GPS pod. If you have any questions or still cannot connect, please contact your reseller or our technical service department at (435) 753-1881, or by email at techsupport@junipersys.com.

▲ GPS Antenna Removal

The antenna takes the place of the mini-stylus in the top of your Allegro. It is shipped already attached to Allegro but depending on your needs, can be removed and replaced. To remove the GPS antenna from your Allegro, complete the following steps:

1. Unscrew the antenna cable from the Allegro expansion pod.
2. Loosen the thumbscrews on the antenna so that the antenna and the two knobs at the end of the antenna clamp are no longer securely fastened.
3. Pull the antenna off of the Allegro.

The antenna can be returned to the Allegro by reversing the previous instructions.

▲ GPS Installation Program

The GPS Set Up program is installed on your Allegro before it is shipped. In the event that the GPS program gets removed from your Allegro and needs to be reinstalled, complete the following steps:

1. Insert the Allegro CE Utilities CD, this is shipped with your Allegro, into your PC's CD-ROM drive and wait for the installation screen to load.
2. Click on the *Browse CD* button on the installation screen.
3. Double-click on the *Utilities Applications* folder.
4. Double-click on the *GPS Pod Setup Install* folder.
5. Connect the Allegro to your PC through ActiveSync.
6. Double-click on the setup icon.
7. Follow the instructions given throughout the installation program.

Bar Code Expansion Pod

Using the bar code expansion pod with an Allegro offers the convenience of scanning bar codes and receiving the scanned data, all in a single handheld unit. With the Bar Code Expansion Pod there are no extra cables that could get in the way of your scanning beam. The bar code pod is factory installed to the Allegro and includes the COM port connection, the power supply, and the software. The software sets up and enables the scanner to scan, and to transfer the scanned data to a data collection program.

The bar code expansion pod integrates the laser bar code scanning technology of a Symbol SE 1224 high-performance laser scan engine with the Allegro CE and offers the following features:



- High performance bar code scanning in bright, outdoor light
- Scanning distances of 1 to 3 feet from the Allegro
- Excellent scan capability for poorly printed or low contrast bar codes
- Low power performance
- Compatible with nine different bar code symbologies

▲ Bar Code Reader Program

The bar code expansion pod is shipped with a *Bar Code Reader* program factory installed on your Allegro. This program has two key functions.

The first allows you set up the scanner,s target/scan button control, scan notification, styles of bar codes to scan, etc.

The second function of the *Bar Code Reader* program is to scan a variety of bar codes with the press of a button. This function also takes the scanned bar code and transfers it into electronic data that is automatically entered into a data collection program opened on your Allegro.

The Bar Code Reader has the following available four options:

Help

Begin Scan

Bar Code Setup

Exit

The *Help* option on the *Bar Code Reader* title bar opens a drop down menu with an *About* option. Tapping on the *About* option accesses a pop up screen showing the *Bar Code Reader* version number and copyright.

The *Begin Scan* button enables the expansion pod to begin scanning bar codes. It takes scanned data and enters it into an opened data collection program on your Allegro. You do not need any other program to read bar code data into your application.

The *Bar Code Setup* button opens the *Bar Code Setup* program. This program contains selectable options to set up the scanner to operate according to your needs.

The *Exit* button at the bottom of the program screen, or the X button in the upper right corner of the screen, closes the *Bar Code Reader* program.

To begin using your Allegro's bar code expansion pod, follow the instructions under the *Getting Started*, *Bar Code Setup*, and *Begin Scan* headings of the *Bar Code Expansion Pod* section.

▲ Getting Started

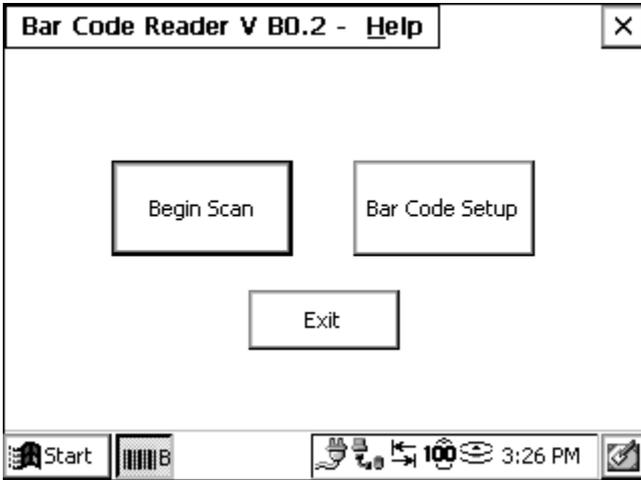
Before you begin using your bar code expansion pod to scan bar codes, open the *Bar Code Reader* program and set up the scanner's functions. To open the *Bar Code Reader* program, complete the following steps:

1. Turn on your Allegro by pressing the *On/Off* button.
2. Double-tap on the *Bar Code Reader* icon located on your Allegro's desktop.



Bar Code
Reader

An *Initializing Bar Code Scanner* message box pops up, as the *Bar Code Reader* program loads on your Allegro, and the *Bar Code Reader* program opens.



3. Tap on the *Bar Code Setup* button.

▲ Bar Code Setup

Before you begin scanning, use the *Bar Code Setup* program to configure the bar code scanner according to your needs. The *Bar Code Setup* options are described throughout this section.

The *Bar Code Setup* program has the following five tabs for personalizing your bar code scanning program:

- User*
- Scanner*
- Data Format*
- Code Type*
- Defaults*

The *Bar Code Setup* program has many options that are enabled and disabled by tapping on small boxes next to the option. When an option is selected, a checkmark appears in the small box. When the option is disabled, the checkmark disappears.

To set up and save your bar code scanning options, complete the following steps:

1. Read the following setup sections: *User*, *Scanner*, *Data Format*, *Code Type*, and *Defaults*. These sections describe the functions in the *Bar Code Setup* program informing you of the options that will best suit your bar code scanning needs.
2. Select the options you want to use for scanning bar codes.
3. Tap on the *Exit Setup* button to save your bar code settings and return you to the *Bar Code Reader* screen.
4. Go to the *Begin Scan* section of this chapter and follow the directions there to begin scanning bar codes.

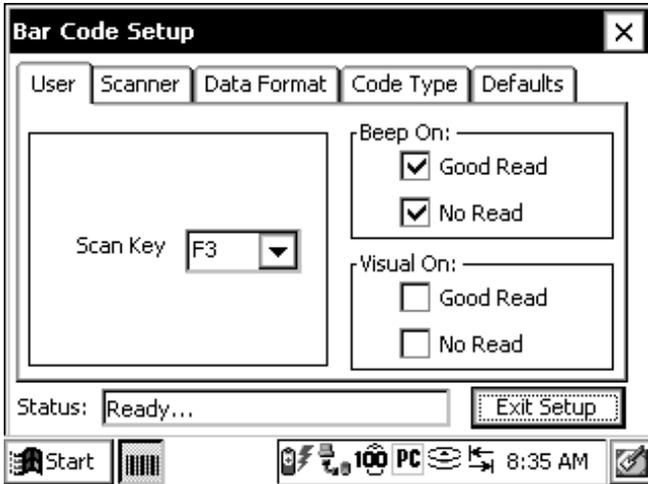
User Setup

The *User* tab contains the options that effect how you use and interact with the scanning program. These options include targeting and scanning key selections, and audio and visual confirmation if a scan is successful or not.

To target bar codes, the scanner emits a small laser beam showing a red dot where the scan will take place. This target beam allows you to line up the scanner with the bar code.

To scan bar codes, the scanner emits a laser as a thin red line that covers the entire length of a bar code. In the scanning process, the bar code is read, decoded, and then transferred to a data collection program open on your Allegro.

The *User* tab allows you to select which key your Allegro will use to initiate a scan, and if you want audio and/or visual confirmation if a scan is successful or not.



Only one Allegro key is used to both target and scan a bar code. Pressing on the scan key initiates the target beam first. The target beam stays on for a set time ranging from 0.0 to 9.9 seconds. You have the ability to set the target time, see later in this section. As soon as the target beam turns off, the scan beam turns on. The scan beam remains on until a valid scan is completed or until the maximum scan time is reached.

❖ *Note: Holding the Scan Key down during a scan or pressing it multiple times during the scan does not affect the scan. The key presses are ignored.*

Scan Key Selection

The *Scan Key* box allows the user to select which key is pressed to initiate a scan. To select the *Scan Key* you want to use, tap on the down arrow on the right side of the *Scan Key* box to access a drop-down menu listing all the available scan keys. Tap on the name of the key you want to use for scanning.

Beep on Good Read

The bar code scanner program provides audio feedback to notify you on a successful scan. To activate the audio feedback, tap in the *Good Read* box in the *Beep On:* section so a checkmark appears. A single beep sounds at the completion of a successful scan.

Beep on No Read

The bar code scanner program provides audio feedback to notify you about an unsuccessful scan. To activate the audio feedback, tap in the *No Read* box in the *Beep On:* section so a checkmark appears. Two beeps sound when a scan is unsuccessful.

Good Read Message

The bar code scanner program provides visual feedback when a scan is successful. To activate this visual feedback, tap in the *Good Read* in the *Visual On:* section so a checkmark appears. A *Scan OK!* pop-up message displays on the screen approximately 1.5 seconds after each successful scan.



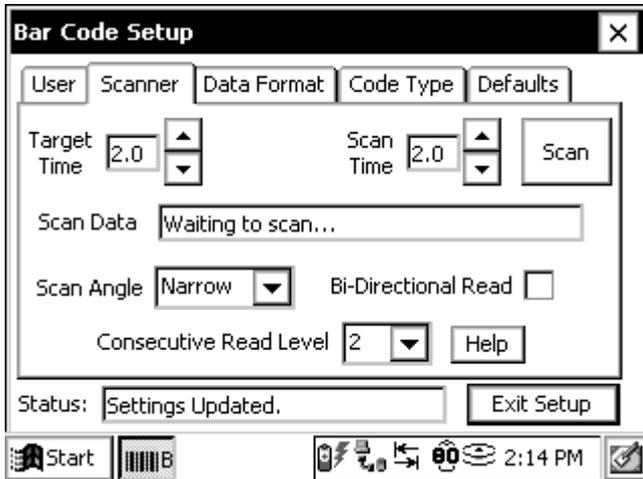
No Read Message

The bar code scanner program provides visual feedback when a scan is unsuccessful. To activate this visual feedback, tap in the *No Read* in the *Visual On:* section so a checkmark appears. A *Scan Failed* pop-up message displays on the screen approximately 1.5 seconds after each unsuccessful scan.



Scanner Setup

The *Scanner* tab is used to configure the operation of the scan engine.



Target Time

The *Target Time* option allows you to set the amount of time the target beam is on before a scan is initiated.

The *Target Time* box shows the time, in seconds, that the target beam is on. The scroll buttons allow you to set the amount of time the target beam is on before a scan is initiated. The *Target Time* can vary from 0.0 to 9.9 seconds, in 0.1 seconds increments.

Setting the *Target Time* at 2.0 means that the target beam remains on for 2.0 seconds and then turns off as the scan beam turns on. The scanner takes approximately .5 seconds to focus the target beam. Because of this, it is recommended that the minimum target time be set to 0.5 or longer than the desired target time.

Scan Time

The *Scan Time* option allows you to set up the amount of time the scan beam remains on to perform a bar code scan. The *Scan Time* window shows the time, in seconds, that the scan beam is on. The scroll buttons allow the user to set the amount of time the scan beam is on. The *Scan Time* can vary from 0.0 to 9.9 seconds, in 0.1 seconds increments.

A scan terminates as soon as it successfully reads a bar code or when the scan time has reached the maximum scan time specified in Scan Time window.

Scan Button

The *Scan* button allows you to test the functionality of the scanner within the setup program. Pressing the *Scan* button turns the target beam on for the *Target Time* and then performs a scan.

Scan Data

The *Scan Data* field is used to display the results of scans initiated by the Scan Button.

Scan Angle

The bar code scanner is capable of using two different scan angles. The *Scan Angle* determines the width of the scan beam.

Tap on the down arrow on the right side of the *Scan Angle* box to access a drop-down menu listing two available scan angles. Tap on the size of the angle you want to use for scanning. The wide scan angle is 40° and the narrow angle is 30°.

Bi-Direction Read Select

Selecting the *Bi-Directional Read* option sets up the scanner program to read the bar code in both directions before it is decoded.

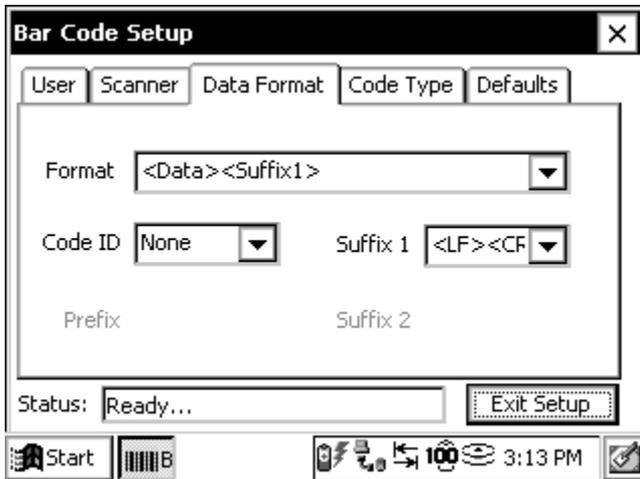
Consecutive Read Level

When the bar code scanner performs a scan, it is performed in two stages. The first stage reads the bar code image and verifies it is a valid bar code. The second stage decodes the raw bar code data into ASCII characters that are sent back to the host application. The user can specify how many times a bar code is to be successfully read before it is decoded.

The scanner has four security levels or successful read levels. A *Help* button is located to the right of the *Consecutive Read Level* box and explains the four security levels.

Data Format Setup

The *Data Format* tab allows the user to specify the format of the data that is returned by the Scanner.



Format

The *Format* drop-down box allows you to select if a prefix and/or suffix character are added to the bar code data. The prefix character is added before the bar code data. The *Suffix 1* character is appended to the end bar code data and the *Suffix 2* character is appended after the *Suffix 1* character. If *Suffix 1* is not selected, *Suffix 2* is appended to the end of the bar code.

Tap on the down arrow on the right side of the *Format* box to access a drop-down menu of the available data format. Tap on the format you want to use. The eight *Format* options are:

- Data
- Data, Suffix1
- Data, Suffix2
- Data, Suffix1, Suffix2
- Prefix, Data
- Prefix, Data, Suffix1
- Prefix, Data, Suffix2
- Prefix, Data, Suffix1, Suffix2

Code ID

The scanner is capable of returning a Code ID character(s) for the bar code that is scanned. If a *Code ID* is selected, the Code ID character(s) is placed before the bar code data and the prefix character (if enabled).

There are two types of Bar Code ID's: Symbol and AIM. The Symbol Code ID is a single character code. The AIM Code ID contains three characters, a bracket (“]”) is followed by a code character and a modifier character.

Symbol Code ID

A = UPC-A, UPC-E, UPC-E1, EAN-8, EAN-13

B = Code 39, Code 32

C = Codabar

D = Code 128, ISBT 128

E = Code 93

F = Interleaved 2 of 5

G = Discrete 2 of 5, or Discrete 2 of 5 IATA

J = MISI Plessey

K = UCC/EAN-128

L = Bookland EAN

M = Trioptic Code 39

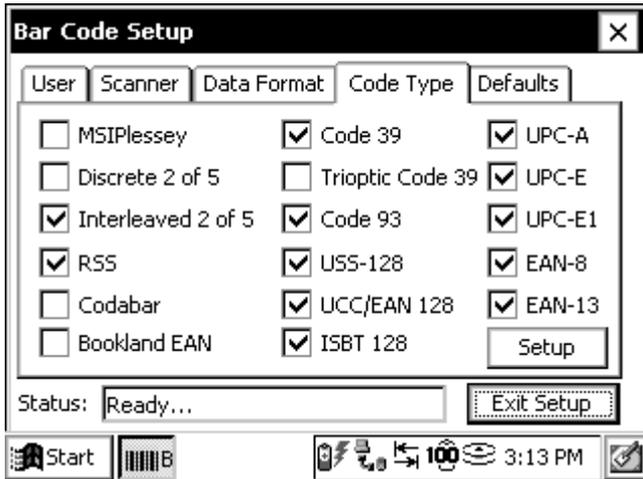
N = Coupon Code

Prefix and Suffix

The *Prefix*, *Suffix 1*, and *Suffix 2* character selection pull-down window lists the characters that can be used as a prefix or suffix. Only the prefix or suffix pull-down windows that are enabled are shown.

Code Type Setup

The *Code Type* tab lists the bar code types that the scanner can read. You can enable (box checked) and disable (box not checked) each of these bar code types. The Setup button at the bottom right corner of the screen is used to setup more detailed parameters for the bar code types in the *Setup* section below.



Setup

Tapping on the *Setup* button opens the *Additional Parameter Setup* screen, accessing the following seven bar code setup options:

UPC/EAN 1

UPC/EAN 2

Code39

MSIPlessey

Interleaved

RSS/Code93/Discrete

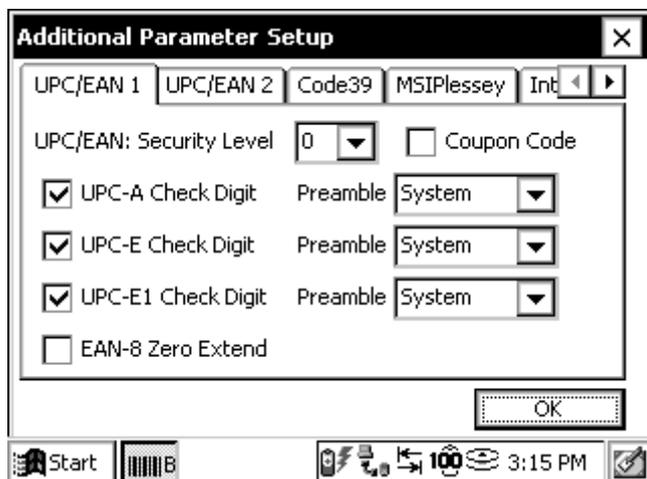
Codabar

To access one of these options, select the tab with the bar code type you want to enhance. The tabs are located along the top of the setup window. The additional tabs can be accessed using the scroll buttons on the upper right of the screen. For more information about each of the accessible bar code types, go to the following web site and read the *Symbologies (Bar Code Fonts)* section:

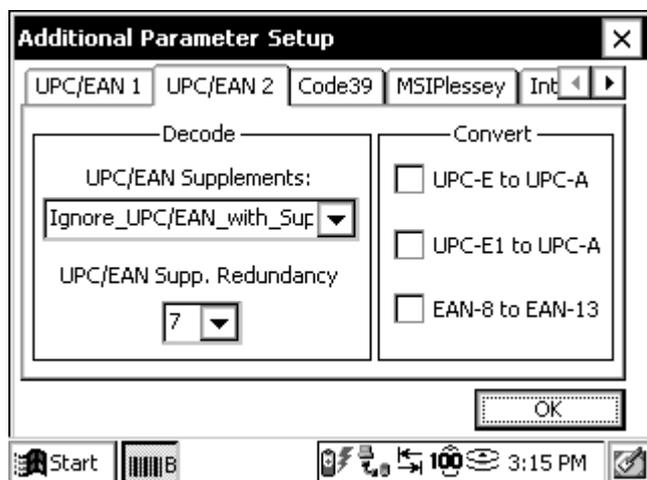
http://www.systemid.com/education/autoid_symbologies.asp

The setup parameters for each bar code type tab are accessed by using checkmark boxes or drop-down menus.

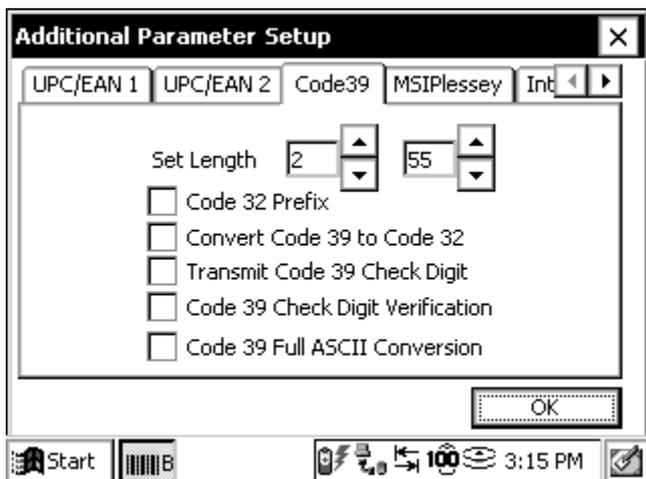
UPC/EAN 1



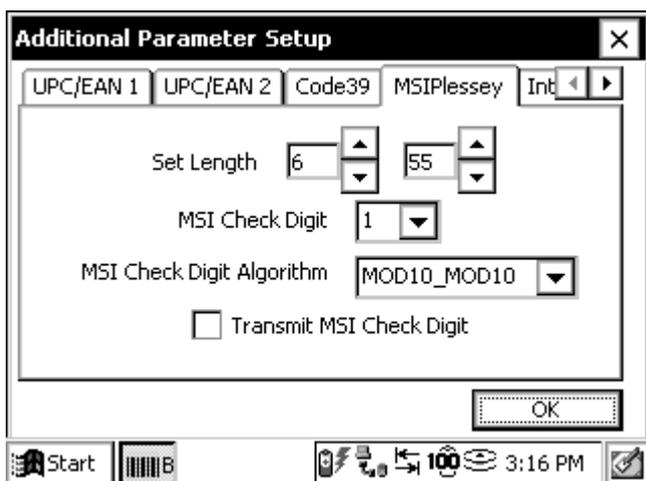
UPC/EAN 2



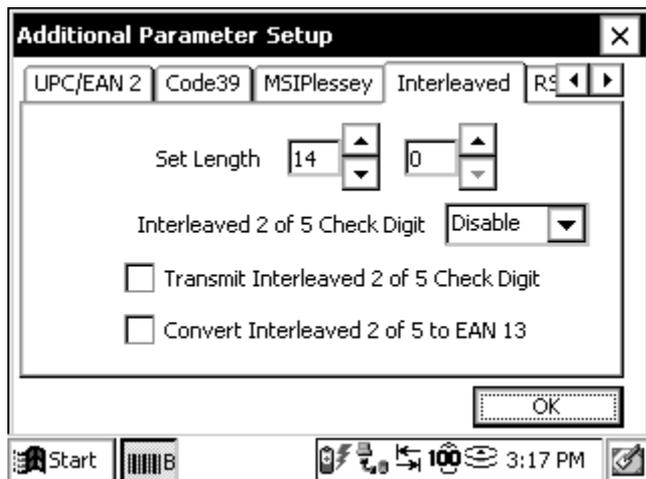
Code39



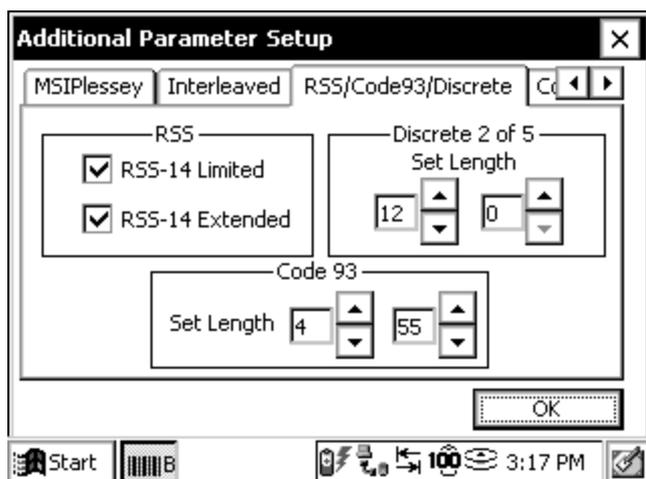
MSIPlessey

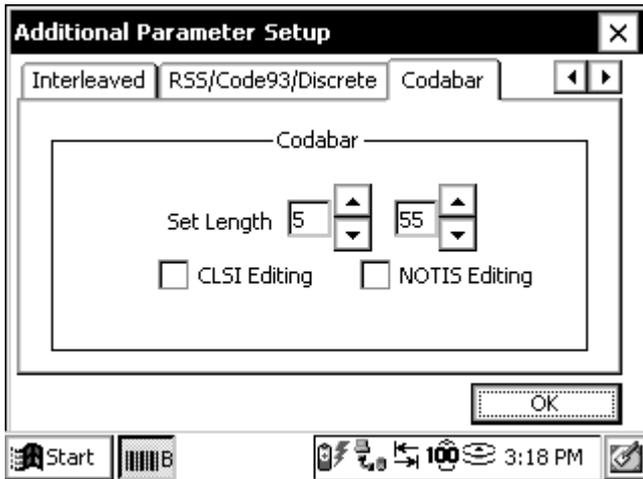


Interleaved



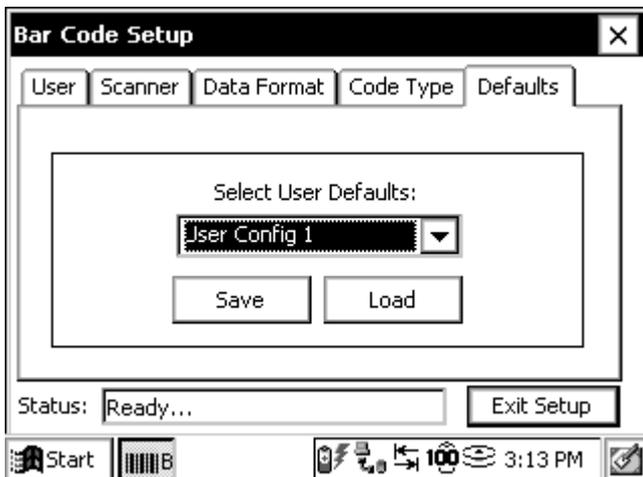
RSS/Code93/Discrete





Defaults Setup

The *Defaults* tab is used to load either user-defined configuration parameters or factory-default parameters. The users can save and reload four different user configuration files. The defaults are the settings that come installed on your Allegro when it is shipped.



Exit Setup

The *Exit Setup* button is available on every *Bar Code Setup* tab, allowing you to close the *Bar Code Setup* program at any time. Tapping on the *Exit Setup* button saves all your setup options and takes you back to the *Bar Code Reader* screen.

Tap on *Begin Scan* to start the bar code scanning program. Tapping on the *Exit* or *X* button, in the top right corner, exits out of the bar code setup program.

▲ Begin Scanning

The bar code scanning program allows bar code data to be directly entered into an application program similar to keyboard data entry. The bar code data is entered into the data collection program as electronic data, as if it were typed on the keyboard.

When a scan is initiated, the bar code scanning program transfers the data into the data collection program you have opened. The scanned data enters at the cursor's location in the data collection program. After each scan, place the cursor at the next location for scanned data entry.

To start the bar code scanning program and begin scanning, complete the following steps:

1. Tap on the *Bar Code Reader* icon on your Allegro's desktop and set up your scanner as outlined in the *Setup Bar Code* section of this chapter. If this step is already completed, proceed to step 2.
 2. Tap on the *Begin Scan* button on the *Bar Code Reader* screen.
 3. Open the data collection program you want to receive and store the scanned bar code data. Example: if you want your bar code scans placed in a PTab file, open your Allegro's PTab program.
- ❖ *Note: Keep the data collection program in the foreground of your Allegro when scanning, otherwise the scanned data is not entered.*
4. Position the cursor in the data collection program in the field you want the scanned data to enter.
 5. Press your specified scan button to target, then scan your bar code.

Sample Bar Codes

The following bar codes are samples for you to test your bar code scanner before taking it into the field. Under each bar code is the datum that should appear on your Allegro after a successful scan.

Code 39 Scan Sample



EAN-13 Scan Sample



EAN-8 Scan Sample



UPC-A Scan Sample



UPC-E Scan Sample



▲ Bar Code Installation Program

The *Bar Code Setup* program is installed on your Allegro before it is shipped. In the event that the *Bar Code Setup* program gets removed from your Allegro and needs to be reinstalled, complete the following steps:

1. Open your CD-ROM drive on your PC.
1. Insert the Allegro CE Utilities CD, which is shipped with your Allegro, into your CD-ROM drive, close the CD-ROM drive, and wait for the installation screen to load.
2. Click on the *Browse CD* button on the installation screen.
3. Double-click on the *Utilities Applications* folder.
4. Double-click on the *Bar Code Pod Setup Install* folder.
5. Connect your Allegro to your PC through ActiveSync.
6. Double-click on the setup icon.
7. Follow the instructions given throughout the installation program.

802.11b Expansion Pod

An Allegro using the 802.11b expansion pod offers the flexibility and benefits of being connected to a Wireless Local Area Network (WLAN). The 802.11b (also referred to as Wi-Fi) is a variant to the 802.11 series that applies to WLAN.



A WLAN is a data communication system used to replace or extend a wired LAN system. A WLAN system provides additional functionality by using radio frequency technology to transmit and receive data over the air, through walls, ceilings, and even cement structures, without wire cabling.

A WLAN provides all of the benefits and features of established LAN technologies like Ethernet, but without the limitations of being attached to a cable. An Allegro using 802.11b provides significantly increased freedom and flexibility for both data collection applications and the people collecting the data.

An Allegro using the 802.11b expansion pod with a Cisco Aironet 350 card offers the following features:

- Superior range and throughput
- Indoors: 130 feet (40m) at 11 Mbps and 350 feet (107m) at 1 Mbps
- Outdoors: 800 feet (224m) at 11Mbps and 2000 feet (610m) at 1 Mbps, up to 5000 feet with external antenna on access point
- Secure network communications
- World mode for international roaming and reduced range

The 802.11b provides 11 Mbps data transmission in the 2.4 GHz band under optimal conditions. Depending on the amount of surrounding interference such as trees, walls, people, etc., the transmission rate can fall back to 5.5, 2 or 1 Mbps.

The Allegro with an 802.11b expansion pod is shipped with the following Cisco items:

- Cisco Aironet 350 802.11b PC card (installed in your Allegro)
- Rubber duck antenna with a 90-degree pivoting joint
- Read Me First – EAP Authentication Requires Matching 802.1x Protocol Drafts
- Release Notes for Cisco Aironet Wireless LAN Adapters
- Cisco Aironet Wireless LAN Client Adapter Quick Start Guide
- Cisco Aironet Wireless LAN Client Adapter CD-ROM

▲ Getting Started

To start using 802.11b on your Allegro you will need to do the following:

1. Attach the rubber duck antenna.
2. Locate, read, and follow the Cisco instructions for setting up an access point for 802.11b, if you have a Cisco access point.
3. Locate, read, and follow the Cisco instructions for setting up profiles on your Allegro for 802.11b.
4. Locate, read, and follow the Cisco instructions for connecting to the WLAN.

▲ Antenna Attachment

The rubber duck antenna shipped with your 802.11b Allegro must be used with the 802.11b expansion pod. No other antennas are accepted or supported. To attach the antenna to the expansion pod, complete the following steps:

1. Place the antenna on the mount at the top of the expansion pod.
2. Screw the antenna firmly into place.
3. Rotate the antenna so that the 90-degree joint is positioned so it can pivot upward to a 90-degree angle.

4. Double-click on the *Links* icon to access a web page with links to the following information:

- Access Points
- Bridges
- Workgroup Bridges
- Wireless LAN Client Adapters (Windows CE for the Allegro)
- Software Center Links
- Warranty Links and Support Links
- Obtaining Service and Support

❖ *Note: When accessing any of the links on the link page you need to be connected to the Internet.*

▲ **Setting up an Aironet Access Point**

An access point is similar to a base station. It is used as a link from the wireless LAN to the wired network and the Internet. To connect your Allegro to the network via wireless LAN, an access point needs to be installed and configured.

For best connectivity and range between your Allegro and the access point, we recommend Cisco access points. However, you can use other established access points compatible with 802.11b. If you are currently using, or have purchased a compatible access point, follow the setup directions that were shipped with your access point.

▲ **Setting Up 802.11b Profiles on your Allegro**

The *Aironet Client Utility* is factory installed on your Allegro. This program is called the Aironet Client Utility and allows you to configure the profiles of the internal 802.11b card. A profile accommodates various access points and allows your Allegro access to different LAN systems.

The *Aironet Client Utility* allows you to set up and save profiles for connecting to specific wireless LAN networks. Because different wireless LANs have specific or different security settings, your Allegro needs to be configured to connect to each wireless LAN. These configurations are saved on your Allegro as profiles. The appropriate, specific profile is used when connecting your Allegro to specific wireless LANs.

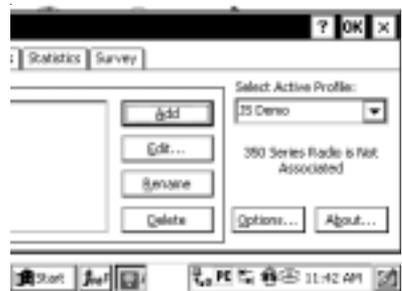
To open the client utility, complete the following:

1. Tap on the *Aironet Client Utility* icon on your Allegro's desktop.



Aironet Client
Utility

The following screen appears:



You will notice that the screens are formatted for a screen that is wider than your Allegro's screen. To view all options on a screen, drag the *Aironet Client Utility* to the left or right, as needed. To perform this drag function, place the stylus on the Allegro screen in the *Aironet Client Utility* title bar. While holding the stylus down, slide it left or right to move the program on the screen.

The Aironet Client Utility has the following five options:

- Profiles*
- Firmware*
- Status*
- Statistics*
- Survey*

For instructions on using the *Aironet Client Utility* and any of the above options, use the *Cisco Aironet Wireless LAN Client Adapters Installation and Configuration Guide for Windows CE*. The guide's location is described below.

To set up profiles on your Allegro, open the user manual by following the directions under the *Accessing the Cisco 802.11b Manual* section of this chapter. After opening the links page, complete the following steps:

1. Click on the http://cisco.com/univercd/cc/td/doc/product/wireless/airo_350/350cards/win_ce/index.htm link under the *Windows CE 2.11 & 3.0* heading.

The *Wireless LAN Adapter Documents for Windows CE* web page opens with a list of links to documentation for Aironet Wireless LAN and Client Utilities.

2. Click on *Cisco Aironet Wireless LAN Client Adapters Installation and Configuration Guide for Windows CE, OL-1375-03*, and a new web page opens with links to the entire manual in PDF form, or in separate web page links to individual chapters in the manual.
3. Click on the *Chapter 4 - Using the Profile Manager* link and follow the instructions for creating a new profile.

For additional information on using the *Aironet Access Utility* and the additional option it offers, use the documentation on the *Wireless LAN Adapter Documents for Windows CE* web page. Refer to step 1 in *Setting Up 802.11b Profiles on your Allegro* to get to this web page.

▲ Connecting to WLAN

Connecting to WLAN is a very involved process with a number of factors to consider. Because there are so many different access points types, profile set ups, and security setting considerations, seek the assistance of your IT department or WLAN technician.

▲ Safety Information

The FCC with its action in ET Docket 96-8 has adopted a safety standard for human exposure to radio frequency (RF) electromagnetic energy emitted by FCC certified equipment. When used with approved environmental limits found in OET-65 and ANSI C95.1, 1991.

Proper operation of this radio device according to the instructions found in this manual and the Installation and Configuration Guide specific to your computer's operating system will result in user exposure that is substantially below the FCC recommended limits.

- Do not touch or move antenna(s) while the unit is transmitting or receiving.
- Do not hold any component containing a radio such that the antenna is very close to or touching any exposed parts of the body, especially the face and eyes, while transmitting.
- Do not operate the radio or attempt to transmit data unless the antenna is connected; otherwise, the radio may be damaged.
- Use in specific environments
 - The use of wireless devices in hazardous locations is limited to the constraints posed by the safety directions of such environments.
 - The use of wireless devices on airplanes is governed by the Federal Aviation Administration (FAA).
 - The use of wireless devices in hospitals is restricted to the limits set forth by each hospital.
- Antenna use
 - High-gain, wall-mount, or mast-mounted antennas are designed to be professionally installed and should be located at a minimum of 12 inches (30cm) or more from the body of all persons. Cisco recommends that you contact your professional installer, VAR, or antenna manufacturer to obtain proper installation requirements.

Warning

Do not operate your wireless network device near unshielded blasting caps or in an explosive environment unless the device has been modified to be especially qualified for such use.

Warning

In order to comply with RF exposure limits established in the ANSI C95.1 standards, it is recommended when using a laptop with a PC card client adapter that the adapter's integrated antenna is positioned more than 2 inches (5 cm) from your body or nearby persons during extended periods of transmitting or operating time. If the antenna is positioned less than 2 inches (5 cm) from the user, it is recommended that the user limit exposure time.

Warning

In order to comply with FCC RF exposure limits, dipole antennas should be located at a minimum of 7.9 inches (20 cm) or more from the body of all persons.

▲ 802.11b Installation Program

The 802.11b setup program is installed on your Allegro before it is shipped. In the event that the 802.11b program gets removed from your Allegro and needs to be reinstalled, complete the following steps:

1. Place the *Cisco Aironet Wireless LAN Client Adapters Drivers and Utilities CD*, which came with your Allegro 802.11b expansion pod, into your PC's CD-ROM drive.
2. Double-click on the *My Computer* icon on your PC's desktop.
3. Double-click on the *CD-ROM* icon in the *My Computer* window that is open on your screen.
4. Double-click on the *Links* icon to access a web page with links to Access Points, Bridges, Workgroup Bridges, and Wireless LAN Client Adapters (Windows CE for the Allegro).
5. Click on the *Windows CE 2.11 & 3.0* link under Wireless LAN Client Adapters.
6. Click on *Cisco Aironet Wireless LAN Client Adapters Installation and Configuration Guide for Windows CE, OL-1375-03*.
7. Click on *Chapter 3 - Installing the Client Adapter*.
8. Follow the directions under *Installing the Driver and Client Utilities* to complete the installation.

Bar Code/802.11b Expansion Pod

The Bar Code/802.11b Expansion Pod integrates the wireless networking technology and the laser bar code scanning technology with the Allegro CE. Combining these two technologies adds a new level of versatility and usability to the Allegro.

The Bar Code/802.11b expansion pod combines each individual pod, which include:

- High performance bar code scanning in bright, outdoor light
- Scanning distances of 1 to 3 feet from the Allegro
- Excellent scan capability for poorly printed or low contrast bar codes
- Low power performance
- Compatible with nine different bar code symbologies
- Superior range and throughput
- Indoors: 130 feet (40m) at 11 Mbps and 350 feet (107m) at 1 Mbps
- Outdoors: 800 feet (224m) at 11Mbps and 2000 feet (610m) at 1 Mbps, up to 5000 feet with external antenna on access point
- Secure network communications
- World mode for international roaming



The following example shows one work environment that could greatly benefit from using an Allegro with the Bar Code and 802.11b expansion pod. This is only one possible scenario, the efficiency and usability of this expansion applies to a wide variety of bar code data collection environments.

Example: A shipment of logs needs to be inventoried and stored in to the company's database at a lumber mill. The logs are identified by using bar codes. An Allegro with a bar code expansion pod is ideal for this situation.

Bar codes can be scanned in a variety of weather conditions and that data is stored on your Allegro. Using the Bar Code/802.11b expansion pod, the efficiency of the bar code data collection is increased. Now, while outside, you can scan the bar codes on the logs while outside, and in real time that data is transferred by radio waves directly to the computer in the mills office and stored there.

The Bar Code/802.11b expansion pod removes the inconvenience of cable connections on two levels: there are no cables used to attach a bar code reader to the Allegro and eliminates cables that may obstruct the scan beam or get caught on a variety of objects. There are no cables being used to connect and transfer the scanned data from your Allegro to a PC unit.

The data is sent to the PC as you are outside working. This saves the extra steps of taking the Allegro, which is storing the scanned data, from your work environment to your PC, then connecting the Allegro to the PC and transferring the scanned data.

▲ Getting Started

To set up and begin using your Allegro with the bar code/802.11b expansion pod, follow the instructions outlined in the *Bar Code Expansion Pod* section and *802.11b Expansion Pod* section of this chapter.

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