ControlNet Communication Card
1784-PCC

Installation Instructions
Important User Information

Because of the variety of uses for the products described in this publication, those responsible for the application and use of these products must satisfy themselves that all necessary steps have been taken to assure that each application and use meets all performance and safety requirements, including any applicable laws, regulations, codes and standards. In no event will Rockwell Automation be responsible or liable for indirect or consequential damage resulting from the use or application of these products.

Any illustrations, charts, sample programs, and layout examples shown in this publication are intended solely for purposes of example. Since there are many variables and requirements associated with any particular installation, Rockwell Automation does not assume responsibility or liability (to include intellectual property liability) for actual use based upon the examples shown in this publication.

Allen-Bradley publication SGI-1.1, Safety Guidelines for the Application, Installation and Maintenance of Solid-State Control (available from your local Rockwell Automation office), describes some important differences between solid-state equipment and electromechanical devices that should be taken into consideration when applying products such as those described in this publication.

Reproduction of the contents of this copyrighted publication, in whole or part, without written permission of Rockwell Automation, is prohibited.

Throughout this publication, notes may be used to make you aware of safety considerations. The following annotations and their accompanying statements help you to identify a potential hazard, avoid a potential hazard, and recognize the consequences of a potential hazard:

| **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. |
| **ATTENTION** | Identifies information about practices or circumstances that can 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. |
**Rockwell Automation Support**

Before you contact Rockwell Automation for technical assistance, we suggest you please review the troubleshooting information contained in this publication first.

If the problem persists, call your local distributor or contact Rockwell Automation in one of the following ways:

<table>
<thead>
<tr>
<th><strong>Phone</strong></th>
<th>United States/Canada</th>
<th>1.440.646.5800</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outside United States/Canada</td>
<td>You can access the phone number for your country via the Internet: 1. Go to <a href="http://www.ab.com">http://www.ab.com</a> 2. Click on Product Support (<a href="http://support.automation.rockwell.com">http://support.automation.rockwell.com</a>) 3. Under Support Centers, click on Contact Information</td>
<td></td>
</tr>
</tbody>
</table>

| **Internet** | ⇒ | 1. Go to http://www.ab.com 2. Click on Product Support (http://support.automation.rockwell.com) |
**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 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 interior of the enclosure must be accessible only by the use of a tool. Subsequent sections of this publication may contain additional information regarding specific enclosure type ratings that are required to comply with certain product safety certifications.

See NEMA Standards publication 250 and IEC publication 60529, as applicable, for explanations of the degrees of protection provided by different types of enclosure. Also, see the appropriate sections in this publication, as well as the Allen-Bradley publication 1770-4.1 ("Industrial Automation Wiring and Grounding Guidelines"), for additional installation requirements pertaining to this equipment.

---

**Preventing 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.
- If available, use a static-safe workstation.
- When not in use, store the equipment in appropriate static-safe packaging.
Summary of Changes

With this release of the 1784-PCC card, the Windows 2000 driver has been updated from version 1.0 to 1.6. The driver now supports the Windows XP Professional operating system. Throughout this document, references to Windows XP will describe the Windows XP Professional operating system.

To upgrade your driver from version 1.0 to 1.6, refer to Chapter 3 of this manual.

This document also includes updated RSLinx version requirements, as follows:

<table>
<thead>
<tr>
<th>operating system</th>
<th>version of RSLinx</th>
</tr>
</thead>
<tbody>
<tr>
<td>Windows XP/2000 with ControlNet Traffic Analyzer, v. 1.4</td>
<td>2.31 or later</td>
</tr>
<tr>
<td>Windows XP</td>
<td>2.30.01 or later (build 48 or later)</td>
</tr>
<tr>
<td>Windows 2000</td>
<td>2.20.01 or later</td>
</tr>
</tbody>
</table>

You will see change bars, as shown to the left of this paragraph, throughout this manual to help you quickly identify revisions.

Other information was revised extensively. For those chapters that contain all new information, or extensively revised information, you will find a change bar in the margin of the chapters.
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About the Manual

Use this manual to install and use the ControlNet® PC card (PCMCIA interface), catalog number 1784-PCC. This interface enables a system to communicate on a ControlNet network.

Audience

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

- experienced with one or more of these Allen-Bradley products: PLC-5®, ControlLogix, or SLC-500™ family of programmable controllers, or any other products that communicate with the PCC card
- experienced with ControlNet configuration software and the ControlNet network

Conventions

In this manual, anything that you can select, click on, or type on a screen is shown in bold type.
Abbreviations

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

<table>
<thead>
<tr>
<th>This abbreviation</th>
<th>Means</th>
</tr>
</thead>
<tbody>
<tr>
<td>PCMCIA</td>
<td>Personal Computer Memory Card International Association.</td>
</tr>
<tr>
<td>IRQ</td>
<td>Interrupt Request</td>
</tr>
<tr>
<td>PC</td>
<td>Personal Computer</td>
</tr>
</tbody>
</table>

**IMPORTANT** Driver and firmware versions that appear in the screen captures in this manual are not necessarily the latest version available. The version you use should be the version that appears in the screen capture or a later version.

In this document, we refer to the ControlNet PC card as the 1784-PCC card.
About the 1784-PCC Card

What is in This Chapter?
Read this section to familiarize yourself with PC card technology and the 1784-PCC card. The following table describes what this chapter contains and where to find specific information.

<table>
<thead>
<tr>
<th>For information about this topic:</th>
<th>See page:</th>
</tr>
</thead>
<tbody>
<tr>
<td>What is PCMCIA?</td>
<td>1-1</td>
</tr>
<tr>
<td>What is a PC Card?</td>
<td>1-1</td>
</tr>
<tr>
<td>What is the PCC Card?</td>
<td>1-3</td>
</tr>
</tbody>
</table>

What is PCMCIA?
The Personal Computer Memory Card International Association (PCMCIA) developed a standard for credit-card size personal computer (PC) cards. The PCMCIA standard defines an architecture and communication method for these PC cards.

PC cards developed under Release 1.0 of the PCMCIA standard are used for data storage. PC cards developed under Release 2.0 of the PCMCIA standard can be used for both I/O and data storage.

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 can add memory, storage, and I/O capabilities to these smaller computers.

All PC cards measure the same length and width (54 mm x 85.6 mm), 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:

- **Type I**
  - 3.3 mm thick
  - Data storage, such as Flash memory cards

- **Type II**
  - 5.0 mm thick
  - I/O such as modem, LAN, and host communications (the Allen-Bradley 1784-PCD, -PCMK, and -PCC cards are Type II cards)

- **Type III**
  - 10.5 mm thick
  - Data storage or I/O capabilities that require more space, such as rotating media and wireless communication devices

**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 is the PCC Card?

The ControlNet communication card (1784-PCC) allows you to connect a programming device to any intelligent device (i.e., workstation, PLC®, processor, scanner, or adapter) on a ControlNet network through the Network Access Port.

**IMPORTANT**

Your computer must be PCMCIA 2.1 compliant to support the 1784-PCC card. To verify that your computer is PCMCIA 2.1 compliant, see your computer’s user manual.
Notes:
Chapter 2

Pre-Installation Procedures

What is in This Chapter?

The following table describes what this chapter contains and where to find specific information.

<table>
<thead>
<tr>
<th>Table 2.A</th>
</tr>
</thead>
<tbody>
<tr>
<td>For information about this topic:</td>
</tr>
<tr>
<td>Verify Your Package Contents</td>
</tr>
<tr>
<td>System Requirements</td>
</tr>
<tr>
<td>Find the 1784-PCC Driver</td>
</tr>
</tbody>
</table>

Verify Your Package Contents

Be certain that you have these items before you discard any packing material. If an item is missing or incorrect, contact your local sales representative.

- 1784-PCC card
- 1784-PCC installation utility disk
- 1784-PCC1 cable
- Installation manual (publication 1784-IN034)
System Requirements

Refer to the following table for system requirements for using the 1784-PCC card.

<table>
<thead>
<tr>
<th>Operating System</th>
<th>Version of RSLinx</th>
</tr>
</thead>
<tbody>
<tr>
<td>Windows XP/2000 with ControlNet Traffic Analyzer, v. 1.4</td>
<td>2.31 or later</td>
</tr>
<tr>
<td>Windows XP</td>
<td>2.30.01 (build 48) or later</td>
</tr>
<tr>
<td>Windows 2000</td>
<td>2.20.01 or later</td>
</tr>
<tr>
<td>Windows NT 4.0</td>
<td>2.00.97.30 or later</td>
</tr>
<tr>
<td>Windows 95/98/Me</td>
<td>2.00.97.30 or later</td>
</tr>
</tbody>
</table>

ATTENTION

Windows NT users: If you have a 1784-PCC series A interface card, you will need to perform a flash upgrade to upgrade to series B. Refer to Publication 1784-PCC-RN1 for details. To access this information, visit www.ab.com/support. Click on the PC Cards link and download the PCC_Upgrade.exe file. This file contains both the upgrade utility and the publication (1784-PCC-RN1) containing the instructions for completing the upgrade.
Find the 1784-PCC Driver

When you install drivers for your operating systems, you must be certain to install the correct files. Windows 95/98/Me systems require a Virtual Device Driver (VxD), which contains .inf and .vxd files. Windows NT requires an NT driver, which uses setup.exe, Unpccnt.exe and pcc_config.exe files. Windows 2000/XP requires a Windows Driver Model (WDM), which contains .inf and .sys files. Refer to the table below to be sure you are installing the correct driver files.

**ATTENTION**

Failure to install the correct driver files could result in unpredictable system operation.

### Table 2.B

<table>
<thead>
<tr>
<th>Source (where the driver is loaded from)</th>
<th>Windows 2000/XP</th>
<th>Windows NT 4.0</th>
<th>Windows 95/98/Me</th>
</tr>
</thead>
</table>
| installation disk, version 1.6 or later (shipped with the 1784-PCC card) | A:\Win2K\PccWdm.inf  
A:\Win2K\PccWdm.sys  
where A:\ is the floppy drive letter | A:\setup.exe  
A:\Unpccnt.exe  
A:\pcc_config.exe  
where A:\ is the floppy drive letter | A:\Rsipcc.inf  
A:\Rsipcc.vxd  
where A:\ is the floppy drive letter |
| RS-Link product CD | E:\WinP_Drivers\Win2K\PccWdm.inf  
E:\WinP_Drivers\Win2K\PccWdm.sys  
where E:\ is the CD-ROM drive letter | Not distributed on RSLinx product CD | E:\WinP_Drivers\WinBe\Rsipcc.inf  
E:\WinP_Drivers\WinBe\Rsipcc.vxd  
where E:\ is the CD-ROM drive letter |
| internet | [www.ab.com/support/products/pccards.html](http://www.ab.com/support/products/pccards.html) | | |

1 If your installation disk is earlier than version 1.6, we recommend downloading the latest version from [www.ab.com/support/products/pccards.html](http://www.ab.com/support/products/pccards.html).
Notes:
Install and Use the 1784-PCC Card in Windows 2000/XP

What is in This Chapter?

Read this chapter to learn how to operate the 1784-PCC card on Windows 2000/XP. The following table describes what this chapter contains and where to find specific information.

<table>
<thead>
<tr>
<th>For information about this topic</th>
<th>See page:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Verify the RSLinx Version Number</td>
<td>3-2</td>
</tr>
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<td>Locate the 1784-PCC Windows 2000/XP Driver</td>
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</tr>
<tr>
<td>Install the Driver</td>
<td>3-3</td>
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<td>3-8</td>
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<tr>
<td>Stop and Eject the 1784-PCC Card</td>
<td>3-8</td>
</tr>
<tr>
<td>Remove the 1784-PCC Plug-and-Play Driver</td>
<td>3-11</td>
</tr>
<tr>
<td>Troubleshoot the Card Installation</td>
<td>3-13</td>
</tr>
<tr>
<td>Update the 1784-PCC Plug-and-Play Driver Version 1.0 to Version 1.6 or Later</td>
<td>3-21</td>
</tr>
<tr>
<td>Show the Card Unplug/Eject Icon on the Taskbar</td>
<td>3-28</td>
</tr>
</tbody>
</table>

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

- have Windows 2000/XP loaded
- have the Windows 2000/XP driver for the PCC card

**IMPORTANT** You can have one 1784-PCC card configured in Windows 2000/XP. If you insert more than one 1784-PCC card into your PC, only one of the cards will be available for use.
In this chapter, we show Windows 2000 screens. If you are installing Windows XP, the installation screens you see will be substantially similar.

Verify the RSLinx Version Number

Refer to the following table for the correct version number of RSLinx for your operating system.

<table>
<thead>
<tr>
<th>Operating System</th>
<th>Version of RSLinx</th>
</tr>
</thead>
<tbody>
<tr>
<td>Windows XP</td>
<td>2.30.01 (build 4B) or later</td>
</tr>
<tr>
<td>Windows XP/2000 with ControlNet Traffic Analyzer, v. 1.4</td>
<td>2.31 or later</td>
</tr>
<tr>
<td>Windows 2000</td>
<td>2.20.01 or later</td>
</tr>
</tbody>
</table>

ATTENTION

Failure to install the correct driver files could result in unpredictable system operation.
Install and Use the 1784-PCC Card in Windows 2000/XP

Table 3.B

<table>
<thead>
<tr>
<th>Source (where the driver is loaded from)</th>
<th>Driver location (for Windows 2000/XP operating systems)</th>
</tr>
</thead>
</table>
| installation disk, version 1.6¹ or later (shipped with the 1784-PCC card) | A:\Win2K\PccWdm.inf  
A:\Win2K\PccWdm.sys  
where  
A:\ is the floppy drive letter |
| RSLinx product CD | E:\RSLinx\Drivers\Win2K\PccWdm.inf  
E:\RSLinx\Drivers\Win2K\PccWdm.sys  
where  
E:\ is the CD-ROM drive letter |
| internet | www.ab.com/support/products/pccards.html  
You can also access Rockwell Automation Knowledge documents at this site. |

¹ If your installation disk is earlier than version 1.6, we recommend downloading the latest version from www.ab.com/support/products/pccards.html.

Install the Driver

Follow the instructions in Chapter 7 to insert your card in your laptop.

**IMPORTANT**

Before you can install the driver for the 1784-PCC card, you must be logged in as an administrator of the machine. Being an administrator gives you permission to install or make changes to the machine software. If you try to install the driver without being an administrator, you will get error messages and the driver will not install.

Hearing Multiple Tones

If you insert multiple PC Cards, you may hear more than one tonal notification per card. Windows 2000/XP 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, when removing a card), the tones will sound again for each change.
1. After you insert the PCC 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, Windows 2000/XP displays a new hardware dialog box and the following message:

![Found New Hardware dialog box](image)

Windows 2000/XP displays:

![Found New Hardware Wizard dialog box](image)

2. Click Next.
Windows 2000/XP displays:

3. Select the **Search for a suitable driver for my device** radio button and click **Next**.
At this point you need to select where the file is located.

4. Select one of the following checkboxes:

- **Floppy disk drives** if you are going to use the floppy that ships with the 1784-PCC card

- **CD-ROM drives** if you are going to get the file from the RSLinx CD-ROM

- **Specify a location** if you downloaded the driver file from www.ab.com.

**Table 3.C**

<table>
<thead>
<tr>
<th>If you select:</th>
<th>Then:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Floppy disk drives</td>
<td>insert the PnP drivers disk into the drive and click <strong>Next</strong>. Windows 2000/XP will search for the appropriate driver. Continue with Step 6.</td>
</tr>
<tr>
<td>CD-ROM drives</td>
<td>insert the RSLinx CD into the drive and click <strong>Next</strong>. Windows 2000/XP will search for the appropriate driver. Continue with Step 6.</td>
</tr>
<tr>
<td>Specify a location</td>
<td>use this selection if you have downloaded the driver from <a href="http://www.ab.com">www.ab.com</a>. You will be prompted for the location path of the driver. Click <strong>Next</strong> and Continue with Step 5.</td>
</tr>
</tbody>
</table>

5. If you select the **Specify a location** radio button in Step 4, Windows 2000/XP will prompt you to provide a location for the driver, as shown below:

Type the location of the Windows 2000/XP driver and click **Ok**.
6. Click Next.

7. Once Windows 2000/XP installs the driver, the following displays.

8. Click Finish.
   You may be prompted to restart your computer for the driver to take effect.
9. Run the 1784-PCC test utility as described in Chapter 6 to verify the installation. If the test utility fails, refer to Troubleshoot the Card Installation on page 3-13.

1784-PCC Hardware Properties

Windows 2000/XP 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 uninstall and update 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-PCC card and the driver. Refer to Troubleshoot the Card Installation on page 3-13.

Stop and Eject the 1784-PCC Card

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

1. Double-click on the Unplug/eject Hardware icon on your taskbar.

   ![Unplug/eject Hardware icon]

   If you don’t have the icon on your taskbar, refer to Show the Card Unplug/Eject Icon on the Taskbar on page 3-28.
2. Click on the PCC card you want to stop.

3. Click **Stop**.

4. When you see the window 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, Windows 2000/XP displays:

1. To stop the card, refer to Stop and Eject the 1784-PCC Card on page 3-8.

   **IMPORTANT** Use the Unplug/eject icon on the taskbar to insure you do not damage your card.

2. Once you have stopped the card, use the Unplug/eject icon on the taskbar to remove the card.
Remove the 1784-PCC Plug-and-Play Driver

Follow this procedure to remove the 1784-PCC driver.

1. Double-click on the **Unplug/eject hardware** icon in the taskbar.  
   If you don’t have the icon on your taskbar, refer to Show the Card Unplug/Eject Icon on the Taskbar on page 3-28.

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

![Image of Properties dialog box]

4. Click the **Drivers** tab.

5. Click **Uninstall**.

6. Press **Enter** or click **Ok**. You see this screen:

![Image of Device Removal confirmation]

7. Press **Enter** or click **Ok** to confirm device removal.

8. Remove the 1784-PCC card from your system.
Troubleshoot the Card Installation

To access Hardware Properties and verify that the 1784-PCC card is working properly, follow the steps below.

1. Double-click on the Unplug/eject hardware icon in the taskbar.

   If you don’t have the icon on your taskbar, refer to Show the Card Unplug/Eject Icon on the Taskbar on page 3-28.

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

![Properties_window](image)

Table 3.D

<table>
<thead>
<tr>
<th>If:</th>
<th>Then:</th>
</tr>
</thead>
<tbody>
<tr>
<td>the Device status field says “This device is not present, not working properly, or does not have all drivers installed.”</td>
<td>click on the <strong>Resources</strong> tab and check the Conflicting Device list for possible hardware conflicts, or you may want to try disabling the <strong>Automatic Settings</strong> option. Refer to Click on the Resources tab on page 3-15.</td>
</tr>
</tbody>
</table>
4. Click on the **Resources** tab.

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

5. In the unlikely event that you have a resource conflict, you may need to assign a specific interrupt to free the resource for another device. To manually assign an interrupt:
   a. Deselect (uncheck) the **Use automatic settings** checkbox.
   b. Click on **Interrupt Request**.
   c. Click **Change Setting**., and select an interrupt location.

   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 PCC card.

   d. In some cases, a device other than the 1784-PCC card may be determined to use the interrupt that the PCC card wants. If this happens, let the other device have the interrupt and assign the 1784-PCC card another interrupt location.
If ControlNet Traffic Analyzer is not working

Follow this procedure to ensure the ControlNet Traffic Analyzer is working properly.

1. Double-click on the Unplug/eject hardware icon in the taskbar.

   **TIP**
   If you don’t have the icon on your taskbar, refer to Show the Card Unplug/Eject Icon on the Taskbar on page 3-28.

2. Select the card.
3. Click Properties.
4. Click on the Driver tab.

![Driver tab of the 1784-PCC Card properties](image)

To view details about the driver files loaded for this device, click Driver Details. To uninstall the driver files for this device, click Uninstall. To update the driver files for this device, click Update Driver.

5. If the driver is at Version 1.0, update to Version 1.6. Refer to Update the 1784-PCC Plug-and-Play Driver Version 1.0 to Version 1.6 or Later on page 3-21.
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 on My Computer.

2. Select Manage.

3. On the Computer Management window that appears, select Device Manager.
4. Click on the + next to Allen-Bradley PCMCIA to display the available Allen-Bradley cards.

**IMPORTANT** If you insert two PCC cards, only one of the cards that you insert is available for use. The Device Manager windows looks like this:

![Device Manager Window](image)

The card that displays this icon ![1 Allen-Bradley 1784-PCC Series B](image) is unavailable for use. We do not recommend that you have more than one 1784-PCC card installed in your system.
5. Double-click on **1784-PCC Series B**.

![Device Manager](image)

**Update the 1784-PCC Plug-and-Play Driver Version 1.0 to Version 1.6 or Later**

Perform these steps if you need to update the driver.

1. Right-click on **My Computer**.

2. Select **Properties**.

3. Select **Hardware**.

4. Select **Device Manager**.

5. Select **Allen-Bradley PCMCIA Family** to expand it.
6. Double-click **Allen-Bradley 1784-PCC Series B** to bring up its Properties screen. Select the **Driver** tab.

![Driver tab of Allen-Bradley 1784-PCC Series B Properties]

7. Click **Update Driver**.
8. Click **Next**. Select **Display a list of the known drivers for this device...** and click **Next**.

![Upgrade Device Driver Wizard](image)

**Install Hardware Device Drivers**

A device driver is a software program that enables a hardware device to work with an operating system.

This wizard upgrades drivers for the following hardware devices:

- Allen Bradley 1784-PCC Series B

Upgrading to a newer version of a device driver may add functionality to or improve the performance of this device.

What do you want the wizard to do?

- [ ] Search for a suitable driver for my device (recommended)
- [x] Display a list of the known drivers for this device so that I can choose a specific one

[< Back  Next  Cancel]

9. Click **Have Disk...**

![Upgrade Device Driver Wizard](image)

**Upgrade Device Driver Wizard**

**Select a Device Driver**

Which driver do you want to install for this device?

Select the manufacturer and model of your hardware device and then click **Next**. If you have a disk that contains the driver you want to install, click **Have Disk**.

[Unable to find any drivers for this device]

[Have Disk...]

[< Back  Next  Cancel]
10. Insert the 1784-PCC driver installation diskette into your floppy disk drive. You see the **Install From Disk** dialog box.

11. Click **Browse**. You see the **Locate File** screen.

12. Select the **PccWdm.ini** file.

13. Click **Open**.

**IMPORTANT** If you are installing from anything other than a floppy diskette, browse to the **Win2K** directory and select the driver.
14. On the **Install From Disk** dialog box, click **OK**.

15. Click **Next**.
16. Click Next.

![Upgrade Device Driver Wizard]

**Start Device Driver Installation**
The device driver will be installed with the default settings.

The wizard is ready to install the driver for the following hardware device:

- **Allen Bradley 1784-PCC Series B**

Windows will use default settings to install the software for this hardware device. To install the software for your new hardware, click Next.

17. Click Next.

![Upgrade Device Driver Wizard]

**Completing the Upgrade Device Driver Wizard**

- **Allen Bradley 1784-PCC Series B**

Windows has finished installing the software for this device.

To close this wizard, click Finish.
18. Click Finish.

19. On the Allen-Bradley 1784-PCC Series B Properties screen, verify that the driver version is at 1.6.0.0.
20. Click **Driver Details**. Verify the Driver file is at version 1.6.

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 checkbox on the Completing the Add/Remove Hardware wizard screen. 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 taskbar, you can find the checkbox in the Add/Remove Hardware Wizard. You must finish the process of removing the card from the slot in order for the checkbox 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**.
2. Double-click **Control Panel**.
3. Double-click **Add/Remove Hardware**.
4. Click **Next**.
5. Check **Uninstall/Unplug a device** and click **Next**.

6. Check **Unplug/Eject a device** and click **Next**.

7. Select the **1784-PCC 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.
Notes:
Chapter 4

Install and Use the 1784-PCC Card in Windows NT

What is in This Chapter?

Read this chapter to learn how to operate the 1784-PCC card on Windows NT. The following table describes what this chapter contains and where to find specific information.

Table 4.A

<table>
<thead>
<tr>
<th>For information about this topic:</th>
<th>See page:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Locate the 1784-PCC Driver for Windows NT</td>
<td>4-5</td>
</tr>
<tr>
<td>Install the 1784-PCC Driver</td>
<td>4-5</td>
</tr>
<tr>
<td>Troubleshoot the Card Installation</td>
<td>4-11</td>
</tr>
<tr>
<td>Remove the 1784-PCC Driver</td>
<td>4-17</td>
</tr>
</tbody>
</table>

Before You Begin

Read the following before you install your 1784-PCC card, Series B or later.

ATTENTION

If you have a 1784-PCC series A interface card, you will need to perform a flash upgrade to upgrade to series B. Refer to Publication 1784-PCC-RN1 for details. To access this information, visit www.ab.com/support. Click on the PC Cards link and download the PCC_Upgrade.exe file. This file contains both the upgrade utility and the publication (1784-PCC-RN1) containing the instructions for completing the upgrade.
The 1784-PCC series B interface card and NT Driver are designed for use in notebook PCs equipped with NT 4.0 from the original manufacturer and certified by Microsoft. If your PC is not certified, it may not be compatible for use with the 1784-PCC series B card under NT 4.0.

Before you can install the driver for the 1784-PCC/B card, you must be logged in as an administrator of the machine. Being an administrator gives you permission to install or make changes to the machine software. If you try to install the driver without being an administrator, you will get error messages and the driver will not install.

- You must be running Windows NT 4.0 with Service Pack 3 or later.
- You can use only one 1784-PCC card at a time in Windows NT.
- You must have RSLinx 2.00.97 or greater.
Do You Have Any of the Following Third-Party Plug-and-Play PC Card Controller Software Installed?

<table>
<thead>
<tr>
<th>If</th>
<th>Then</th>
</tr>
</thead>
<tbody>
<tr>
<td>you do have third-party plug-and-play PC card controller software</td>
<td>a PC card icon (circled in this illustration) will appear on the Windows task bar</td>
</tr>
<tr>
<td>you do not have third-party plug-and-play PC card controller software</td>
<td>go to page 4-5 and continue with the driver installation.</td>
</tr>
</tbody>
</table>

To find the version of your third-party plug-and-play software, you can usually do the following:

1. Double-click on the PC card icon in the taskbar.
2. When a dialog box appears, click Help ⇒ About.

**SystemSoft’s CardWizard**

The 1784-PCC Windows NT driver does not work with SystemSoft’s CardWizard versions prior to 5.10.06.

If you have SystemSoft’s CardWizard, you must upgrade the PC Card Controller Software to version 5.10.06 or later for the 1784-PCC driver to function.

For more information on obtaining the CardWizard upgrade for use with the 1784-PCC card, contact your computer manufacturer or SystemSoft:

- Internet: www.systemsoft.com
- Phone: 1.800.796.0088 or 508.651.0088 (ask for sales)
Phoenix/Softex's Card Executive

If you have Phoenix/Softex's Card Executive, you must upgrade the PC Card Controller Software to version 2.35 or later for the 1784-PCC Driver to function. For more information on obtaining the Card Executive upgrade for use with the 1784-PCC card, contact your computer manufacturer or Phoenix/Softex:

- Internet: www.phoenix.com
- Phone: 1.800.677.7305

TIP
If you have a version of Card Executive between 2.24 and 2.35, contact Rockwell Automation Technical Support at 440.646.5800 for a free patch.

IMPORTANT
When using Card Executive, do not access the Windows Control Panel (Start ⇒ Settings ⇒ Control Panel; double-click the PC card icon). Instead, access the Phoenix/Softex Control Panel by double-clicking the PC card icon in the taskbar.

Touchstone/Unicore's CardWare

Contact your computer manufacturer for the recommended version. For more information, contact Unicore:

- Internet: www.unicore.com/products/CardWare/CardWarent.cfm
- Phone: 978.686.6468

IMPORTANT
The PCC_Config utility (described on page 4-11) does not work with CardWare. If you have an unresolved resource conflict, contact your computer manufacturer.
Locate the 1784-PCC Driver for Windows NT

When you install drivers for your operating systems, you must be certain to install the correct files. Windows NT systems require an NT Driver. Refer to the table below to be sure you are installing the correct driver files.

Failure to install the correct driver files could result in unpredictable system operation.

<table>
<thead>
<tr>
<th>Source (where the driver is loaded from)</th>
<th>Driver location (for Windows NT operating systems)</th>
</tr>
</thead>
</table>
| installation disk, version 1.6¹ or later (shipped with the 1784-PCC card) | A:\setup.exe  
A:\Unpccnt.exe  
A:\pcc_config.exe  
where A:\ is the floppy drive letter |
| internet | www.ab.com/support/products/pccards.html  
You can also access Rockwell Automation Knowledge documents at this site. |

¹ If your installation disk is earlier than version 1.6, we recommend downloading the latest version from www.ab.com/support/products/pccards.html.

Install the 1784-PCC Driver

Follow the procedure below to install the Windows NT driver for the 1784-PCC/B card.

You are required to insert the 1784-PCC card in order for the installation to work properly. We recommend that you insert the 1784-PCC card only when your system is not powered. Once you have installed the driver and you insert the 1784-PCC card into the slot, we do not recommend that you remove the 1784-PCC card while Windows NT is running.

1. Start the install process with your machine off.
2. Insert the 1784-PCC/B card.
3. Turn your machine on and log on with administrative rights.

**IMPORTANT** Remember, in order for the installation process to run correctly, you must have administrator privileges to install the software.

We strongly recommend that you exit all Windows programs before running this utility. We cannot guarantee that data will not be lost.

4. If you have third-party plug-and-play PC card controller software, do the following. Otherwise, skip to Step 5 on page 4-8.
   - If you have Phoenix/Softex’s Card Executive on your system, you may see the following message:

     ![PCMCIA Card Not Configured](image)

     If you get this message, do the following:
     a. Choose the **Do not install any driver for this card** radio button.

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b. Check the **Do not display this dialog for the PC card again** checkbox.

c. Press **Enter** or click **Ok**. You still need to install the driver. Continue on with this procedure.

- If you have SystemSoft's CardWizard, you may get the following message. Click **Exit**.
4-8 Install and Use the 1784-PCC Card in Windows NT

• If you have Unicore’s CardWare, you may get the following message. Click Done.

TIP
Be sure to click Done at this screen. If you do not, you will see this screen every time you reboot your pc.

5. Insert the installation diskette into the floppy disk drive.

6. Access the Run window by selecting Start ⇒ Run.

7. In the Run dialog box, type the path

   A:\setup.exe

   where A:\ is the drive letter of your floppy disk drive.
8. Press Enter or click Ok.

You see:

![Installer Screen]

**IMPORTANT** If you have programs running, click Cancel to exit the installation process and exit the programs. After you exit the programs, re-start the install process.

9. If you have CardWare installed, you may see the following screen. Press Enter or click Ok to continue with the installation.
10. Click **Ok**.

When this portion of the installation is complete, you see:

![Reboot Dialog](image)

11. Remove the driver installation diskette from your floppy drive.

12. Select **Yes** or click **Ok** to reboot your system.

**IMPORTANT** Wait for the logon screen to appear. Do not log on. Depending on the speed of your machine, your wait could be 5 minutes or more.

13. Ignore any third-party plug-and-play software messages that may appear here.

14. Click **Ok**. Your system will automatically reboot. The driver installation is complete.

![Installation Complete](image)

**IMPORTANT** If you have Touchstone/Unicore's CardWare, you may see a screen that tells you the driver has not been started. Click Yes to start the driver.
15. Run the 1784-PCC test utility as described in Chapter 6 to verify the installation.

If installation fails, refer to Troubleshoot the Card Installation on page 4-11.

Troubleshoot the Card Installation

Use the following sections to determine why the test utility failed.

Check for Resource Conflicts

When you run the PCC setup utility in Windows NT, the utility tries to assign free resources to the PCC card. If your card used to work, and has now stopped working, it is probably because the resources originally assigned to the card are now being used by another device you recently added, such as an Ethernet card. Try re-running the card's setup utility. Refer to Locate the 1784-PCC Driver for Windows NT on page 4-5. The utility may be able to automatically find other resources to assign to the card.

If you do this, and the test utility still fails, you will need to check for resource conflicts. Possible conflicts include IRQ, memory, or I/O conflicts. To view and change your resource locations, you will need to view all of your resource allocations to determine which resources are free.

To access and change resource locations:

1. Do one of the following:
   - access Windows NT diagnostics (Start ⇒ Programs ⇒ Administrative Tools ⇒ Windows NT Diagnostics), or
   - Select Start ⇒ Run and type WINMSD in the Run dialog box. Press Enter or click Ok.

2. To determine if you have an IRQ conflict, click on the Resources tab.
3. View your resource assignments.

   If you have any devices that have the same IRQ location, run the PCC Configuration Utility described on page 4-14 and change the IRQ location of the PCC card.

   If there are no IRQ conflicts, you might have a Memory or an I/O conflict.
4. To determine if you have a memory conflict, click the **Memory** button.

![Image of Windows NT Diagnostics interface showing resource assignments]

5. View your resource assignments.

If you have any devices that have the same memory location, run the PCC Configuration Utility described on page 4-14 and change the memory location of the PCC card.

If there are no memory conflicts, you might have an I/O conflict.
6. To determine if you have an I/O conflict, click the I/O port button.

![Image of Windows NT Diagnostics]

7. View your I/O assignments.

If you have any devices that have the same I/O location, run the 1784-PCC configuration utility described on page 4-14 and change the I/O location of the 1784-PCC card.

**Run the 1784-PCC Configuration Utility for Windows NT**

To view and change your PCC card resource configurations, run the configuration utility that we provide on the installation utility disk.

**IMPORTANT**

The PCC_Config utility does not work with CardWare. If you have an unresolved resource conflict, contact your computer manufacturer.
1. Select **Start ⇒ Run**.

![Run](image)

2. In the window that appears, type **pcc_config.exe** and press **Enter** or click **Ok**. The utility runs.

The configuration utility displays:

![Configuration Utility](image)

At this point you can view your card’s current settings. You can change the card’s memory address and interrupt request.

**TIP**

We recommend that you only make the changes if you have another device that needs a dedicated address and/or the interrupt is the same as the PCC card’s installation default. We do not recommend that you change these settings unless absolutely necessary. Simply use the defaults that the system assigns to the card.
Figure 4.1 Example of new interrupt request drop down selections

Figure 4.2 Example of new memory address drop down selections
Install and Use the 1784-PCC Card in Windows NT

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Figure 4.3 Example of new I/O drop-down selections

If you change the settings and click Ok, you need to restart your computer for the new settings to take effect.

Remove the 1784-PCC Driver

You can access the uninstaller through the Windows NT Add/Remove programs applet to remove the card's drivers from your system.

In addition to the following procedure, you can also use the uppcnt.exe utility provided with the 1784-PCC driver to uninstall the 1784-PCC card.

1. Access the Control Panel by selecting Start ⇒ Settings ⇒ Control Panel.

2. Double-click the Add/Remove Programs icon.
3. Select **Allen-Bradley 1784 PCC Driver**.

4. Click the **Add/Remove** button.

You see:

You do not have to remove the card. The system gives you the opportunity to cancel the operation before deleting any files.

5. Click **Ok** to uninstall the driver.

6. Close the Control Panel.
Install and Use the 1784-PCC Card in Windows 95/98/Me

What is in This Chapter?

Read this chapter to learn how to operate the 1784-PCC card on Windows 95/98/Me. The following table describes what this chapter contains and where to find specific information.

Table 5.A

<table>
<thead>
<tr>
<th>For information about this topic:</th>
<th>See page:</th>
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<tbody>
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<td>5-2</td>
</tr>
<tr>
<td>Install the 1784-PCC Driver</td>
<td>5-2</td>
</tr>
<tr>
<td>Stop the Card</td>
<td>5-6</td>
</tr>
<tr>
<td>Remove and Uninstall the 1784-PCC Driver</td>
<td>5-6</td>
</tr>
<tr>
<td>Enable the PC Card Icon on the Taskbar</td>
<td>5-8</td>
</tr>
<tr>
<td>Troubleshoot the Card Installation</td>
<td>5-9</td>
</tr>
</tbody>
</table>

IMPORTANT  The screen captures in this chapter are taken from Windows 95/B. If you are using another version of Windows 95,98, or Me, your screens may be different.
Install and Use the 1784-PCC Card in Windows 95/98/Me

5-2

Locate the 1784-PCC Windows 95/98/Me Driver

When you install drivers for your operating systems, you must be certain to install the correct files. Windows 95/98/Me systems require a Virtual Device Driver (VxD), which contains .inf and .vxd files. Refer to the table below to be sure you are installing the correct driver files.

ATTENTION

Failure to install the correct driver files could result in unpredictable system operation.

Table 5.B

<table>
<thead>
<tr>
<th>Source (where the driver is loaded from)</th>
<th>Driver location (for Windows 95/98/Me operating systems)</th>
</tr>
</thead>
<tbody>
<tr>
<td>installation disk version 1.6¹ (shipped with the 1784-PCC card)</td>
<td>A:\Rsipcc.inf A:\Rsipcc.vxd where A:\ is the floppy drive letter</td>
</tr>
<tr>
<td>RS-Linx 2.20.01 or later product CD</td>
<td>E:\PnP_Drivers\Win9x\Rsipcc.inf E:\PnP_Drivers\Win9x\Rsipcc.vxd where E:\ is the CD-ROM drive letter</td>
</tr>
<tr>
<td>internet</td>
<td><a href="http://www.ab.com/support/products/pccards.html">www.ab.com/support/products/pccards.html</a> You can also access Rockwell Automation Knowledge documents at this site.</td>
</tr>
</tbody>
</table>

¹ If your installation disk is earlier than version 1.6, we recommend downloading the latest version from www.ab.com/support/products/pccards.html.

Install the 1784-PCC Driver

Follow the procedures below to install the Windows 95/98/Me driver for the 1784-PCC Series A or B card.

1. In Windows 95/98/Me, insert the card into the PCMCIA slot by following the directions in Chapter 7.
After you insert the PCC 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, Windows 95/98/Me displays a new hardware dialog box and the following message:

You see:

2. Insert the installation disk into the floppy disk drive.

3. Click Next to begin the install.

You see a message telling you that the system is searching for a driver for the new device.
Once Windows 95/98/Me finds the driver, you should see:

If you do not see the message that Windows has found a driver (as shown in the screen above), click the Other Locations button on the screen and select the appropriate 95/98/Me driver. Refer to the table on page 5-2 for the correct driver file to install.

4. Click Finish to install/upgrade the driver.

You may see the following message:

a. If you have not already done so, insert the diskette into the floppy disk drive and press Enter or click Ok.
You see:

2. In the Copy files from box, specify the drive (usually A:\) that corresponds to your floppy disk drive.

3. Press **Enter** or click **Ok**.

After the system has finished copying files, you should hear two upward tones that indicate the card is ready to use. If you do not hear these tones, check to see that your speakers/sound are enabled.

5. Run the 1784-PCC test utility as described in Chapter 6 to verify your installation. If the test fails, refer to the section entitled Troubleshoot the Card Installation on page 5-9 of this manual.
Stop the Card

In Windows 95/98/Me, before you remove the 1784-PCC card from its sockets, you should stop the communication to it. To do this:

1. Click with your right mouse button on the PC Card icon in the taskbar. If the icon is not there, refer to the section entitled Enable the PC Card Icon on the Taskbar on page 5-8 of this manual.

2. Select Adjust PC Card Properties.

3. In the list of PC cards, click on the 1784-PCC card you want to stop.

4. Click Stop.

5. When you see the window that states that you may safely remove this device, press Enter or click Ok.

6. Remove the 1784-PCC card from the PCMCIA slot.

Alternately, to stop the card, you can do the following:

1. Click with your left mouse button on the PC Card icon in the taskbar.

2. Click on the 1784-PCC card you want to stop in the list of PC cards.

3. Click Stop.

4. When you see the window that states that you may safely remove this device, press Enter or click Ok.

Remove and Uninstall the 1784-PCC Driver

You can access the uninstaller through the Windows 95/98/Me Add/Remove programs applet to remove the card’s driver from your system.

1. Stop the PCC card as described on page 5-6.

2. Access the Control Panel by selecting Start ⇒Settings ⇒Control Panel.

3. Double-click on the Add/Remove Programs icon.
4. Select **Allen-Bradley 1784-PCC Driver**.

5. Click the **Add/Remove** button.  
You see:

6. Remove the 1784-PCC card before continuing. The system gives you the opportunity to cancel the operation before deleting any files.

7. Press **Enter** or click **Ok** to remove the driver.
Enable the PC Card Icon on the Taskbar

The PC card icon in the Taskbar lets you know the status of your PC card, and lets you stop processing before you remove or change PC cards. You can display this icon within the Taskbar on your Windows 95/98/Me desktop. You will see this icon only when there is one or more PC card(s) installed in the computer.

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 the taskbar**.

   ![PC Card Properties dialog box](image)

   If you do not see these dialog boxes, contact the computer manufacturer.
4. Press **Enter** or click **Ok**. The PC card icon appears in the Taskbar.

**Troubleshoot the Card Installation**

To resolve card installation issues:

1. Insert your 1784-PCC card into your system.

2. Click the **My Computer** icon with the right mouse button.

3. Select **Properties** from the menu. The System Properties dialog box appears.

4. Click the **Device Manager** tab.

   All of the devices within the system are displayed.

5. Scroll through the devices and search for the Allen–Bradley PCC Family line.
If this line has a plus sign, click the plus sign to expand the item.

The Allen-Bradley 1784-PCC card should be listed.

6. Select the **Allen-Bradley Company, Inc. 1784-PCC card**.

7. Click the **Properties** button.
You see:

![Device status dialog box](image)

If Code 10 (conflicting memory resources) is reported in the Device status dialog box, continue with the following steps.
8. In the Properties dialog box, click the **Resources** tab.

Verify that there are no resource conflicts listed in the Conflicting Device list. You also should verify that you have assigned an interrupt to the 1784-PCC card. If you have not, then you need to do so. You may have to disable a device to make an interrupt available.
9. If there are conflicts, you may need to alter the settings of devices involved in the conflict to get the 1784-PCC card to function properly.

Try unchecking the **Use automatic settings** box and then changing the conflicting I/O, interrupt, or memory resources.

---

**IMPORTANT**

The option of unchecking the **Use automatic settings** box is not always available in Windows 98. It depends on how the operating system was installed and configured.

If there are no conflicts, continue with the following steps.

10. Return to the Device Manager and scroll through the list to find PCMCIA sockets.

11. Double-click **PCMCIA sockets** to expand it.

12. Click on the **PCMCIA controller** used by your system.

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

<table>
<thead>
<tr>
<th>If the device status says, “This device is not present, not working properly, or does not have all drivers installed, code 10.”</th>
<th>Then</th>
</tr>
</thead>
<tbody>
<tr>
<td>• click the <strong>Resources</strong> tab and check the Conflicting Device list for possible hardware conflicts; or you may want to verify that the <strong>Use Automatic Settings</strong> option is enabled.</td>
<td>• you may have a general PCMCIA problem. You should contact your computer manufacturer for a resolution.</td>
</tr>
</tbody>
</table>
Notes:
Run the 1784-PCC Test Utility in Windows 2000/XP, NT 4.0, and 95/98/Me

What is in This Chapter?

Read this chapter to learn how to run the 1784-PCC test utility. The following table describes what this chapter contains and where to find specific information.

<table>
<thead>
<tr>
<th>Table 6.A</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>For information about this topic:</strong></td>
</tr>
<tr>
<td>Run the 1784-PCC Installation Test Utility</td>
</tr>
</tbody>
</table>

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

- have Windows 95/98/Me, NT 4.0, or 2000/XP loaded.
- have the appropriate drivers loaded for the PCC card

Run the 1784-PCC Installation Test Utility

The installation test utility is compatible with Windows 95/98/Me, NT 4.0, and 2000/XP. To test your installation, run the utility that we provide on the installation utility disk.
1. Select **Start** ⇒ **Run**.

![Run Window](image)

Type the name of a program, folder, document, or Internet resource, and Windows will open it for you.

- **Open**: A:\Pcc_test.exe
- **OK**
- **Cancel**
- **Browse**

2. In the window that appears, type **A:\Pcc_test.exe** and press **Enter** or click **Ok**.

   a. If you choose **Browse** on the A:\ drive, you will see:

      ![Browse Window](image)

      - **Look in**: 3\ Floppy (A:)
      - **File name**: Pcc_test.exe
      - **File of type**: Programs

   b. Double-click on the **Pcc_test.exe** file to start the PCC test utility.
The utility runs through a series of tests.

The 1784-PCC installation test utility automatically looks for your card and begins the tests. As the tests are completed, a green check mark appears, illustrating that the particular test was successful.
If there is an error, you will see a red X and an explanation.

![Image of error message]

**Table 6.B**

<table>
<thead>
<tr>
<th>If you:</th>
<th>Then:</th>
</tr>
</thead>
<tbody>
<tr>
<td>do not see six green check marks or you do not see the message stating that the 1784-PCC completed all tests successfully</td>
<td>• In Windows NT 4.0, run the setup utility again and restart your computer.</td>
</tr>
<tr>
<td></td>
<td>• In Windows 95/98/Me and 2000/XP, go to Device Manager and adjust resources.</td>
</tr>
<tr>
<td>are still getting an error</td>
<td>• Review the chapter for your operating system.</td>
</tr>
<tr>
<td></td>
<td>• Follow the instructions again. If you are still having problems, contact your Rockwell Automation service representative for assistance.</td>
</tr>
<tr>
<td></td>
<td>• Refer to the Preface of this manual for information on Rockwell Automation Support.</td>
</tr>
</tbody>
</table>
3. Once the tests are finished and successful, you see:

![Image](image.png)

The 1784-PCC completed all tests successfully.

Do you wish to perform a test of the PCC cable?
If so, connect the 1784-PCC card to the Network Access Port of a device that is on a valid ControlNet network and click Yes.

NOTE: This may take up to 10 seconds to sufficiently determine all active nodes on a ControlNet network.

4. Click Yes or No.

When you click Yes and you are properly connected to your network, the test utility will browse your network to find active nodes. You will see a node table with the active nodes checked.

![Image](image.png)
5. Click **Ok**.

The utility also provides information about:

- NUT (Network Update Time, in msecs)
- maximum scheduled node
- maximum unscheduled node
- slot time (µsecs)

**IMPORTANT**

Be certain that the address assigned to the PCC card in RSLinx is less than the Maximum Unscheduled Node shown in the PCC test utility.

If you see this screen, check to see if the cable is connected properly to your network.
Insert and Remove the 1784-PCC Card

What is in This Chapter?

Read this chapter to understand how to insert and remove the card from your laptop computer. The following table describes what this chapter contains and where to find specific information.

Table 7.A

<table>
<thead>
<tr>
<th>For information about this topic:</th>
<th>See page:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insert the Card</td>
<td>7-1</td>
</tr>
<tr>
<td>Remove the Card</td>
<td>7-3</td>
</tr>
</tbody>
</table>

Insert the Card

**IMPORTANT**

**Windows 2000/XP:** If you are using Windows 2000/XP, you can insert the card while the system is on and use the eject utility to turn off communication to the card before you remove it from your computer.

**Windows NT 4.0:** If you are using Windows NT 4.0, shut down the computer before inserting or removing the card.

**Windows 95/98/Me:** If you are using Windows 95/98/Me, you can insert or remove the 1784-PCC card from a powered computer.
7-2 Insert and Remove the 1784-PCC Card

TIP
The following diagrams show a PCMCIA 2.1 compliant system. If you are using another computer, your installation may be slightly different.

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

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

IMPORTANT If you have more than one slot in your computer, you can insert the 1784-PCC card into any empty slot. Check your computer’s documentation for the slot numbers. You can use the other available slots for other PC cards such as network or modem cards.
If the computer is configured properly, your sound/speaker is enabled, and you installed the 1784-PCC card successfully, you hear multiple tones when you insert a card or boot the computer.

**Multiple Tones**

If you insert multiple PC cards, you may hear more than one tonal notification per card. Windows 95/98/Me and 2000/XP detect 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, when a card is removed, the tones will sound again for each change.

**Remove the Card**

> 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.

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 your computer 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.
Notes:
Chapter 8

Connect the 1784-PCC Card to the Network

What is in This Chapter?

Read this chapter to connect the 1784-PCC card to the network and to understand network communication. The following table describes what this chapter contains and where to find specific information.

Table 8.A

<table>
<thead>
<tr>
<th>For information about this topic</th>
<th>See page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connect the Card to the ControlNet Network</td>
<td>8-1</td>
</tr>
<tr>
<td>Communicate with the Card on the ControlNet Network</td>
<td>8-2</td>
</tr>
</tbody>
</table>

Connect the Card to the ControlNet Network

These instructions assume that you have:

- installed your application software
- inserted the card
- installed the 1784-PCC drivers
  - Chapter 3: Windows 2000/XP
  - Chapter 4: Windows NT 4.0
  - Chapter 5: Windows 95/98/Me

The following diagrams show a PCMCIA 2.1 compliant system. If you are using another computer, your installation may appear slightly different.
Connect the 1784-PCC Card to the Network

1. Attach the smaller end of the 1784-PCC1 cable to the 1784-PCC card.

2. Attach the other end of the 1784-PCC1 cable to any intelligent device (i.e., workstation, PLC processor, scanner, or adapter) on ControlNet through its Network Access Port. Total cable length should be less than 10 meters.

Communicate with the Card on the ControlNet Network

The 1784-PCC card communicates on the ControlNet network through a standard application programming interface (API) known as RSLinx™ from Rockwell Software, Inc. If you need additional information about this software package or about communicating on the ControlNet network, refer to the ControlNet Coax Media Planning and Installation Manual, publication number CNET-IN002A-EN-P, or contact your Rockwell Automation representative.

**IMPORTANT**

Do not accidentally plug the end of the 1784-PCC cable into the Ethernet port. This type of connection will generate noise on Ethernet and it will not work.
## Specifications

### 1784-PCC Communication Card

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PCMCIA Type</strong></td>
<td>Type II form-factor network adapter card</td>
</tr>
<tr>
<td><strong>PCMCIA Standard</strong></td>
<td>Compliant to PCMCIA Standard, release 2.1</td>
</tr>
<tr>
<td><strong>Power Requirements</strong></td>
<td>5V dc @ 225 mA maximum Class 2</td>
</tr>
<tr>
<td><strong>Conductor</strong></td>
<td>Category 2</td>
</tr>
<tr>
<td><strong>Operating Temperature</strong></td>
<td>IEC 60068-2-1 (Test Ad, Operating Cold),</td>
</tr>
<tr>
<td></td>
<td>IEC 60068-2-2 (Test Bd, Operating Dry Heat),</td>
</tr>
<tr>
<td></td>
<td>IEC 60068-2-14 (Test Nb, Operating Thermal Shock):</td>
</tr>
<tr>
<td></td>
<td>0 to 50°C (32 to 122°F)</td>
</tr>
<tr>
<td><strong>Storage Temperature</strong></td>
<td>IEC 60068-2-1 (Test Ab, Un-packaged Non-operating Cold),</td>
</tr>
<tr>
<td></td>
<td>IEC 60068-2-2 (Test Bb, Un-packaged Non-operating Dry Heat),</td>
</tr>
<tr>
<td></td>
<td>IEC 60068-2-14 (Test Na, Un-packaged Non-operating Thermal Shock):</td>
</tr>
<tr>
<td></td>
<td>-40 to 85°C (-40 to 185°F)</td>
</tr>
<tr>
<td><strong>Relative Humidity</strong></td>
<td>IEC 60068-2-30 (Test Db, Un-packaged Non-operating Damp Heat):</td>
</tr>
<tr>
<td></td>
<td>5-95% non-condensing</td>
</tr>
<tr>
<td><strong>Vibration</strong></td>
<td>IEC60068-2-6 (Test Fc, Operating): 2g @ 10-500Hz</td>
</tr>
<tr>
<td><strong>Shock</strong></td>
<td>IEC60068-2-27 (Test Ea, Unpackaged shock):</td>
</tr>
<tr>
<td></td>
<td>Operating 30g</td>
</tr>
<tr>
<td></td>
<td>Non-operating 50g</td>
</tr>
<tr>
<td><strong>Emissions</strong></td>
<td>CISPR 11: Group 1, Class A</td>
</tr>
<tr>
<td><strong>Certifications:</strong></td>
<td>UR UL Recognized Component Industrial Control Equipment</td>
</tr>
<tr>
<td></td>
<td>CE³ European Union 89/336/EEC EMC Directive, compliant with:</td>
</tr>
<tr>
<td></td>
<td>EN 50082-2; Industrial Immunity</td>
</tr>
<tr>
<td></td>
<td>EN 61326; Meas./Control/Lab., Industrial Requirements</td>
</tr>
<tr>
<td></td>
<td>EN 61000-6-2; Industrial Immunity</td>
</tr>
<tr>
<td></td>
<td>EN 61000-6-4; Industrial Emissions</td>
</tr>
<tr>
<td><strong>Radiated RF Immunity</strong></td>
<td>10V/m with 1kHz sine-wave 80%AM from 30MHz to 1000MHz</td>
</tr>
<tr>
<td><strong>1784-PCC1 Cable Specifications</strong></td>
<td>Total length of cable 120 cm</td>
</tr>
</tbody>
</table>

³ Australian Radiocommunications Act, compliant with: AS/NZS 2064; Industrial Emissions
Pin Assignments

<table>
<thead>
<tr>
<th>PC card Plug</th>
<th>ControlNet Plug</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>8</td>
<td>8</td>
</tr>
</tbody>
</table>

1 Refer to the ControlNet Cable System Planning and Installation Manual, publication CNET-IN002A-EN-P, when wiring your network. Refer to Industrial Automation Wiring and Grounding Guidelines, publication 1770-4.1, for information about Category 2 wiring.

2 The operating parameters describe the environment within the PCMCIA slot. Refer to the documentation for your computer for environmental requirements. The 1784-PCC card should not exceed those specifications.

3 See the Product Certification link at www.ab.com for Declarations of Conformity, Certificates, and other certification details.
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 (API)
The set of services that an operating system makes available to programs that run under it.

ControlNet network
A communication architecture that allows the exchange of messages between Allen-Bradley Company, Inc. products and certified third-party products.

connection
An opened communication path between two nodes on a ControlNet network.

ControlNet status indicators
Channel A and channel B indicators on your node indicating status on the ControlNet link.

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's PC card), and point enabler (which is designed for a specific manufacturer's PC card but does not require Card and Socket Services).

drop cable
A cable that connects a node to the trunk cable. This is an integral part of Allen-Bradley 1786 taps.

link
A collection of nodes with unique addresses (in the range of 1-99). Segments connected by repeaters make up a link; links connected by bridges make up a network.

maximum scheduled node
The node with highest network address that can use scheduled time on a ControlNet link.
maximum unscheduled node
The node with highest network address that can be unscheduled time on a ControlNet link.

Network Access Port (NAP)
In a ControlNet network, NAP is a physical layer variant that allows a temporary node to be connected to the link by connection to the NAP of permanent node. It is an RJ45 connection between two cnet devices that is typically temporary between a programming device and the network.

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.

node
The port of a physical device connected to the network that requires a network address to function on the network. A link may contain a maximum of 99 nodes.

NUI (Network Update Interval)
A single occurrence of the network update time (NUT).

NUT (Network Update Time)
Repetitive time interval in which data can be sent on the ControlNet network.

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

redundant media
A dual cable system that lets you receive the best signal over a network.

repeater
A two-part active physical-layer device that reconstructs and retransmits all traffic it hears on one segment to another segment.
segment
Trunk-cable sections connected via taps with terminators at each end; a segment does not include repeaters.

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 cards, sockets, adapters.

tap
A component that connects products to the ControlNet trunk cable. A tap is required for each node and for both sides of each repeater.

terminator
A 75-Ω resistor (mounted in a BNC plug) placed on the ends of segments to prevent reflections from occurring at the ends of cables.

trunk cable
The bus or central part of the ControlNet cable system.

trunk cable section
The length of trunk cable between any two taps.

type
Refers to the physical size of the PC card. There are three types of cards that have the same length and width (54 mm x 85.6 mm). The cards differ in thickness in the center, but have identical thickness at the connector end and long 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.

Virtual Device Driver (VxD)
A Windows device driver that processes interrupts and carries out I/O operations for a given application without disrupting the execution of other applications. Used in 1784-PCC Windows 95/98/Me applications.

Windows Driver Model (WDM)
A Windows device drivers that use I/O Request Packets (IRPs) as a means for messaging and data transfer. Used in 1784-PCC Windows 2000/XP applications.
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