



Allen-Bradley

PCMK Communication Card

Catalog Number 1784-PCMK

User Manual

Important User Information

Solid state equipment has operational characteristics differing from those of electromechanical equipment. Safety Guidelines for the Application, Installation and Maintenance of Solid State Controls (publication SGI-1.1 available from your local Rockwell Automation sales office or online at <http://literature.rockwellautomation.com>) describes some important differences between solid state equipment and hard-wired electromechanical devices. Because of this difference, and also because of the wide variety of uses for solid state equipment, all persons responsible for applying this equipment must satisfy themselves that each intended application of this equipment is acceptable.

In no event will Rockwell Automation, Inc. be responsible or liable for indirect or consequential damages resulting from the use or application of this equipment.

The examples and diagrams in this manual are included solely for illustrative purposes. Because of the many variables and requirements associated with any particular installation, Rockwell Automation, Inc. cannot assume responsibility or liability for actual use based on the examples and diagrams.

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Throughout this manual, when necessary, we use notes to make you aware of safety considerations.

WARNING 	Identifies information about practices or circumstances that can cause an explosion in a hazardous environment, which may lead to personal injury or death, property damage, or economic loss.
IMPORTANT	Identifies information that is critical for successful application and understanding of the product.
ATTENTION 	Identifies information about practices or circumstances that can lead to personal injury or death, property damage, or economic loss. Attentions help you to identify a hazard, avoid a hazard, and recognize the consequences.
SHOCK HAZARD 	Labels may be on or inside the equipment, for example, a drive or motor, to alert people that dangerous voltage may be present.
BURN HAZARD 	Labels may be on or inside the equipment, for example, a drive or motor, to alert people that surfaces may reach dangerous temperatures.

Environment and Enclosure

ATTENTION



Environment and Enclosure

This equipment is intended for use in a Pollution Degree 2 industrial environment, in overvoltage Category II applications (as defined in IEC publication 60664-1), at altitudes up to 2000 meters (6562 ft.) without derating.

This equipment is considered Group 1, Class A industrial equipment according to IEC/CISPR Publication 11. Without appropriate precautions, there may be potential difficulties ensuring electromagnetic compatibility in other environments due to conducted as well as radiated disturbance.

This equipment is supplied as open-type equipment. It must be mounted within an enclosure that is suitably designed for those specific environmental conditions that will be present and appropriately designed to prevent personal injury resulting from accessibility to live parts. The enclosure must have suitable flame-retardant properties to prevent or minimize the spread of flame, complying with a flame spread rating of 5VA, V2, V1, V0 (or equivalent) if non-metallic.

Subsequent sections of this publication may contain additional information regarding specific enclosure type ratings that are required to comply with certain product safety certifications.

Besides this publication, see:

- Industrial Automation Wiring and Grounding Guidelines, for additional installation requirements, Allen-Bradley publication 1770-4.1.
 - NEMA Standards publication 250 and IEC publication 60529, as applicable, for explanations of the degrees of protection provided by different types of enclosure.
-

Prevent Electrostatic Discharge

ATTENTION



Prevent Electrostatic Discharge

This equipment is sensitive to electrostatic discharge, which can cause internal damage and affect normal operation. Follow these guidelines when you handle this equipment:

- Touch a grounded object to discharge potential static.
- Wear an approved grounding wriststrap.
- Do not touch connectors or pins on component boards.
- Do not touch circuit components inside the equipment.
- Use a static-safe workstation, if available.
- Store the equipment in appropriate static-safe packaging when not in use.

Allen-Bradley, ControlLogix, DH+, SLC, RSLogix, RSLogix 5, RSLogix 500, RSLogix 5000, PLC-2, PLC-3, PLC-5, SLC 500, SLC 5/03, INTERCHANGE, PanelBuilder, WINtelligent LINX, Rockwell Automation, RSNetWorx, and RSLinx are trademarks of Rockwell Automation, Inc.

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About The Manual

Introduction



This manual describes how to install, configure, and troubleshoot the PCMK/B Communication card (cat. no. 1784-PCMK/B). Throughout the manual, we refer to this product as the PCMK card, or the PCMK/B card.

Audience

The information in this manual is intended for users who are:

- familiar with the Windows 2000, Windows NT, Windows 98, and Windows 95 operating systems.
- experienced with one or more of these Allen-Bradley products: PLC-2, PLC-3, PLC-5, PLC-5/250, SLC 500, or ControlLogix family of programmable controllers, or any other products that communicate with the PCMK card.

Are You Using Cardware?

Refer to the Using the 1784-PCMK card with Cardware Release Note, Publication 1784-RN039, for specific information about using the PCMK card with the Windows 3.1 operating system, MS-DOS, and Cardware. You can access Cardware information at <http://www.ab.com>.

Abbreviations

Throughout this manual, we abbreviate some terms. Use this table to become familiar with our terminology.

This is the abbreviation:	For:
PCMCIA	Personal Computer Memory Card International Association
IRQ	Interrupt Request
PC	Personal Computer

Conventions

We use these conventions in this manual:

Screen displays and prompts are shown as:
Click **Next** to continue with the installation

Text that you type is shown as:
a:\install c:

Other actions to be performed are shown as:
Click the **Memory** tab.

Summary of Changes

This release of the 1784-PCMK installation instructions contains new and updated information about obtaining the PCMK drivers. We use revision bars to call your attention to new or revised information. You will see change bars, as shown to the left of this paragraph, throughout this manual to help you quickly identify revisions.

Notes:

About the PCMK/B Card

What's in This Chapter?

Read this chapter to familiarize yourself with PCMCIA technology and the PCMK card.

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What is PCMCIA?

The Personal Computer Memory Card International Association (PCMCIA) is an organization that defines standards for connecting peripherals to laptop or notebook computers. The standard ISA, EISA, PCI, and VLB buses are too large for laptop computers; the PCMCIA PC Card is an accepted notebook standard.

Rockwell Automation is a registered member of PCMCIA and developed the PCMK Communication Card (cat. no. 1784-PCMK/B) under the PC card 95 standard – February 1995.

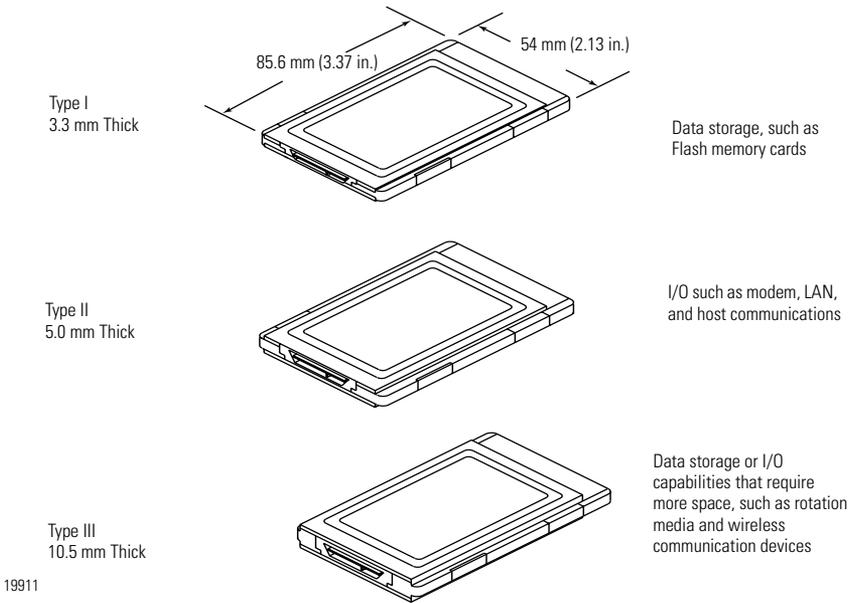
What is a PC Card?

Since personal computers have become smaller, a need for smaller storage media developed. The PC card is a small form-factor adapter that adds memory, storage, and I/O capabilities to these smaller computers.

All PC cards measure the same length and width, 54.0 mm x 85.6 mm (2.13 in. x 3.37 in.), but differ in thickness at the center. The thickness at the connector end and along the rails is the same for all types of PC cards.

Architecture

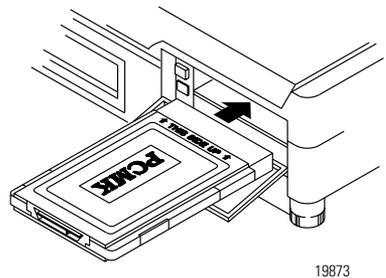
Currently, there are three types of PC cards. The 1784-PCMK card is a Type II card.



IMPORTANT

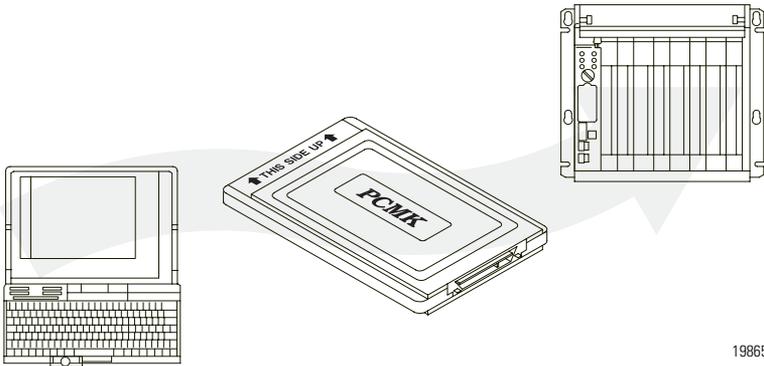
If the PCMCIA slot in your computer is thick enough to accommodate a Type III card, then it can also accommodate a Type I or II card.

All three types of PC cards use the same 68-pin connector. The pins are in two parallel rows of 34 pins. When inserted into the PCMCIA slot on your computer, the connector mates with a single molded socket.



What's the PCMK Card?

The PCMK/B card is a PCMCIA Type II form-factor card that allows a notebook computer to interface with other devices on both DH+, DH485, and remote I/O communication networks.



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IMPORTANT

Your computer must be PCMCIA 2.1 compliant to support the PCMK/ B card. Refer to the documentation supplied with your computer to determine whether or not it is compliant.

Enhancements to the 1784-PCMK/ B Card

The 1784-PCMK/B card contains new enhancements that were not contained in the 1784-PCMK/A card. The PCMK/B card:

- is a 16-bit card.
- connects with a new series of cables using locking connectors.
- will work with newer notebook computers that use PCI bus technology.
- has new updated drivers.
- can be used in conjunction with the PCMK/A card.

Dual PCMK cards are not supported on all operating systems. Refer to specific operating system chapters for details.

- contains DH+ support at 230 Kbps.
- contains remote I/O scanner capabilities.

IMPORTANT

The PCMK/B card will not connect with the Series A cables. Please verify that you are using the correct Series B cables when connecting to the PCMK/ B card.

Pre-installation Procedures

What's in This Chapter?

Read this chapter to prepare to install your PCMK card.

Topic	Page
Verify Your Package Contents	2-1
Determine Your Operating System and Software	2-2
Determine Your Operating System and Software	2-2

Verify Your Package Contents

Be certain that you have received the appropriate items, based on the catalog number used when ordering, and the list below before you discard any packing material. If an item is missing or incorrect, contact your local distributor or Rockwell Automation representative.

Quantity:	Description:	Catalog/Publication Number:	Notes:
1	PCMK Communication Card	1784-PCMK/B	
1	PCM5/B Communication Cable	1784-PCM5/B	Use with 1784-PCMC only
1	PCM6/B Communication Cable	1784-PCM6/B	Use with 1784-PCMC only
1	PCMK Communication Card User Manual	1784-UM519	

Determine Your Operating System and Software

Before you can begin to install your PCMK card, determine the operating system and software packages with which you will be communicating.

Windows 3. x. or MS-DOS Operating System

Refer to the Install the PCMK driver for DOS/Windows 3.x release note, publication 1784-RN039, for specific information about using the PCMK card with the Windows 3.x or MS-DOS operating systems.

If you are using Windows 3. x or DOS operating systems with	You should install
6200 Series Software (includes PLC-2, PLC-3, PLC-5, and PLC-5/ 250 controllers) without INTERCHANGE software and with other PC cards	Card and socket services software. We recommend you upgrade to A.I. or RSLogix software.
6200 PLC-5 controller with INTERCHANGE software	PCMKNIT enabler plus the card and socket service software your computer manufacturer recommends.
all other DOS-based software	PCMKNIT enabler plus the card and socket service software your computer manufacturer recommends.

Card and socket services software will not work on systems with Cardbus hardware. To find out if you have Cardbus controllers, contact your computer manufacturer. If you do not have Cardbus controllers, you need to get MS-DOS card and socket services software from your computer manufacturer.

Windows 95/98 Operating Systems

Install the RSIPCMK driver if you are using:

- Software compatible with the Windows 98 operating system, such as:
 - A.I.- Series, RSLogix 5 software
 - RSLogix 500 software
 - RSLogix 5000 software
 - PanelBuilder software
 - INTERCHANGE software, version 6.0.5 or later
 - WIntelligent LINX software, version 5.20 or later
 - RSLinx software
 - 6200 PLC- 5 or 5/ 250 controllers with INTERCHANGE or RSLinx software
- Windows 98 operating system

Only software products that communicate through RSLinx are supported on the Windows 98 operating system.

Refer to Chapter 3 for specific instructions on the Windows 95/98 operating system.

Windows NT Operating System

The Windows NT driver for the PCMK card is built into RSLinx software, version 1.7 or later. Rockwell Automation has published detailed instructions for configuring this driver. Refer to Chapter 4 for specific instructions.

Windows 2000 Operating System

If you are using the Windows 2000 operating system, the driver ships with RSLinx software version 2.2 or later. Refer to Chapter 5 for specific instructions.

Notes:

Install the RSIPCMK Driver for the Windows 95/98 Operating Systems

What's in This Chapter?

Refer to this chapter to perform the following:

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The instructions in this chapter assume that you are using the Windows 95/98 operating systems.

The screens (dialogs) shown in this chapter are taken from the Windows 95/B operating system. If you are using another version of the Windows 95 or Windows 98 operating systems, your dialogs may be different.

Locate the RSIPCMK Windows 95/98 1784-PCMK Driver

There are two ways to obtain the 1784-PCMK driver. The driver is located:

- on the RSLinx software version 2.20.107 or later product CD, located in the PnPDrivers folder.
- or visit <http://support.rockwellautomation.com>, then select Technical Support.

ATTENTION



If you already have a Series A PCMK card and it is properly configured with a driver version earlier than version 2.0, you must remove the earlier RSIPCMK driver from your computer before you install a later version. The new RSIPCMK driver supports both cards. Refer to Troubleshoot the Card on page 3-8.

You must have version 2.0 or later of the RSIPCMK driver for the PCMK/B card.

The RSIPCMK driver is available for all programs compatible with the Windows 95 operating system except:

- 6200 PLC-5 and PLC-5/250 software without INTERCHANGE software
- RSLinx software

IMPORTANT

The services provided by the RSIPCMK driver are available only while the Windows 95/98 operating systems are running. If you restart the computer in MS-DOS mode, the PCMCIA support is not loaded.

If you are using the Windows 98 operating system, install the RSIPCMK driver. Only software products that communicate through RSLinx software are supported on the Windows 98 operating system.

This driver works with the Windows 95/98 Plug and Play functionality, which allows the system to immediately recognize the PCMK card upon insertion. It automatically determines and assigns available resources to the PCMK card for you. These resources are the dual-port memory and interrupt level of the PCMK card.

The resources can be different every time you start the system. The system keeps track of all the resources for you.

Install the Driver

Perform these steps after you insert the PCMK card into a PCMCIA slot in your computer. Refer to Chapter 6, Insert and Remove the PCMK Card, for further information. After you insert the PCMK card, the system will detect the hardware and begin to build the driver information needed to run the hardware.

1. Obtain the driver from the RSLinx software CD or the Rockwell Automation Website at <http://support.rockwellautomation.com>.

Because the driver has not been loaded, you see this dialog:

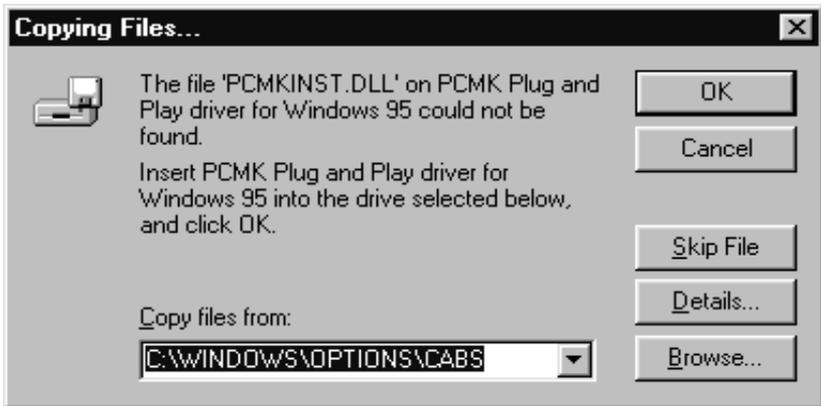


2. Click **Next**. The system displays:



3. Click **Finish**.
4. Click **OK**.

The following message might display.



5. In the Copy files from box, specify the location from which you are copying the files.
6. Click OK.

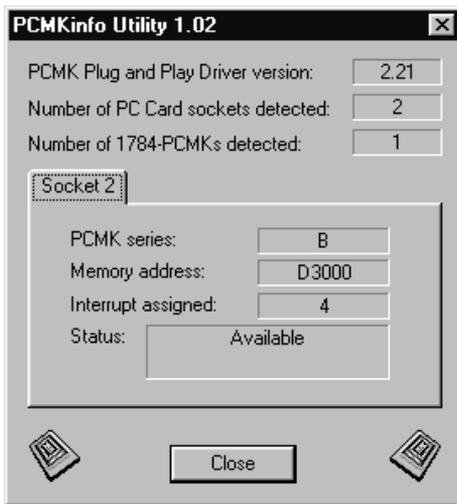
The operating system loads the appropriate driver and continues with its startup procedures. A dialog may appear that states the file to be copied is older than the one already on your computer. If this is the case, click **Yes** to keep the newer file.

Run the PCMKinfo Program

PCMKinfo is a utility program that allows you to verify the installation of the RSIPCMK driver and the PCMK card. We recommend you run this utility after installing the PCMK card and the driver, so you can make sure the components are working smoothly.

To run the PCMKinfo program, follow the steps below.

1. Access the Control Panel by selecting Start ⇒ Settings ⇒ Control Panel.
2. Double-click the PCMKinfo program icon.



If you are using a 16-bit communication package such as WinLinx or INTERCHANGE software, the socket number you use when configuring the software is one less than the number specified by PCMKINFO. This is because Microsoft changed the numbering convention when going from Windows 3.x to Windows 95 operating systems.

IMPORTANT

If you have two PCMK cards, there is a Socket tab for each card. Also, the memory address displayed by the PCMKinfo utility is the linear address. This address might differ from the address viewed in other software packages.

Stop the PCMCIA Card in the Windows 95 /98 Operating System

Before you remove the PCMK card from its socket, you should stop the communication to the PC card. To stop the card:

1. Right-click the **PC Card** icon in the taskbar.
2. Select **Adjust PC Card Properties**.
3. Select the PCMK card you want to stop from the list of PC cards.
4. Click **Stop**.
5. When you see the dialog that states you may safely remove this device, click **OK**.

Remove and Uninstall the RSIPCMK Plug and Play Driver

Run the PCMKUPDT program before you attempt to install an updated RSIPCMK driver. This utility will remove the old driver from the system. Do this instead of removing the card from the Add/Remove control panel. The utility performs a more effective removal. The PCMKUPDT program is located with the RSIPCMK driver. Run the program from the Windows 95/98 operating system.

1. Select **Start ⇒ Run**.
2. Navigate to the location where the pcmkupdt file is stored.
3. Click **OK**.

After the PCMKUPDT program is run, reinsert the PCMK card. The system performs as if the card is new to the system.

Troubleshoot the Card

Occasionally, your system may need to be altered to allow the PCMK card to work properly. Documented below are some tips and suggestions for helping you set up the RSIPCMK driver and the PCMK card successfully.

Hearing Multiple Tones

If you insert multiple PC cards, you may hear more than one tonal notification per card. The Windows 95/98 operating system detects devices during the power up process, and adjusts the device resources accordingly. This results in sounding multiple tones. When the system changes settings, for example removing a card, the tones will sound again for each change.

Memory Manager Conflicts

If you load the EMM386.EXE file, through the CONFIG.SYS file, you may interfere with the RSIPCMK driver's ability to map the PCMK card into memory. If you are unsure if you are loading the EMM386.EXE file, perform the following steps.

1. Access the Run dialog by choosing **Start** ⇒ **Run**.
2. Type **sysedit** in the Open field.
3. Click **OK**.

This starts an editor that lets you view and modify your CONFIG.SYS file.

4. Access the CONFIG.SYS file.
5. Scroll through the file to see if the EMM386.EXE file is contained in any of the lines. You can use the Find option within the Search menu to locate every instance of EMM386.

- Determine whether or not you need this Emm386 file based on the table below.

If you	Then
Do not need the EMM386.EXE to load programs into high memory to create more conventional memory	Remark or comment out the line containing the EMM386.EXE file by placing REM in front of the line
Need the EMM386.EXE because you are receiving low-memory error messages within a DOS application	<p>Add <code>win= xxxx-yyy</code> to your EMM386.EXE line, where <code>xxxx-yyy</code> is an unused memory range in the system. For example, <code>WIN=D000-D3FF</code> would be 16 k.</p> <p>Unless you use applications which require expanded memory support, include <code>NOEMS</code> on the EMM386.EXE line.</p> <p>You must allow at least 4 k of memory for one PCMK card.</p>

IMPORTANT

You must reboot for the CONFIG. SYS changes to take effect. If you added a WIN statement and are still experiencing problems, increase the size of the WIN= range.

If you are using the Novell 32-bit network client that is supplied by the Windows 95 operating system, you should have 40 k of memory on the `win` line in the CONFIG.SYS file. For example, `win= d000-d8ff`.

Errors After You Remove EMM

If you receive errors after you remove the EMM386 line, such as “EMS hardware problem,” check the properties for the DOS window you are running the programming software in by following the steps below.

- Right-click the **DOS** window icon.
- Select **Properties**.
- Click the **Memory** tab.

The memory settings display.

- Set the Expanded (EMS) Memory item to **None**.

PC Card Icon

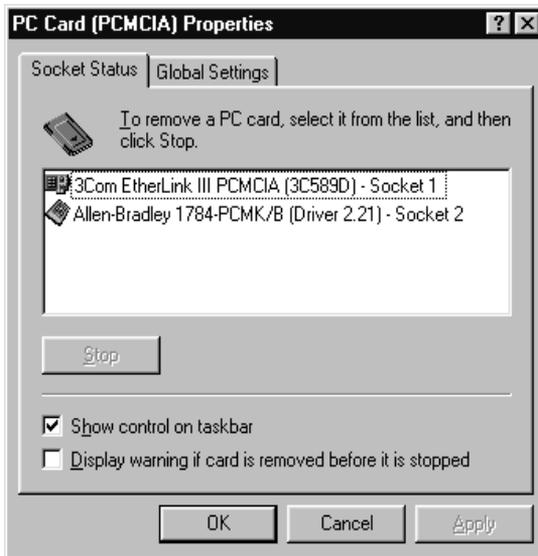
If you find that there is no PC Card icon in the Control Panel, this is an indication that the PCMCIA socket hardware was not installed properly. This situation prevents the Windows 95 operating system from locating the PC Card.

To solve this problem contact the manufacturer of the computer.

Enable the PC Card Icon in Taskbar

The PC card icon in the Taskbar lets you know the status of your PC card, and lets the system stop processing before you remove or change PC cards. This icon can be set up to display within the Taskbar on your desktop. The icon will display only when there are one or more PC cards installed in the computer. Use the following procedures to set up the PC card icon within the Taskbar.

1. Access the Control Panel by selecting **Start ⇒ Settings ⇒ Control Panel**.
2. Double-click the PC Card (PCMCIA) icon.
3. When the PC Card Properties dialog box appears, click **Show control on taskbar**.



4. Click **OK**.

The PC card icon appears in the Taskbar.

The Driver Still Does Not Work

Use the following procedures to resolve any other driver issues.

IMPORTANT

This procedure works only in the Windows 95 operating system and in upgrades to the Windows 98 operating system. This procedure will not work with original OEM computers configured with the Windows 98 operating system.

1. Right-click the My Computer icon.
2. Select **Properties**.

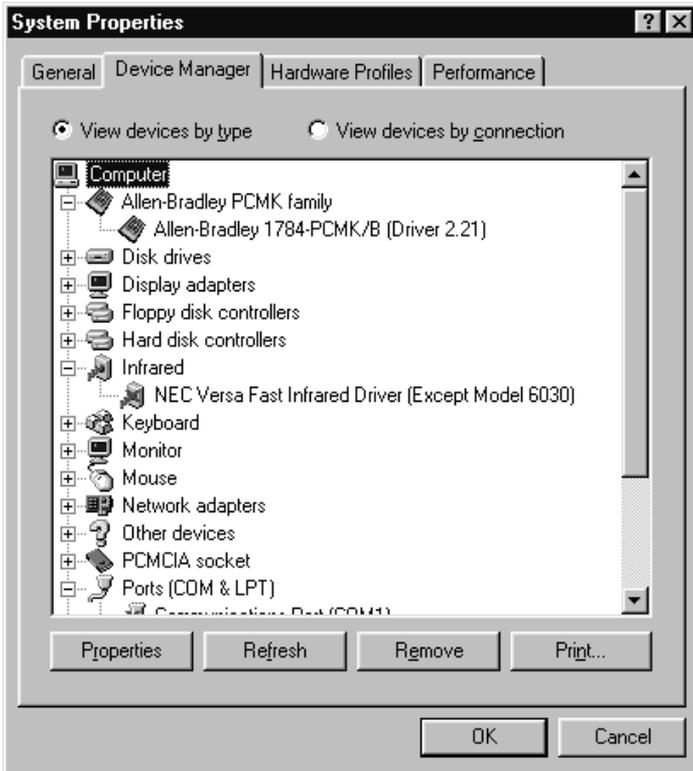
The System Properties dialog box appears.

3. Click the **Device Manager** tab.

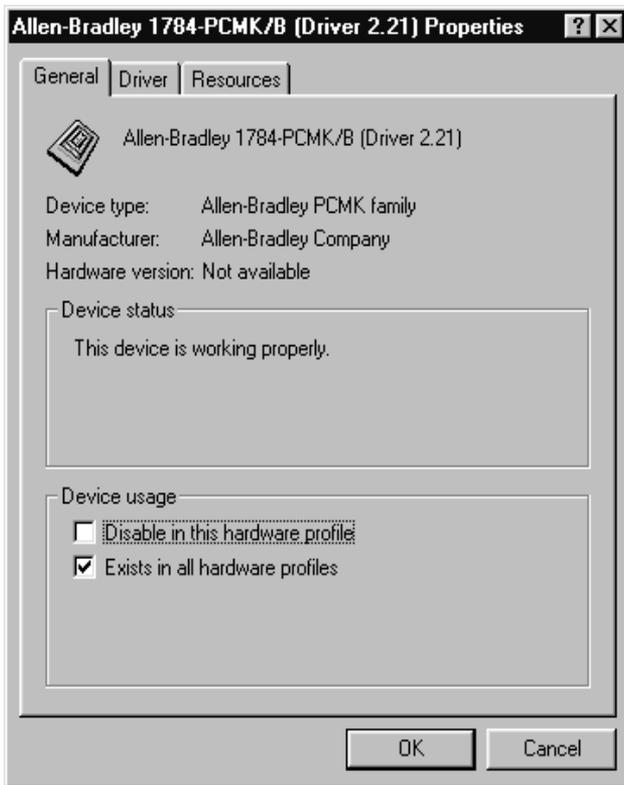
All of the devices within the system are displayed.

4. Scroll through the devices and find the Allen-Bradley PCMK Family line.

If this line has a plus sign, click the plus sign to expand the item. The Allen-Bradley 1784-PCMK device should be listed.

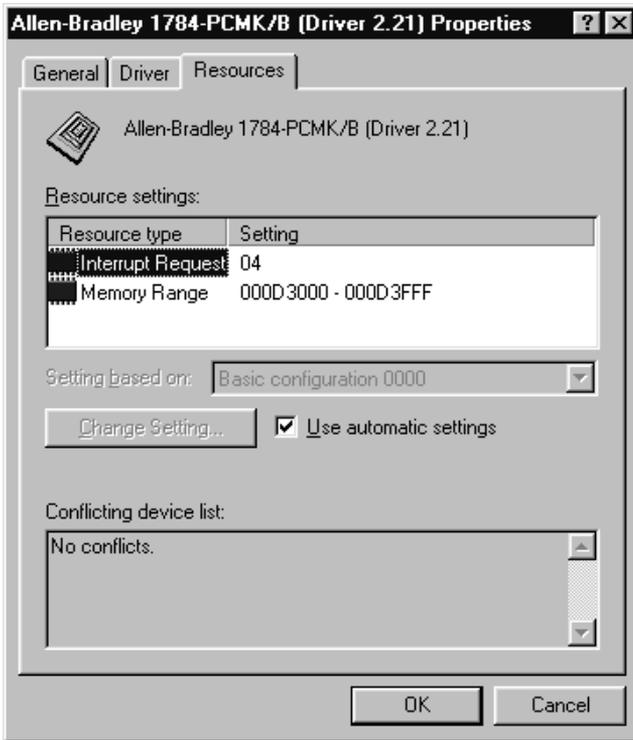


5. Select Allen-Bradley 1784-PCMK.
6. Click Properties.



7. If Code 10 (conflicting memory resources) is reported in the dialog, continue with the following steps.

8. Click the **Resources** tab in the Properties dialog.



IMPORTANT

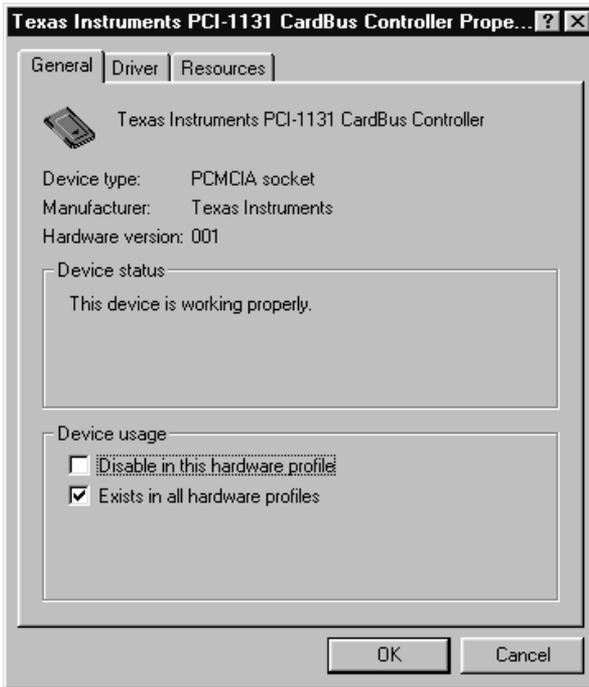
Depending on how the Windows 98 operating system was installed, you may or may not have access to Change Settings.

9. Verify that there are no resources conflicts listed in the Conflicting Device list.
10. Verify that an interrupt has been assigned to the PCMK card.

An interrupt must be assigned. You may have to disable another device, such as an unused communications or parallel port, to make an interrupt available for the PCMK card.

- If there are conflicts, you may need to alter the settings of devices involved in the conflict to get the PCMK card to function properly. Try deselecting the `Use automatic settings` box and then changing the interrupt or memory resources. This procedure works only in the Windows 95 operating system.
 - If there are no conflicts, continue with the following steps.
11. Return to the Device Manager and scroll through the list to find PCMCIA socket.
 12. Double-click **PCMCIA socket** to expand it.
 13. Click the **PCMCIA** controller used by your system.

14. Click **Properties**. Verify that the socket controller is enabled in the hardware profile you are using.



If	Then
The Device status says "This device is not present, not working properly, or does not have all drivers installed, code 10."	Click the Resources tab and check the Conflicting Device list for possible hardware conflicts. Or you may want to try enabling the Use Automatic Settings option. Refer to step 8. The Automatic Settings option works only in Windows 95 or Windows 98 upgrade configurations. Or you have a general PCMCIA problem, and you should contact your hardware supplier for a resolution.

Install the 1784-PCMK Driver for the Windows NT Operating System

What's in This Chapter?

Refer to this chapter to perform the following:

Topic	Page
Locate the Windows NT Driver	4-1

Locate the Windows NT Driver

The Windows NT driver for the PCMK card is built into RSLinx software, version 1.7 or later. Rockwell Automation has published detailed instructions for configuring this driver. You can find these instructions by visiting <http://support.rockwellautomation.com>, then selecting Technical Support.

IMPORTANT

Be aware there are several different third party plug and play emulators, such as SystemSoft's CardWizard and Softex/Phoenix's CardExec, that may be installed on some computers running the Windows NT operating system. Knowledgebase document 10088 refers to solutions when you configure computers with third-party, plug and play emulators. Knowledgebase document 10410 also describes procedures for using SystemSoft's CardWizard software. Access the Knowledgebase at <http://support.rockwellautomation.com>. Click Technical Support, then Knowledgebase.

IMPORTANT

You can have only one 1784-PCMK card configured in the Windows NT operating system. The Windows NT operating system does not differentiate between the card slots. If you insert more than one PCMK card into your PC, only one will be available for use.

4-2 Install the 1784-PCMK Driver for the Windows NT Operating System

Refer to Chapter 6 for instructions on how to install and remove the card. In the Windows NT operating system, you can damage the card if you do not shut down your system before you install and remove the card.

Install the 1784-PCMK Driver for Windows 2000/XP

What's in This Chapter?

Refer to this chapter to perform the following:

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Review the 1784-PCMK Hardware Properties	5-6
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Eject the 1784-PCMK Card	5-13
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Show the Card Unplug/Eject Icon on the Taskbar	5-16

In order to follow the instructions in this chapter, you must:

- have the Windows 2000 or XP operating system loaded.
- have the Windows 2000/XP driver for the PCMK card.

IMPORTANT

You can have two 1784-PCMK cards configured in the Windows 2000 operating system. If you insert more than one PCMK card into your PC, only one will be available for use.

Locate the Windows 2000/XP 1784-PCMK Driver

There are two ways to obtain the 1784-PCMK driver. The driver is located:

- on the RSLinx software version 2.20.107 or later product CD, located in the PnPDrivers folder
- or visit <http://support.rockwellautomation.com>, then select PC Cards Utilities and Downloads.

Download the 1784-PCMK Driver

Follow these instructions to download the 1784-PCMK driver from the Rockwell Automation Website.

1. Visit our Website at <http://support.rockwellautomation.com>.
2. In the left pane, select PC Cards Utilities and Downloads.
3. Download the 1784-PCMK driver for the Windows 2000 or XP operating systems, 1784-PCMK_Win2k_XP.zip.

Install the Driver

If you insert multiple PC Cards, you may hear more than one tonal notification per card. The Windows 2000 operating system detects devices during the power up process, and adjusts the device resources accordingly. This results in sounding multiple tones. When the system changes settings, for example removing a card, the tones will sound again for each change.

1. Insert your 1784-PCMK card. Refer to Chapter 6 “Insert and Remove the PCMK Card.”
2. After you insert the PCMK card, the system detects the hardware and begins to build the driver information needed to run the hardware. Because the driver has not been loaded, You see a new hardware dialog box and the following message:



You see:

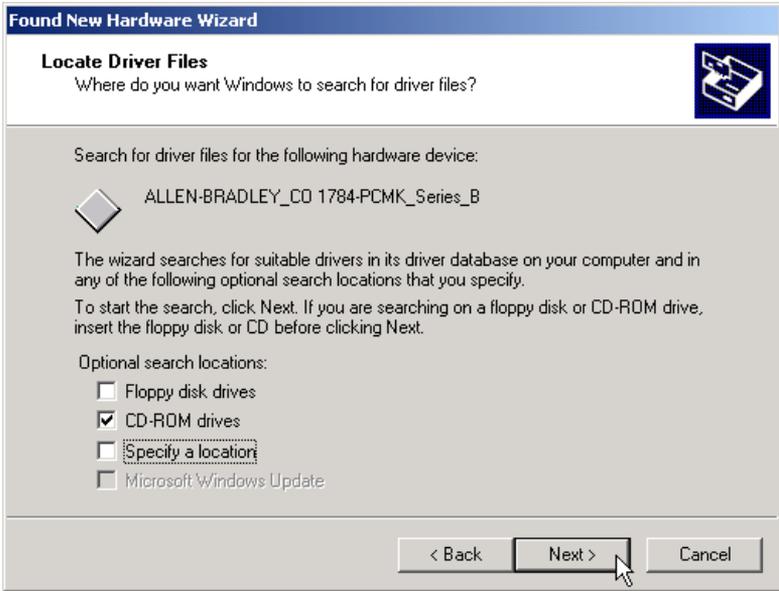


3. Click Next.

You see:



4. Select **Search for a suitable driver** and click **Next**.



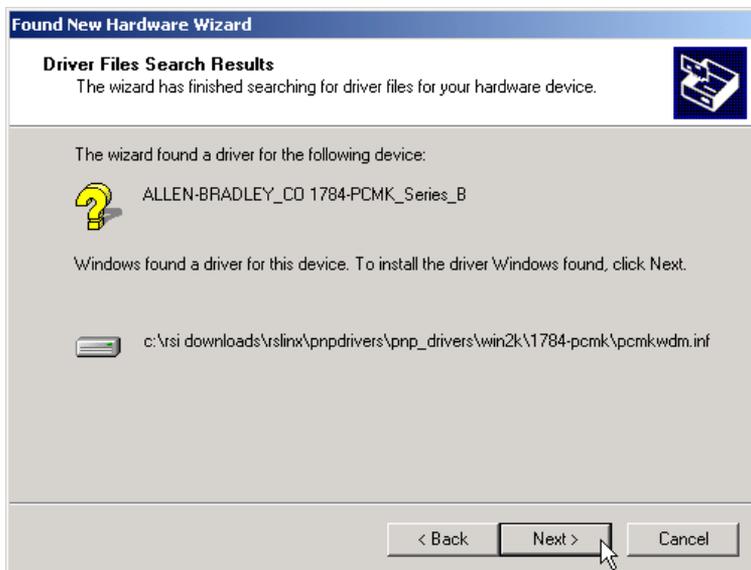
At this point you need to select where the file is located.

5. Select one of the following:

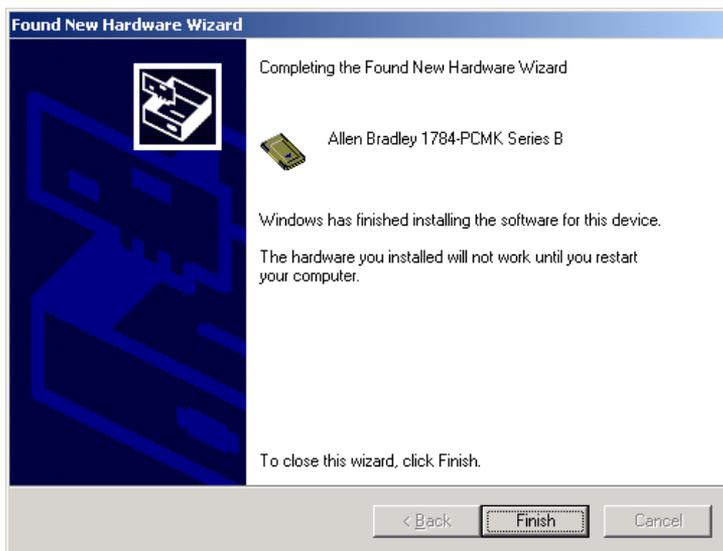
- **Floppy disk drives** if you are going to use a floppy disk that contains the driver
- **CD-ROM drives** if you are going to get the file from the RSLinx CDROM Version 2.2 or later
- **Specify a location** if you downloaded the driver file from the Rockwell Automation Website.

If you select:	Then:
Floppy disk drives	insert the PnP drivers disk into the drive and click Next . The operating system will search for the appropriate driver.
CD-ROM drives	insert the RSLinx CD into the drive and click Next . The operating system will search for the appropriate driver.
Specify a location	use this selection if you have downloaded the driver from the Rockwell Automation Website. You will be prompted for the location path of the driver.

6. Click Next.



7. Once the driver installs, the following displays.



8. Click Finish.

You may be prompted to restart your computer for the driver to take effect.

1784-PCMK Hardware Properties

The Windows 2000 operating system provides properties dialog boxes for removable devices. The properties dialog boxes provide the following:

- general information such as device status, manufacturer and card location
- device driver information such as driver version and buttons for you to install and uninstall the driver
- resource information such as interrupt request settings and memory range settings

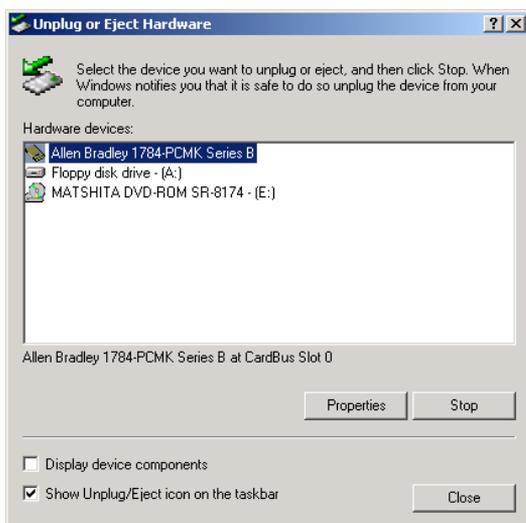
We recommend you verify that the card is running properly after you install the 1784-PCMK card and the driver.

To access Hardware Properties and verify that the 1784-PCMK card is OK, follow the steps on page 5-7.

1. Double-click the Unplug/Eject hardware icon  in the task bar.

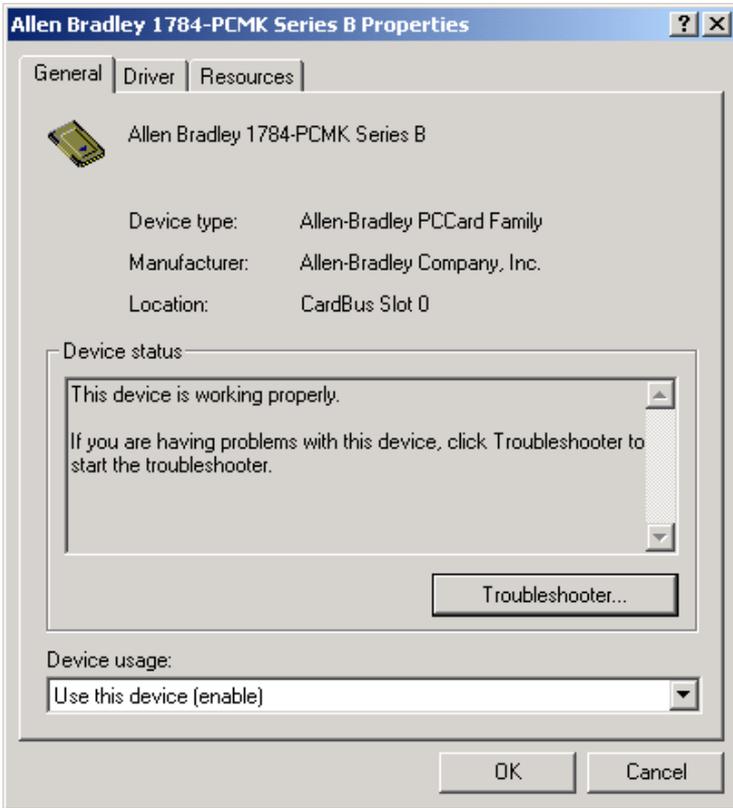
TIP

If you don't have the icon on your task bar, go to page 5-16 to activate the icon.



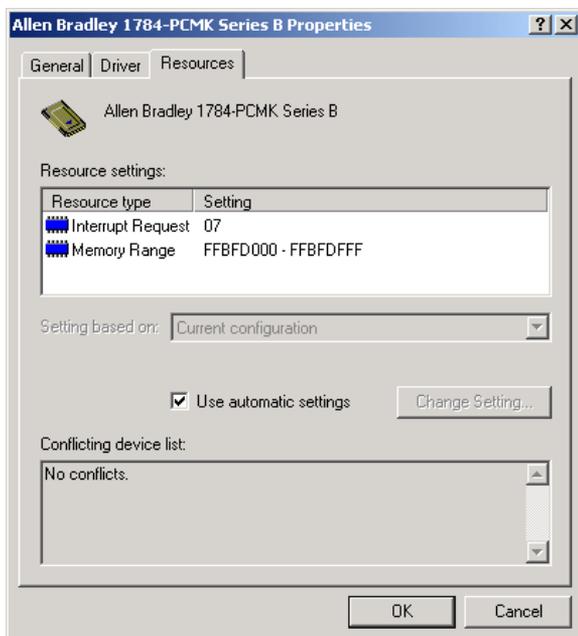
2. Select the card.
3. Click **Properties**.

General Properties



If	Then
The device status says "This device is not present, not working properly, or does not have all drivers installed."	Click the Resources tab and check the Conflicting Device list for possible hardware conflicts.
	Or you may want to try disabling the Automatic Settings option. Refer to Resources Properties on page 5-9.

Resources Properties



The majority of the time, we recommend that you use the automatic settings. The operating system assigns an interrupt and memory location for you. An interrupt must be assigned to the 1784-PCMK card. Verify that there is an interrupt assigned and no resource conflicts display in the Conflicting Device list.

In the unlikely event that you have a resource conflict, you may need to assign a specific interrupt or memory range to free the resource for another device.

To manually assign an interrupt:

1. Deselect the **Use automatic settings** box.
2. Click **Interrupt Request**.
3. Click **Change Setting...** and select a new interrupt location number (address).

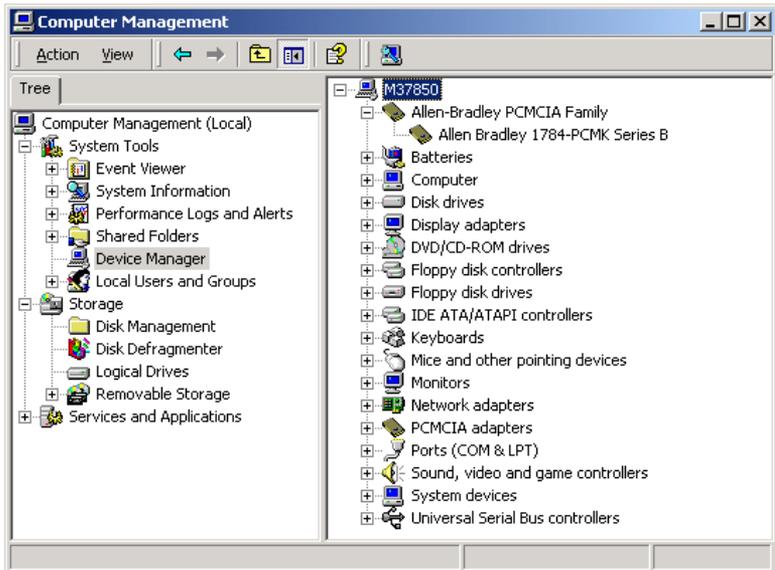
Most systems have 15 interrupt locations available for you to assign. If you have more than 15 devices that need an interrupt location, you may need to disable another device, such as an unused serial or parallel port to make an interrupt available for the PCMK card.

In some cases, a device other than the 1784-PCMK card may be determined to use the interrupt that the PCMK card wants. If this happens, let the other device have the interrupt and assign the 1784-PCMK card another interrupt location.

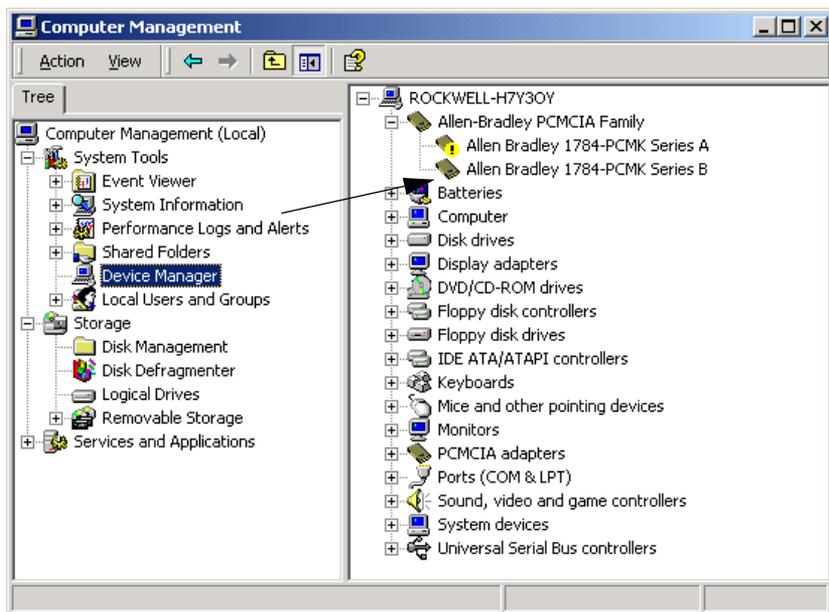
Navigate to Device Manager

Here is a second way to find your way to the hardware properties so you can verify that your card is working properly.

1. Right-click **My Computer**.
2. Select **Manage**.
3. Click the **+** next to **Allen-Bradley PCMCIA** to display the available Allen-Bradley cards...



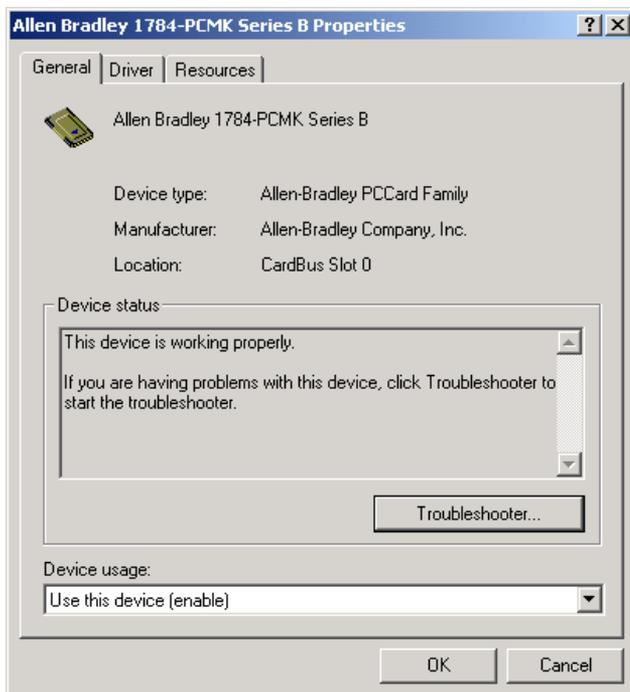
We recommend using only one card at a time. If you insert two PCMK cards, only one card will be available for use. The Device Manager window looks like this:



One of the cards has an  **Allen Bradley 1784-PCMK Series A** and is unavailable for use. We do not recommend that you have more than one card in your system.

1. Double-click the 1784-PCMK card listing.

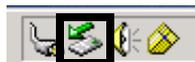
You will see:



Eject the 1784-PCMK Card

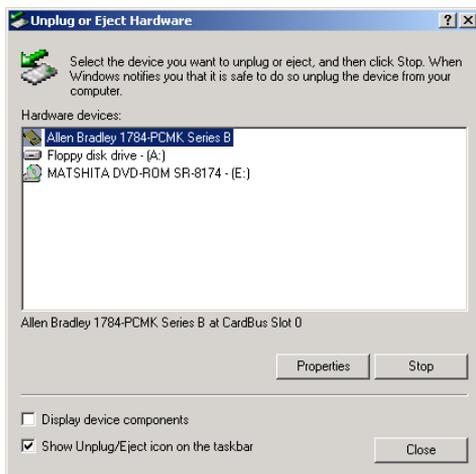
Before you remove the PCMK card from its slot, you need to stop the communication to the card. To stop the card:

1. Double-click the card eject button on your task bar.

**TIP**

If you don't have the icon on your task bar, go to page 5-16 to activate the icon.

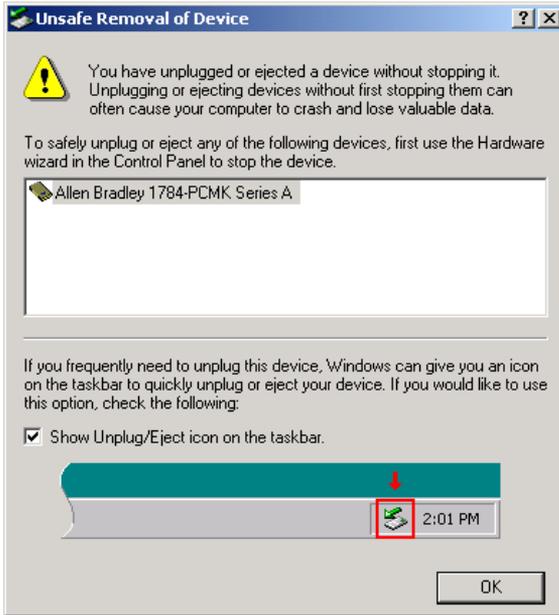
2. Click the PCMK card you want to stop from the list of cards.



3. Click **Stop**.
4. When you see the dialog that states you may safely remove this device, click **OK**.
5. Remove the card.

Unsafe Removal of Card

If you do not stop the communication to your card before you remove a card from your computer, you see this dialog box:



IMPORTANT

Use the Unplug/Eject icon to be sure you do not damage your card.

Update the 1784-PCMK Driver

Perform these steps after you insert the PCMK card into a PCMCIA slot in your computer. After you insert the PCMK card, the system will detect the hardware and begin to build the driver information needed to run the hardware. Because the driver has not been loaded, the operating system displays a new hardware dialog and the following message:

1. Right-click **My Computer**.
2. Select **Properties**.
3. Select **Hardware**.
4. Select **Device Manager**.
5. Expand **Allen-Bradley Communication Cards**.
6. Highlight **PCMK**.
7. Right-click **PCMK**.
8. Select **Properties**.
9. Select **Driver** tab.
10. Select **Update Driver**.
11. Click **Next**.
12. Select **Search for suitable driver** and click **Next**.
13. Specify location and click **Next**.
14. Type the path to the driver and click **Next**.
15. Click **Finish**.
16. Click **Close**.

You must reboot your computer for the driver to be active.

Show the Card Unplug/Eject Icon on the Taskbar

If you frequently need to unplug the device, be sure to check the **Show Unplug/Eject icon on the taskbar** box in the **Completing the Add/Remove Hardware** wizard page. You can check the box the first time you install the card. The next time you want to unplug or eject the device, you can use the icon on the taskbar instead of the Add/Remove Hardware wizard.

If the icon is not on your task bar, you can find the check box in the Add/Remove Hardware Wizard. You have to finish the process of removing the card from the slot in order for the check box to take effect. You are not given the opportunity to back out of the hardware wizard once you get to the location of the checkbox.

1. Double-click **My Computer** on your desktop.
2. Double-click **Control Panel**.
3. Double-click **Add/Remove Hardware**.
4. Click **Next**.
5. Check **Install/Unplug a device** and click **Next**.
6. Check **Unplug/Eject a device** and click **Next**.
7. Select the **1784-PCMK** card and click **Next**.
8. Confirm the device and click **Next**.
9. Check the **Show Unplug/Eject** icon on the taskbar.
10. Click **Finish**.
11. Remove your card.

Insert and Remove the PCMK Card

What's in This Chapter?

Refer to this chapter to perform the following:

Topic	Page
Insert the PCMK Card	6-2
Remove the PCMK Card	6-4

ATTENTION



To comply with the CE Low Voltage Directive (LVD), this equipment must be powered from a source compliant with the following:

Safety Extra Low Voltage (SELV) or Protected Extra Low Voltage (PELV).

To comply with UL restrictions, this equipment must be powered from a source compliant with the following:

Class 2 or Limited Voltage/Current.

Insert the PCMK Card

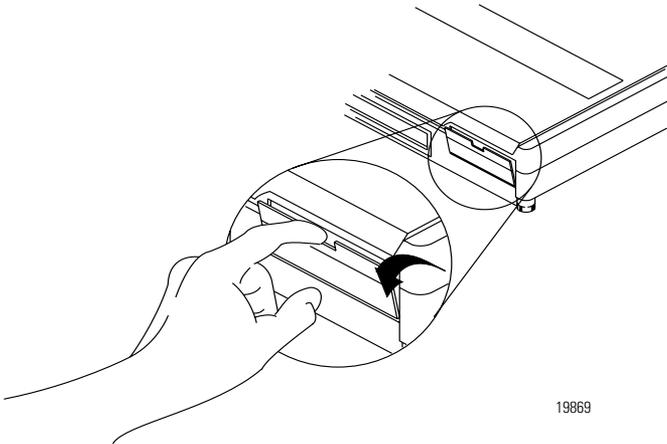
IMPORTANT

In most cases, except for when you are using the Windows NT operating system you can insert or remove the PCMK card from a powered computer. However, different application programs accessing the PCMK card behave differently. Some applications, for example, INTERCHANGE software, do not support removing and reinserting the card.

If you are using the Windows NT operating system without third party plug and play software, you cannot insert or remove the card when powered. In all cases, you should stop all communication software to the PCMK Card before removing it. With the Windows NT operating system, you should shut down the system.

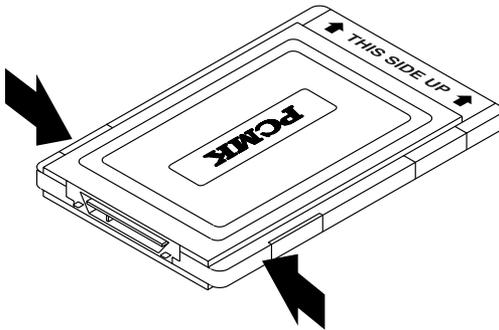
The diagrams in this chapter show a PCMCIA 2.1 compliant notebook computer that may not match the computer you are using. Your installation may be slightly different. Follow the instructions in this chapter to install or remove the PCMK card.

1. Open the door to the PCMCIA slot. Some card slots do not have doors.



19869

2. Grasp the PCMK card by the edges with the PCMK logo facing upward and the 68-pin connector facing into the PCMCIA slot.

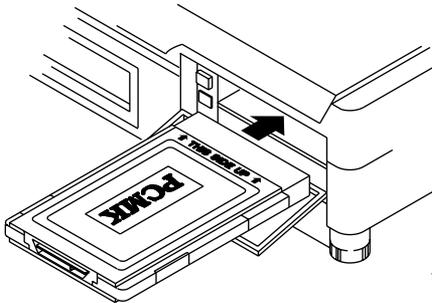


30370

IMPORTANT

If you have more than one slot in your computer, you can insert the PCMK card into any empty slot. Check your computer's documentation for the slot numbers. The other available slots can be used for other PC cards such as network or modem cards.

3. Insert the PCMK card into the PCMCIA slot and slide it in until firmly seated in the connector. Some computers have an ejector button that pops out when the card is seated in the connector.



19873

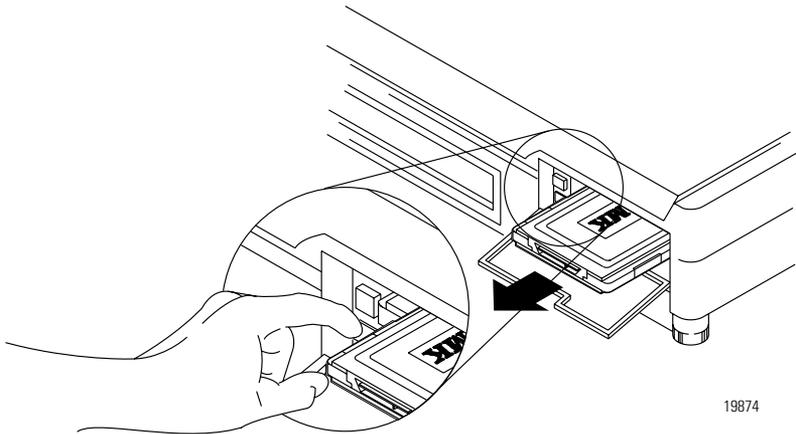
If the computer is configured properly, your sound/speaker is enabled, and you installed the PCMK card successfully, you hear multiple tones when you insert a card or boot the computer. If you have two PCMCIA cards, there are 2 sets of tones, one for each card.

IMPORTANT

When you install the PCMK card for the first time, please refer to Chapter 2, “Pre-Installation Procedures”, for information on how to determine which procedures you need to follow to successfully configure the PCMK card.

Remove the PCMK Card

On most computers, you press the release button and remove the card from the slot. If this is not applicable to your computer, follow the instructions specified in its user manual.



You hear multiple tones for each card that you remove, if your system is configured properly. These tones indicate the card is now disabled.

IMPORTANT

You should stop any software communicating with the card before removing the PC card. If you do not do this, the stray processes may halt the system's performance.

Choose and Connect a PCMK Cable

What's in This Chapter?

Follow the instructions in this chapter to connect the PCMK card to a network or processor. The instructions in this chapter assume that you have inserted the PCMK card into the PCMCIA slot.

Topic	Page
Determine the Required Cable	7-1
Attach the Wedge	7-3
Connect the Cable	7-6
Remove the Cable	7-12
Attach the Wedge	7-3

Determine the Required Cable

ATTENTION



The PCMK card does not have a termination resistor; use caution when connecting this PCMK card at the end of a DH+ and DH485 link. If your application software prompts you to set termination of the PCMK card, set this field to OFF.

ATTENTION



Communications cable length must be less than 10 meters (32.81 feet).

7-2 Choose and Connect a PCMK Cable

If you connect to Allen-Bradley	You need⁽³⁾
PLC-2 Family Processors (Not supported with cardbus sockets)	PCM2/B Cable Assembly (cat. no. 1784-PCM2/B)
SLC 5/01 Processors SLC 5/02 Processors SLC 5/03 Processors 1747-AIC link coupler for DH485 Other DH485 devices with an RJ45 jack	PCM4/B Cable Assembly (cat.no. 1784-PCM4/B)
PLC-3 Family Processors ⁽¹⁾ PLC-5 Family Processors PLC-5/250 Classic Processors	PCM5/B Cable Assembly (cat. no. 1784-PCM5/B)
SLC 5/04 Processors and PLC-5 Enhanced Processors ControlNet PLC-5 Family Processors ⁽²⁾ Other DH+ devices ⁽²⁾ ControlLogix 1756-DHRIO Module	PCM6/B Cable Assembly (cat. no. 1784-PCM6/B) or 1784-PCM5/B cable with CP7 adapter
Remote I/O Network (For demo only)	PCMS/A Cable Assembly (cat. no. 1784-PCMS/A)

⁽¹⁾ Connection is made via DH+ through 1775-S5, SR5

⁽²⁾ Connection can be made with a PCM5/B cable using an 8-pin mini-DIN connector

⁽³⁾ All cables contain captive hardware to support the use of positive-locking connections.

Attach the Wedge

ATTENTION

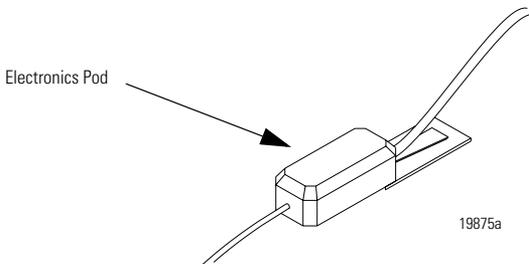
We recommend that you attach the wedge that is provided with your cable to the computer. This wedge provides strain relief for the cable and secures the cable to the computer so the cable is not accidentally disconnected. If you do not use the wedge and the cable disconnects, it can damage the connector on the cable and PCMK card.

ATTENTION

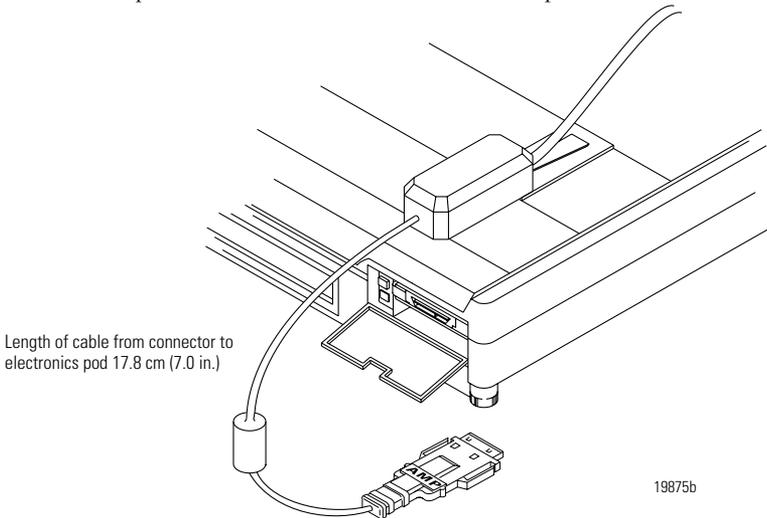
On some laptop computers, the PCMCIA slot positioned so that mounting the electronics pod will not allow the cable connector to reach the PCMK card. For alternative cable strain relief options, visit <http://support.rockwellautomation.com> and click the Knowledgebase link. In the Keyword area, search for cable strain relief.

Attach the wedge to your computer.

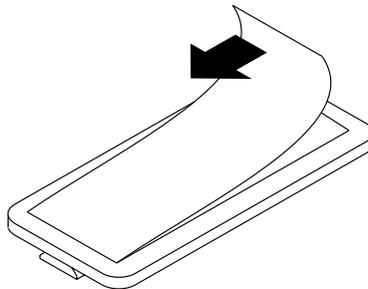
1. Slide the wedge into the slot on the bottom of the cable's electronics pod as shown below.



2. Position the assembly on the computer so the narrow end of the wedge is closest to the PCMCIA slot. When you find the best location for the wedge, use a pencil to mark the location on the computer.



3. Separate the wedge from the electronics pod.
4. Remove the paper backing from the wedge.

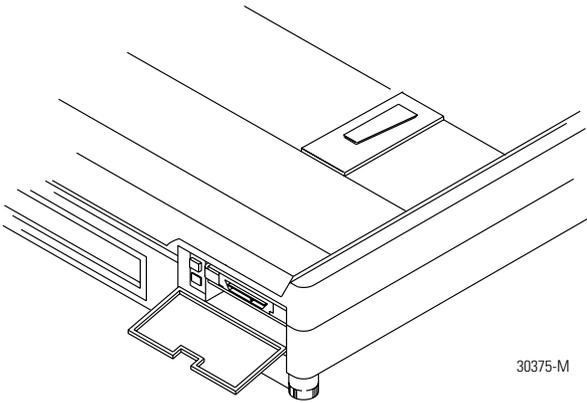


ATTENTION



The adhesive on the wedge is very strong. Once you remove the protective paper and attach the wedge to the computer, you cannot remove the wedge. Be certain that you are confident about the position of the wedge before you secure it.

5. Place the wedge on the computer where you marked the location.



30375-M

Connect the Cable

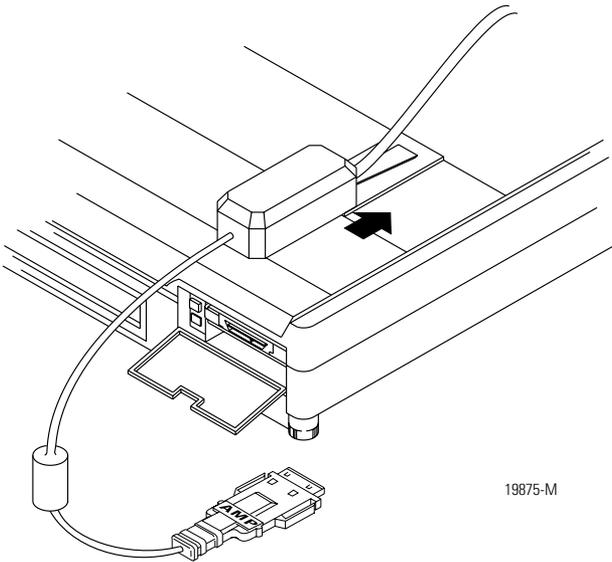
ATTENTION



The PCMK card does not have a termination resistor; use caution when connecting this PCMK card at the end of a DH+ and DH485 link. If your application software prompts you to set termination of the PCMK card, set this field to OFF.

Connect the cable to the PCMCIA slot.

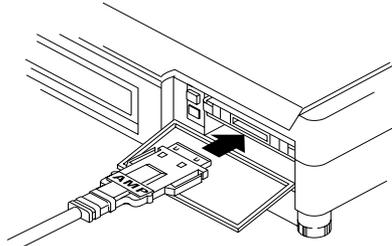
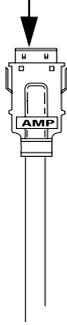
1. Slide the cable's electronics pod onto the wedge on the computer.



19875-M

2. Attach the cable to the PCMK card.

The silver side should face upward as you connect the cable to the PCMK card.

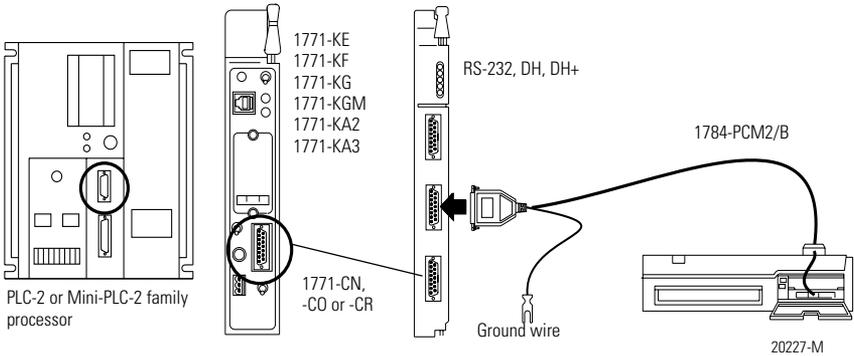
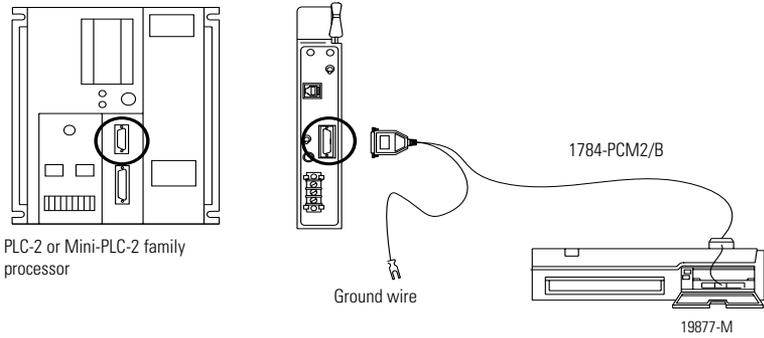
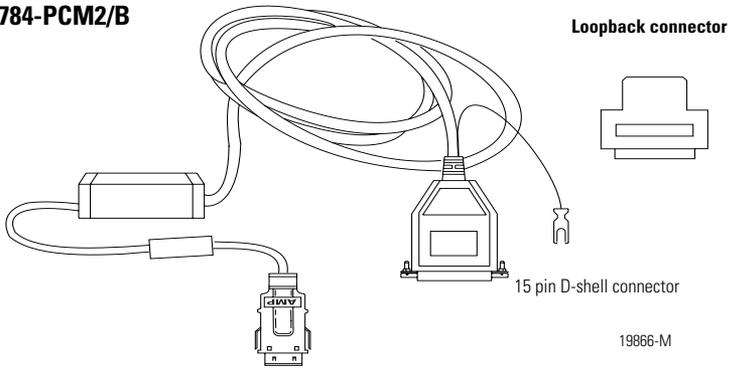


30380-M

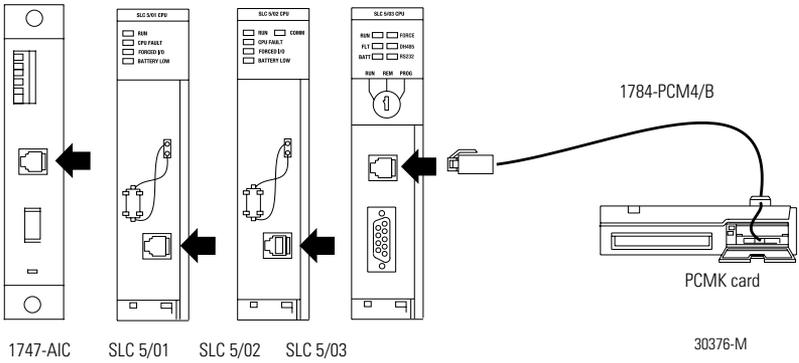
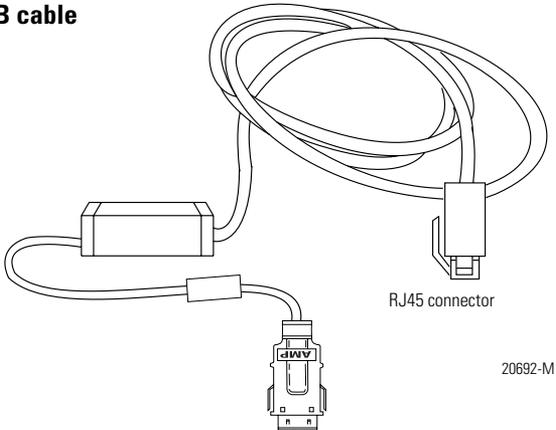
3. Attach the cable to the processor.

The cable you use depends on your processor. The following figures show the PCMK cables and illustrate how to attach each cable to its respective processor (PLC or SLC programmable controller).

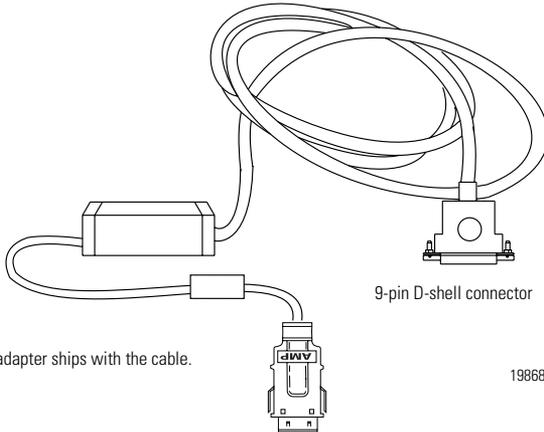
1784-PCM2/B



1784-PCM4/B cable

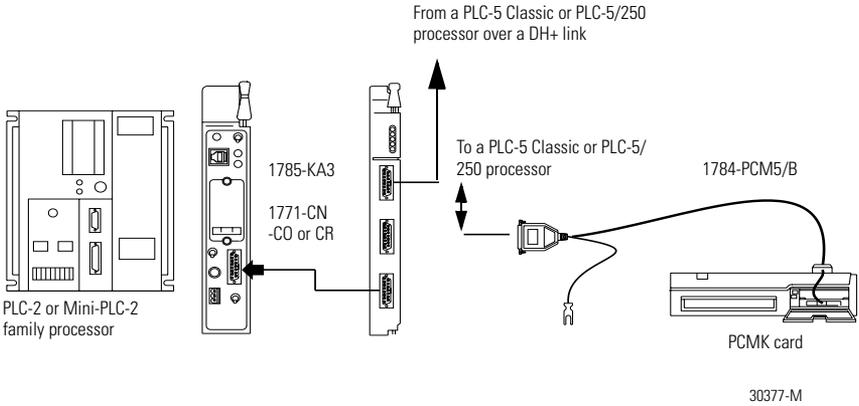


1784-PCM5/B

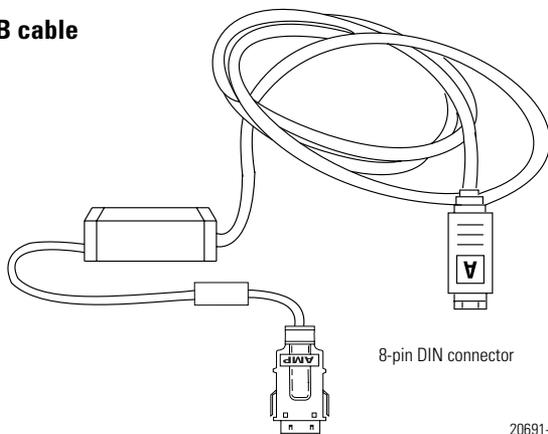


A 1784-CP7 adapter ships with the cable.

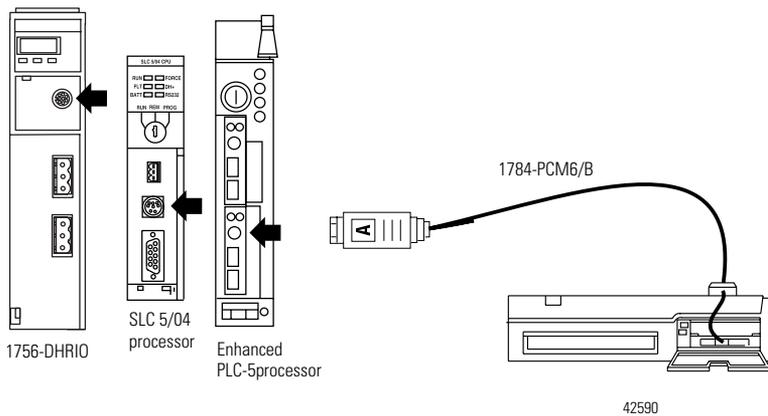
19868-M



1784-PCM6/B cable



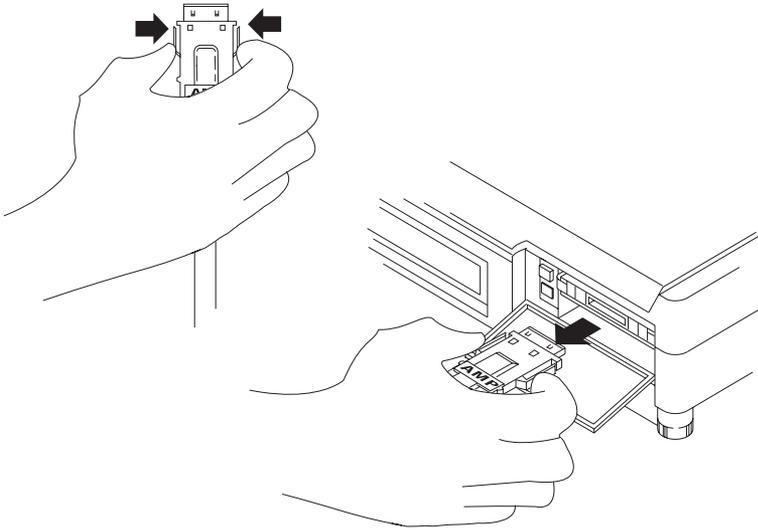
20691-M

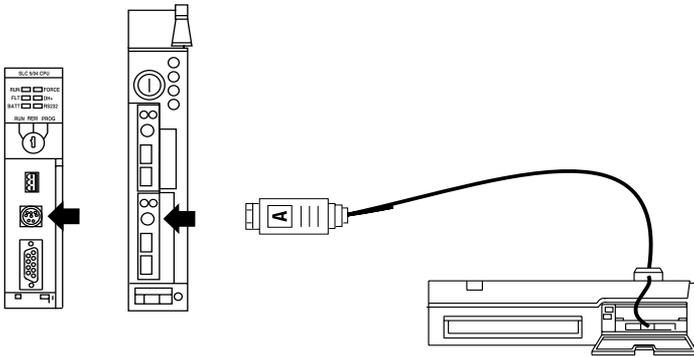


4. Verify that you can go online with the PCMK card and your application software.

Remove the Cable

1. Verify all communications software has been stopped.
2. Remove the cable by gently pinching the side bars and pulling the connector toward you.





Notes:

adapter

The hardware that connects the computer bus to the 68-pin PC card sockets in the PCMCIA slot. See also socket.

application programming interface

The set of services that an operating system makes available to programs that run under it.

binary file

A name that denotes any file that is not a text file, such as an executable file.

Card Identification Structure

A data structure written on every PC card that complies with the PCMCIA standard. Card Identification Structure (CIS) contains configuration information about the PC card and communicates it to the computer.

Card Services

The software interface that coordinates traffic among the computer and the PC cards, sockets, and system resources. See also Socket Services.

DH+

Data Highway Plus link. An Allen-Bradley token-passing baseband link for a local area network.

DH485 link

Data Highway 485 link. An Allen-Bradley token-passing baseband link for a local area network based on the RS-485 standard.

dual-port memory

Memory that can be viewed from two different hosts. This memory allows the PCMK card and a host computer to communicate. The memory range marked as dual-port memory is a common shared-memory area.

enabler

Software used to control PC cards. There are three types of enablers: generic (which can control many different types of cards), specific (which is designed for a specific manufacturer PC card), and point enabler (which is designed for a specific manufacturer's PC card but does not require Card and Socket Services).

Loopback connector

The PCM2 cable assembly uses a loopback connector for its diagnostic loopback test. A loopback connector connects the transmit and receive signals to each other and the modem control signals appropriately to each other. This is used to verify operation of the card through the cable and can be used to determine if operational difficulties are due to the card/cable or the target device.

MS-DOS command prompt

The area in which you can execute commands to your computer. Access to the MS-DOS command prompt merely gives you the ability to utilize the DOS environment for command execution.

MS-DOS mode

This term is used in reference to a machine running the Windows 95 operating system and indicates shutting down the Windows 95 operating system to access MS-DOS only. This removes the plug and play system from a notebook's memory and eliminates any conflict between virtual file managers, virtual display drivers, and other virtual hardware drivers with any MS-DOS-only software packages.

network

A series of nodes connected by some type of communication medium. The connection paths between any pair of nodes can include repeaters, routers, bridges, and gateways.

network address

A node's address on the network.

PC card

Credit-card size, 68-pin add-in cards that were designed to meet PCMCIA standards.

Remote I/O link

A serial link for carrying I/O data between a PLC or SLC processor/scanner and remote I/O adapters.

socket

The 68-pin physical connection in the PCMCIA slot in your computer that connects to the 68 pins on the PC card.

Socket Services

The software interface that manipulates the PC cards, sockets, and adapters. See also PC card, socket, and adapter.

Type

Refers to the physical size of the PC card. There are three types of cards that have the same length and width, 54 x 85.6 mm (2.13 x 3.37 in.). The cards differ in thickness in the center, but have identical thickness at the connector end and along the rails. This lets you use all three types in the same PCMCIA slot, if the slot is thick enough in the center.

Type I

A 3.3 mm thick PC card that is used for memory enhancements, such as Flash memory cards. See also PC card.

Type II

A 5 mm thick PC card that is used for I/O features such as modem, LAN, and host communications. See also PC card.

Type III

A 10.5 mm thick PC card that is used for memory enhancements or I/O capabilities that require more space, such as rotating media and wireless communication devices. See also PC card.

Specifications

PCMK Communications Card - 1784-PCMK

Attribute:	Value:
Form-factor	PCMCIA Type II form-factor network adapter card Compliant to PCMCIA PC card standard - February 1995 Compliant to PCMCIA Card and Socket Services Standard, Version 2.1
Wiring Category ⁽¹⁾	3 - on communications ports
Enclosure	None (open-style)

⁽¹⁾ Use this Conductor Category information for planning conductor routing. Refer to Industrial Automation Wiring and Grounding Guidelines, publication 1770-4.1.

Environmental Specifications

Attribute:	Value:
Card Power	160 mA @ 5 VDC
Power Dissipation	0.8 W
Heat Dissipation	2.73 BTU/hr
Conducted RF Immunity	IEC 61000-4-6: 10V rms with 1 kHz sine-wave 80%AM from 150 kHz...30 MHz
EFT/B Immunity	IEC 61000-4-4: ±1 kV at 5 kHz on communications ports
Emissions	CISPR 11: Group 1, Class A
Operating Temperature	IEC 60068-2-1 (Test Ad, Operating Cold) IEC 60068-2-2 (Test Bd, Operating Dry Heat), IEC 60068-2-14 (Test Nb, Operating Thermal Shock): 0...55 °C (32...131 °F)
Radiated RF Immunity	IEC 61000-4-3: 10V/m with 1 kHz sine-wave 80%AM from 30...2000 MHz 10V/m with 200 Hz 50% Pulse 100%AM at 900 MHz 10V/m with 200 Hz 50% Pulse 100%AM at 1890 MHz 1V/m with 1 kHz sine-wave 80%AM from 2000...2700 MHz
Shock, Nonoperating	IEC 60068-2-27 (Test Ea, Unpackaged Shock): 50 g
Shock, Operating	IEC 60068-2-27 (Test Ea, Unpackaged Shock): 30 g

Environmental Specifications

Attribute:	Value:
Vibration	IEC 60068-2-6 (Test Fc, Operating): 15 g @ 10...200 Hz
Storage Temperature	IEC 60068-2-1 (Test Ab, Unpackaged Non-operating Cold), IEC 60068-2-2 (Test Bb, Unpackaged Non-operating Dry Heat), IEC 60068-2-14 (Test Na, Unpackaged Non-operating Thermal Shock): -20...65 °C (-4...149 °F)
Surge Transient Immunity	IEC 61000-4-5: ±2 kV line-earth (CM) on communications ports

Certifications

Certification ⁽¹⁾ (When product is marked):	Value:
UR	UL Recognized Component Industrial Control Equipment. See UL File E65584.
C-Tick	Australian Radiocommunications Act, compliant with: AS/NZS CISPR 11; Industrial Emissions
CE	European Union 89/336/EEC EMC Directive, compliant with: EN 50082-2; Industrial Immunity EN 61326; Meas./Control/Lab., Industrial Requirements EN 61000-6-2; Industrial Immunity EN 61000-6-4; Industrial Emissions EN 61131-2; Programmable Controllers (Clause 8, Zone A & B)

⁽¹⁾ See the Product Certification link at <http://www.ab.com> for Declarations of Conformity, Certificates, and other certification details.

Cable Specifications

ATTENTION



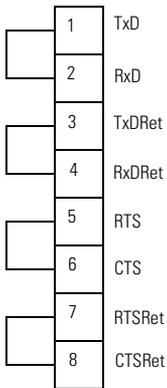
Communications cable length must be less than 10 meters (32.81 feet).

1784-PCM2/B, 1784-PCM4/B, 1784-PCM5/B, 1784-PCM6/B

Total length of cable	3.16 m (10.4 ft) ⁽¹⁾
Length from PCMK card connector to pod	17.8 cm (7 in.)
Length from pod to processor	2.8 m (9.2 ft)

⁽¹⁾ Refer to Industrial Automation Wiring and Grounding Guidelines, publication 1770-4.1.

Loopback Connector Pin Assignments



PCM2 Cable Assembly
1784-PCM2

The PCM2 cable assembly uses the loopback connector for its diagnostic loopback test. The PCM5 and PCM6 cable assemblies have a loopback test but do not have a loopback connector. In addition, the PCM4 cable assembly, used for DH485 communications, has neither a loopback connector nor a diagnostic loopback test.

The PCMS cable assembly, used for remote I/O communications, has no loopback connector and does not do a loopback test.

DH+ Specifications-link Communication Rate

Allen-Bradley has added 230 Kbps communication rate enhancements to the DH+ binary.

Note this update to link communication rate in the DH+ memory map.

:007h	Link Communication Rate	INI	FCh = 57600 FEh = 230400	R.....W	Host writes a valid value (PCMK communication rate) to byte:00007h. PCMK reads at startup.
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IMPORTANT

Check the product documentation for your communication software to see if the product supports 230 Kbps communication rate.

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Rockwell Automation Support

Rockwell Automation provides technical information on the Web to assist you in using its products. At <http://support.rockwellautomation.com>, you can find technical manuals, a knowledge base of FAQs, technical and application notes, sample code and links to software service packs, and a MySupport feature that you can customize to make the best use of these tools.

For an additional level of technical phone support for installation, configuration, and troubleshooting, we offer TechConnect Support programs. For more information, contact your local distributor or Rockwell Automation representative, or visit <http://support.rockwellautomation.com>.

Installation Assistance

If you experience a problem with a hardware module within the first 24 hours of installation, please review the information that's contained in this manual. You can also contact a special Customer Support number for initial help in getting your module up and running.

United States	1.440.646.3223 Monday – Friday, 8am – 5pm EST
Outside United States	Please contact your local Rockwell Automation representative for any technical support issues.

New Product Satisfaction Return

Rockwell tests all of its products to ensure that they are fully operational when shipped from the manufacturing facility. However, if your product is not functioning, it may need to be returned.

United States	Contact your distributor. You must provide a Customer Support case number (see phone number above to obtain one) to your distributor in order to complete the return process.
Outside United States	Please contact your local Rockwell Automation representative for return procedure.

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