Installation Instructions

DeviceNet PCI Communication Interface Card

Catalog Nos. 1784-PCID and 1784-PCIDS

To the Installer

The 1784-PCID and -PCIDS cards are peripheral component interconnect (PCI) open-bus interface cards that provide DeviceNet monitoring, configuration, and I/O scan capabilities.

This document contains:

Publication 1784-IN004B-EN-P - March 2001

Important User Information

Because of the variety of uses for the products described in this publication, those responsible for the application and use of this control equipment 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.

The illustrations, charts, sample programs, and layout examples shown in this guide are intended solely for purposes of example. Since there are many variables and requirements associated with any particular installation, Allen-Bradley 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 Allen-Bradley 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.

Throughout this document we use notes to make you aware of safety considerations:

ATTENTION

This notation identifies information about practices or circumstances that can lead to personal injury or death, property damage, or economic loss.

Attention statements help you to:

- identify a hazard
- avoid the hazard
- recognize the consequences

IMPORTANT This notation identifies information that is critical for successful application and understanding of the product.

Rockwell Automation Support

Rockwell Automation offers support services worldwide, with over 75 sales/support offices, over 500 authorized distributors, and 260 authorized systems integrators located throughout the United States alone, plus Rockwell Automation representatives in every major country around the world. Contact your local Rockwell Automation representative for:

- sales and order support
- product technical training
- warranty support
- support service agreements

Obtain Pre-Sales Product Support

If you need to contact Rockwell Automation for pre-sales product support, try one of the following methods:

- Call your local Rockwell Automation representative
- Network pre-sales support line, 1.440.646.3638 (3NET)
- Pre-Sales e-mail, RACle3net@ra.rockwell.com

Obtain Technical Product Support

If you need to contact Rockwell Automation for technical assistance, try one of the following methods:

type of technical support	access at
Personalized Service	Call your local Rockwell Automation representative
Post-sales Technical Support	1.440.646.5800
Email your questions to	racleasktheexpert@ra.rockwell.com
Internet site	www.ab.com

Related Publications

The table below lists publications that you may want to refer to for additional information. To view or download publications, visit www.theautomationbookstore.com or www.ab.com/manuals
You can purchase a printed manual by:

- contacting your local distributor or Rockwell Automation representative
- visiting www.theautomationbookstore.com and placing an order
- calling 800.963.9548 (USA/Canada) or 001.320.725.1574 (outside USA/Canada)

title	publication number
Getting Results with RSNetWorx for DeviceNet	9399-DNETGR
DeviceNet Cable System Planning & Installation Manual	DN-6.7.2

title	publication number
DeviceNet Network Troubleshooting Guide	ABT-N100-TSJ20
DeviceNet System Overview	DN-2.5
DeviceNet PCI Communication Interface Card User Manual (1784-PCIDS)	1784-6.5.30

Purpose

Use this document to learn how to install and use the DeviceNet PCI communication interface cards, 1784-PCID and 1784-PCIDS.

Audience

Read this manual before you install or use the DeviceNet PCI communication interface cards. You should be familiar with DeviceNet technology.

System Requirements

You must use a Separated Extra Low Voltage (SELV) or a Protected Extra Low Voltage (PELV) power supply to comply with CE Low Voltage Directives.

In North America, use a UL listed or CSA Certified computer chassis. The DeviceNet network must use a UL listed or CSA Certified Class 2 power supply.

You also need:

- Windows NT 4.0 with Service Pack 5 or later
- one open PCI slot
- approximately 2 MB disk space
- RSNetWorx for DeviceNet V2.11.51 or later
- RSLinxV2.10.118 or later

Communication on DeviceNet

You must have IOLinx for the 1784-PCIDS Card or RSLinx application software to communicate on a DeviceNet network with a PCIDS card. The PCID module is compatible only with RSLinx software.

For details about communicating on a DeviceNet network, see your application software documentation.

Compliance to European Union Directives

If this product has the CE marking, it is approved for installation within the European Union and EEA regions. It has been designed and tested to meet the following directives.

EMC Directive

This product is tested to meet Council Directive 89/336/EEC Electromagnetic Compatibility (EMC) and the following standards, in whole or in part, documented in a technical construction file:

- EN 50081-2 EMC - Generic Emission Standard, Part 2 - Industrial Environment
- EN 50082-2 EMC - Generic Immunity Standard, Part 2 - Industrial Environment

This product is intended for use in an industrial environment.

Low Voltage Directive

This product is tested to meet Council Directive 73/23/EEC Low Voltage, by applying the safety requirements of EN 61131-2 Programmable Controllers, Part 2 - Equipment Requirements and Tests.

- For specific information required by EN 61131-2, see the appropriate sections in this publication, as well as the following Allen-Bradley publications:
- Industrial Automation Wiring and Grounding Guidelines, publication 1770-4.1
- Automation Systems Catalog, publication B111

This equipment is classified as open equipment and must be installed (mounted) in an enclosure during operation as a means of providing safety protection.

Use Care When Handling the Card

ATTENTION

The card uses CMOS technology, which is highly sensitive to electrostatic discharge (ESD). ESD may be present whenever you are handling the card. Handling a card without any EDS protection can cause internal circuit damage that may not be apparent during installation or initial use.

Take these precautions to guard against electrostatic damage:

- Before handling the card, be sure to touch a grounded object such as a PC's metal chassis to discharge any built-up static charge.
- Avoid touching the backplane connector or interface connector pins.
- When the card is not in use, store it in the anti-static bag in which it was shipped.

IMPORTANT Remember, a computer with ac power disconnected is *not* a grounded object.

Terminology

this term	means
DeviceNet	networking standard maintained by Open DeviceNet Vendors Association
PCI	peripheral component interconnect
1784-PCID	DeviceNet PCI messaging card
1784-PCIDS	DeviceNet PCI scanner and messaging card

Verify the Contents of Your 1784-PCID/PCIDS Order

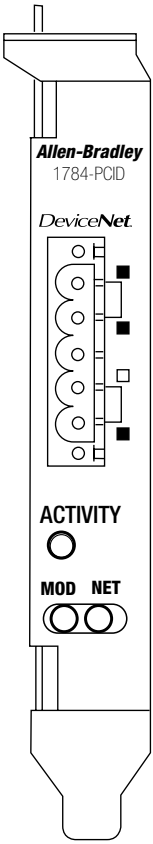
With this package you should receive:

- 1784-PCID or -PCIDS card
- terminal block connector
- driver and utility (IOLinx) CD for the 1784-PCIDS or a floppy for the 1784-PCID
- DeviceNet PCI Communication Interface Card Installation Instructions, publication 1784-IN004B-EN-P

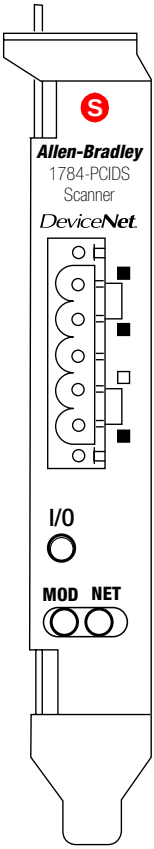
Introducing the 1784-PCID/PCIDS Communication Interface Cards

The 1784-PCID and the 1784-PCIDS communication interface cards, with appropriate software, are peripheral component interconnect (PCI) open-bus interface cards.

The 1784-PCID communication interface card is a messaging-only card that provides DeviceNet monitoring and configuration capabilities.



The 1784-PCIDS communication interface card provides DeviceNet configuration and I/O scan capabilities.



Install the 1784-PCID/PCIDS Card

IMPORTANT Be certain that you know how to:

- install hardware in your computer
- configure the computer's options before you install the card

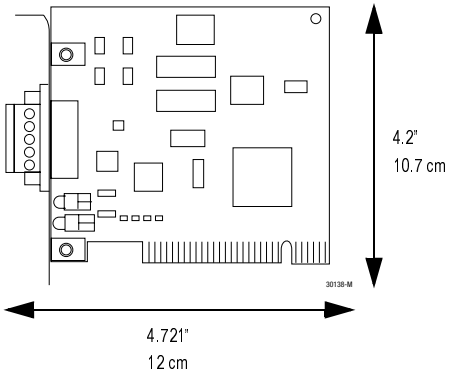
Consult your computer's documentation for specific information.

You need a Phillips-head or a flat-head screwdriver, depending on your system.

To install the card:

1. Gain access to the computer's expansion slots.
2. Insert the card into an open PCI slot in the computer.

IMPORTANT The 1784-PCID/PCIDS card is 4.2" (10.7 cm) high and 4.721" (12 cm) long.



Access the Computer's Expansion Slots

To install the PCID/PCIDS card, you must access the computer's expansion slots. Refer to your computer's user guide for instructions on how to:

1. Power down the host computer by turning off the power switch.
2. Remove the computer's cover.

3. Select a vacant PCI expansion slot.

4. Remove the slot's expansion cover by loosening the screw on the back (rear bracket) of the computer.

Insert the Card

To insert the card inside the computer:

1. Follow the card handling instructions on page 7.

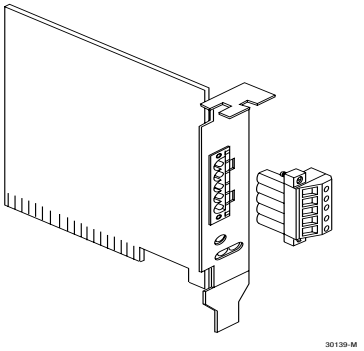
2. Insert the PCID/PCIDS card into the edge connector and tighten the expansion slot screw.

3. Turn on the computer to make sure it powers up correctly.

4. Replace the CPU cover (when computer comes up correctly).

Connect to the Network

This figure and table show the necessary network connections you make to the card. The label (on the retaining bracket) is color-coded for easy wiring.



pin number	wire color	abbreviation	description
1	black	V-	24V dc power return
2	blue	CAN_L	data low - data line
3	bare	DRAIN	shield
4	white	CAN_H	data high - data line
5	red	V+	+24V dc

Install the 1784-PCID Driver in Windows NT

IMPORTANT Be sure that your PCID card is properly installed. Refer to Install the 1784-PCID/PCIDS Card on page 9.

Uninstall the Previous Version of the Driver

IMPORTANT Before you install the new driver, you must uninstall any earlier versions. If you do not currently have a PCID driver installed, go to Install the New Driver on page 13.

1. Shut down all applications that use the PCID driver, including RSLinx.
2. Click **Start ⇒Settings ⇒Control Panel**.
3. Double-click the **Add/Remove Programs** icon.
4. Double-click on **Allen-Bradley 1784-PCID Driver**.
5. Select **Yes** to uninstall the driver.

TIP If you are prompted to remove unused shared files, select **No to All**.

6. Reboot the computer.

Install the New Driver

IMPORTANT We recommend that you exit all Windows programs before running this Setup program.

1. Insert the floppy disk into the computer's floppy disk drive.
2. Select **Start ⇒Run.**
3. At the Run pop-up menu, type **a:\setup** where **a** is your floppy drive letter.
4. Click **OK** and follow the on-screen instructions for installing the driver.

Install the 1784-PCIDS Driver and IOLinx in Windows NT

IMPORTANT Be sure that your PCIDS card is properly installed. Refer to Install the 1784-PCID/PCIDS Card on page 9.

Uninstall the Previous Version of IOLinx

IMPORTANT Before you install the new driver and IOLinx, you must uninstall any earlier versions of IOLinx. If you do not currently have IOLinx installed, go to Install the New Driver and IOLinx on page 15.

1. Shut down all applications that use the IOLinx DeviceNet driver, including RSLinx and SoftLogix 5.
2. Click **Start ⇒Settings ⇒Control Panel**.
3. Double click the **Add/Remove Programs** icon.
4. Depending on which previous version of IOLinx was installed, double-click on one of the following to remove it:
   - **1784-PCIDS Drivers for IOLinx**
   - **IOLinx for the 1784-PCIDS Card**
5. Select **Yes** to uninstall IOLinx.

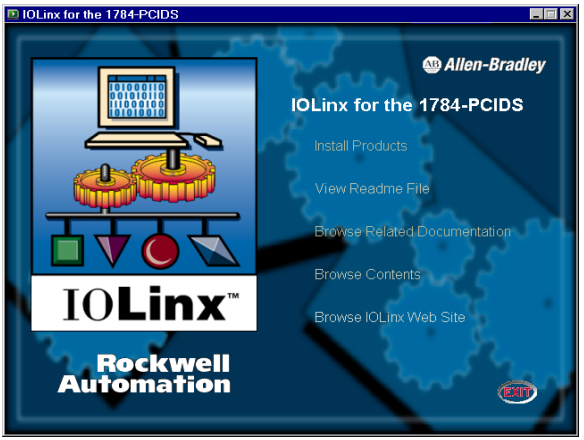
TIP If you are prompted to remove unused shared files, select **No to All**.

Install the New Driver and IOLinx

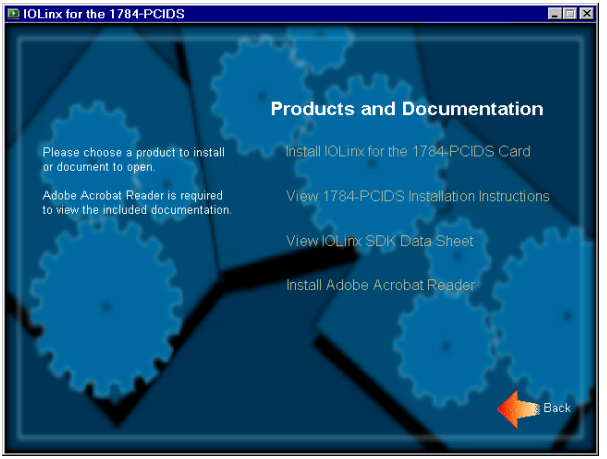
IMPORTANT We recommend that you exit all Windows programs before running this Setup program.

TIP The CD-ROM supports Windows Autorun. If you have Autorun configured, once the CD is inserted into the CD-ROM drive, the installation will automatically start at the first setup screen.

1. Insert the CD into the computer's CD-ROM drive.
2. If Autorun is configured for your CD-ROM drive, go to step 5 on page 15.
3. Select **Start ⇒Run**.
4. At the Run pop-up menu, type **d:\setup** where **d** is your CD-ROM drive letter.
5. You see the IOLinx for the 1784-PCIDS screen.



6. Click on **Install Products**. You see this screen:



7. Click on **Install IOLinx for the 1784-PCIDS Card**.

8. Follow the on-screen instructions to install IOLinx.

Install the 1784-PCIDS Driver and IOLinx in Windows 2000 for the First Time

IMPORTANT Use this procedure only if this is the first time that you are installing the PCIDS driver and IOLinx on this computer. Otherwise, use the Update the 1784-PCIDS Driver and IOLinx in Windows 2000 procedure on page 22 instead of this procedure.

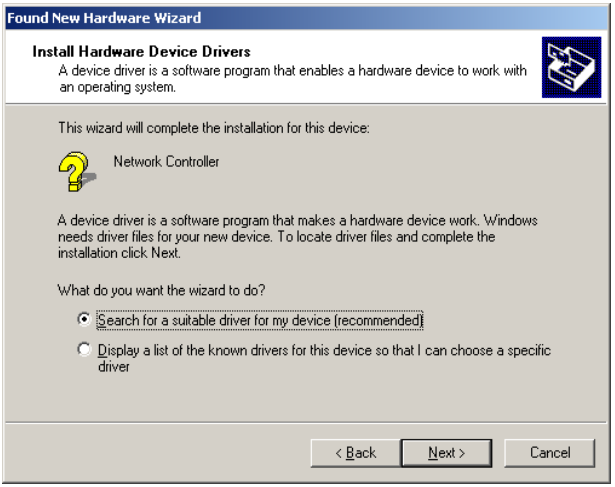
IMPORTANT Be sure that your PCIDS card is properly installed. Refer to Install the 1784-PCID/PCIDS Card on page 9.

Install the New Driver

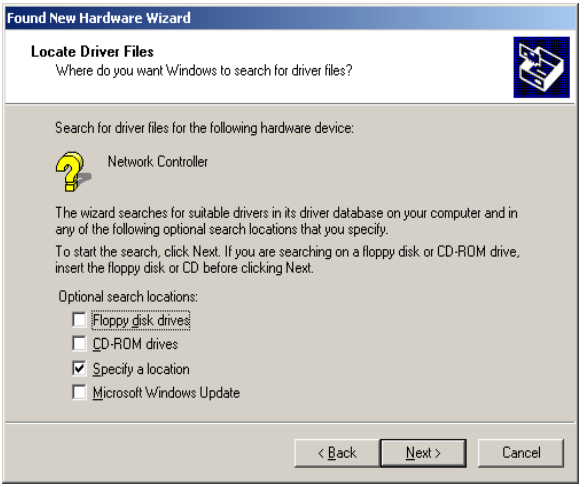
1. When you boot up your computer for the first time after installing your PCIDS card, you see the Found New Hardware Wizard.

2. Click **Next**.

3. Click on **Search for a suitable driver for my device (recommended).**



4. Click **Next**.



5. Select **Specify a Location**.

6. Click **Next**.

if	then
you are installing from CD-ROM and Auto Insert Notification (a.k.a. Autorun) is enabled on your CD-ROM drive	insert the CD-ROM into the computer's CD-ROM drive the Setup Utility will start automatically. Click anywhere in the Wizard screen to bring it back on top of the Setup Utility window.
you are installing IOLinx from a compressed file	download IOLinx from http://www.ab.com/networks/iolinx and unzip the files into a temporary directory

7. In the Found New Hardware Wizard, click **Browse** and browse to this location:

   x:\IOLinx for DeviceNet\abpcids.inf

   where x is the drive where the installation files are stored.

8. Click **Open**.

9. Click **OK**.

10. Follow the on-screen instructions for installing the driver.

11. Go to the next section, Install IOLinx, on page 20.

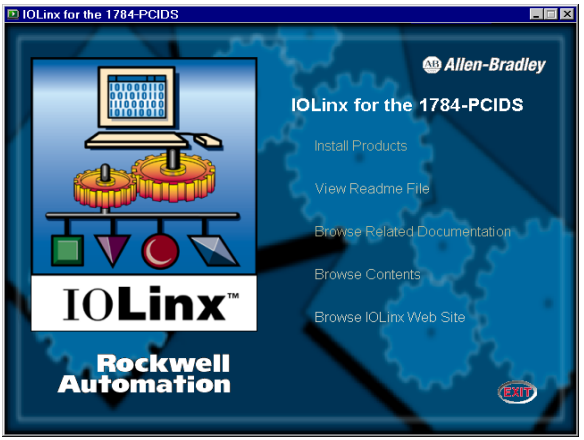
IMPORTANT To ensure that the card works properly, you must install IOLinx as described on page 20.

Install IOLinx

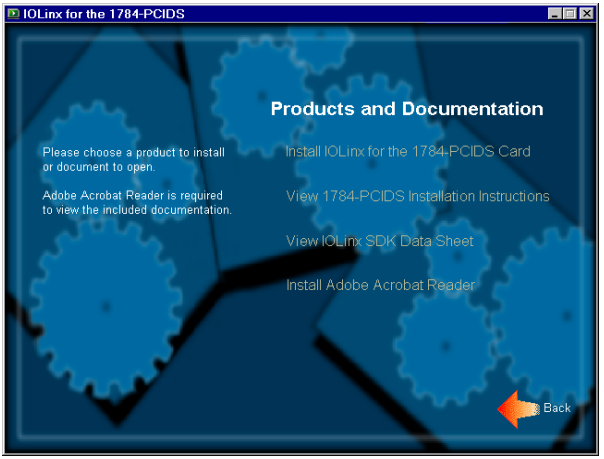
IMPORTANT We recommend that you exit all Windows programs before running this Setup program.

TIP The CD-ROM supports Windows Autorun. If you have Autorun configured, once the CD is inserted into the CD-ROM drive, the installation will automatically start at the first setup screen.

1. Insert the CD in the computer's CD-ROM drive.
2. If Autorun is configured for your CD-ROM drive, go to step 5 on page 20.
3. Select **Start ⇒Run**.
4. At the Run pop-up window, type **d:\setup** where **d** is your CD-ROM drive letter.
5. You see the IOLinx for the 1784-PCIDS screen.



6. Click on **Install Products**. You see this screen:



7. Click on **Install IOLinx for the 1784-PCIDS Card**.

8. Follow the on-screen instructions to install IOLinx.

Update the 1784-PCIDS Driver and IOLinx in Windows 2000

IMPORTANT Use this procedure only if you have previously installed the PCIDS driver and IOLinx on this computer. If you have not previously installed the PCIDS driver and IOLinx on this computer, use the Install the 1784-PCIDS Driver and IOLinx in Windows 2000 for the First Time procedure on page 17 instead of this procedure.

Uninstall the Previous Version of IOLinx

IMPORTANT Before you update the new driver and IOLinx, you must uninstall any earlier versions of IOLinx. If you do not currently have IOLinx installed, go to the Update the Driver procedure on page 23.

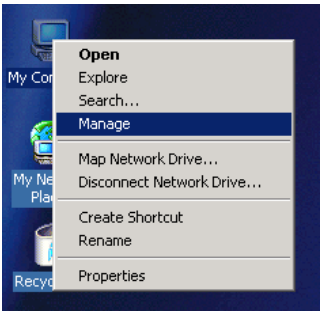
1. Shut down all applications that use the IOLinx DeviceNet driver, including RSLinx and SoftLogix 5.
2. Click **Start ⇒Settings ⇒Control Panel**.
3. Double-click the **Add/Remove Programs** icon.
4. Depending on which previous version of IOLinx was installed, double-click on one of the following to remove it:
   - **1784-PCIDS Drivers for IOLinx**
   - **IOLinx for the 1784-PCIDS Card**
5. Select **Yes** to uninstall IOLinx.

TIP If you are prompted to remove unused shared files, select **No to All**.

6. Reboot the computer.

Update the Driver

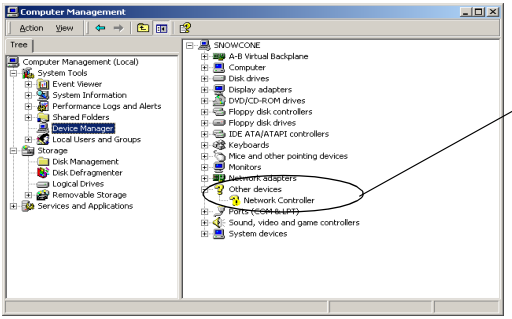
1. Right-click on **My Computer**.
2. Select **Manage**.



3. On the Computer Management window that appears, select **Device Manager.**

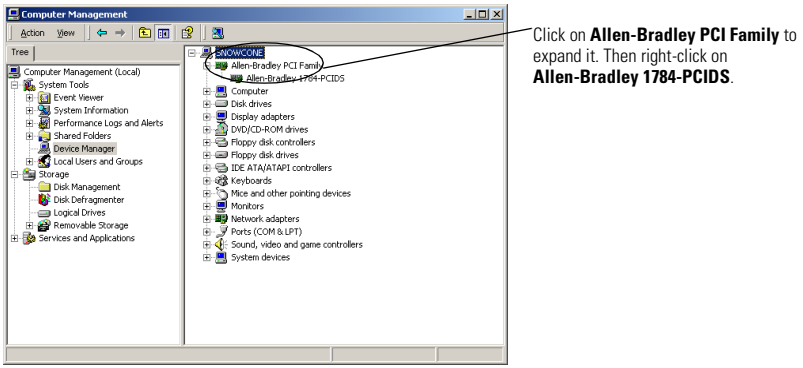
if	then
IOLinx version 1.14 or earlier was installed	go to step 4 on page 24
IOLinx version 1.15 or later was installed	go to step 5 on page 24

4. If IOLinx version 1.14 or earlier was installed, follow this procedure:
   a. Click on **Other Devices** to expand the list.



   b. Right-click on the **Network Controller** that corresponds to the PCIDS card that you are updating and select **Properties**.
   c. Go to step 6.

5. If IOLinx version 1.15 or later was installed, follow this procedure:
   a. Select **Allen-Bradley PCI Family**.



   b. Right-click on the **Allen-Bradley 1784-PCIDS** that corresponds to the PCIDS card you are updating and select **Properties**.
   c. Go to step 6.

6. Click on the **Driver** tab, then click **Update Driver**. You see the Upgrade Device Driver Wizard.

7. Click **Next**.

8. Select the **Display a list of known drivers for this device so that I can choose a specific driver** radio button.

9. Click **Next**.

if	then
you are installing from CD-ROM and Auto Insert Notification (a.k.a. Autorun) is enabled on your CD-ROM drive	insert the CD-ROM into the computer's CD-ROM drive the Setup Utility will start automatically. Click anywhere in the Wizard screen to bring it back on top of the Setup Utility window.
you are installing IOLinx from a compressed file	download IOLinx from http://www.ab.com/networks/iolinx and unzip the files into a temporary directory

10. Select the **Have Disk...** button.

11. Click **Browse** and browse to this location:

x:\IOLinx for DeviceNet\abpcids.inf

where x:\ is the drive where the installation files are stored.

12. Click **Open**.

13. Click **OK**.

14. Follow the on-screen instructions for installing the driver.

TIP

When you close the Properties screen, you may be prompted to restart your computer. If you get this prompt, restart your computer before using this updated driver.

15. Go to the next section, Install IOLinx, on page 27.

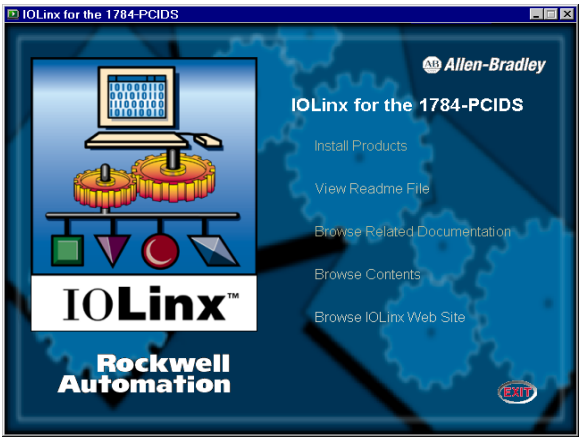
IMPORTANT To ensure that the card works properly, you must install IOLinx as described on page 27.

Install IOLinx

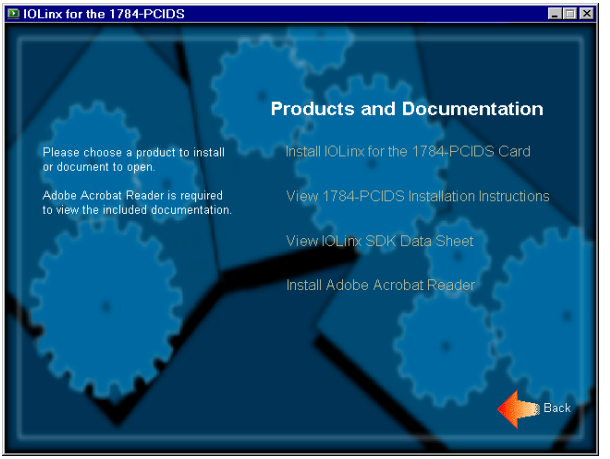
IMPORTANT We recommend that you exit all Windows programs before running this Setup program.

TIP The CD-ROM supports Windows Autorun. If you have Autorun configured, once the CD is inserted into the CD-ROM drive, the installation will automatically start at the first setup screen.

1. Insert the CD in the computer's CD-ROM drive.
2. If Autorun is configured for your CD-ROM drive, go to step 5 on page 27.
3. Select **Start ⇒Run**.
4. At the Run pop-up window, type **d:\setup** where **d** is your CD-ROM drive letter.
5. You see the IOLinx for the 1784-PCIDS screen.



6. Click on **Install Products**. You see this screen:



7. Click on **Install IOLinx for the 1784-PCIDS Card**.

8. Follow the on-screen instructions to install IOLinx.

Use the DeviceNet Test Application for the 1784-PCIDS

Included with the IOLinx for 1784-PCIDS driver CD is a stand-alone test application (DNetTest.exe) that lets you diagnose simple problems over the network before the control application may be available for integration.

In addition, you can use the application to make certain that the PCIDS module has been correctly installed and is functioning in the PC.

IMPORTANT The DeviceNet Test Application and diagnostic utility is restricted for use on the 1784-PCIDS scanner card only.

The test application provides the features described on pages 29 through 32, which include:

- configuring the port
- creating a view
- using scanner mode
- reading inputs
- writing outputs
- using the device status screen

Start the Test Application

The test application is automatically installed as part of the driver installation procedure, although it does not show up as a shortcut on your screen.

To start the test application, click **Start ⇒Programs ⇒Rockwell Software ⇒IOLinx ⇒IOLinx for DeviceNet ⇒DeviceNet Test**.

The test application assumes that you have the card installed, the network is powered, and a scan list is loaded into the 1784-PCIDS using RSNetWorx for DeviceNet V2.11.51 or later. If the driver cannot establish communication with the module, an error message is displayed.

Configure Port

You must configure the port the first time you use a PCIDS card.

To configure the port, follow these steps:

1. Select **Configure Port...** from the Setup menu.

2. Select **Allen-Bradley 1784-PCIDS** from the WinDNET32 Driver Selection dialog.

3. Click on **OK**.

4. Set Node Address (0 - 63).

5. Set Baud Rate (125/250/500 kbs).

6. Click **OK**. You see a dialog box that says Operation was successful followed by a similar message box that tells you that Port "DeviceNet Port A" has been configured.

Create View

To go online, follow these steps:

1. From the **Setup** menu, select **Create View...**.

2. Select **Port Names**.

3. Select **Message Type (Input, Output, or Input/Output)**.

4. Select **Privilege (Read Only, Read/Write)**.

5. Click **OK**. You see a message box that tells you that Operation was successful.

Scanner Mode

The Port Mode window displays the current mode of the scanner: Run, Idle, No View.

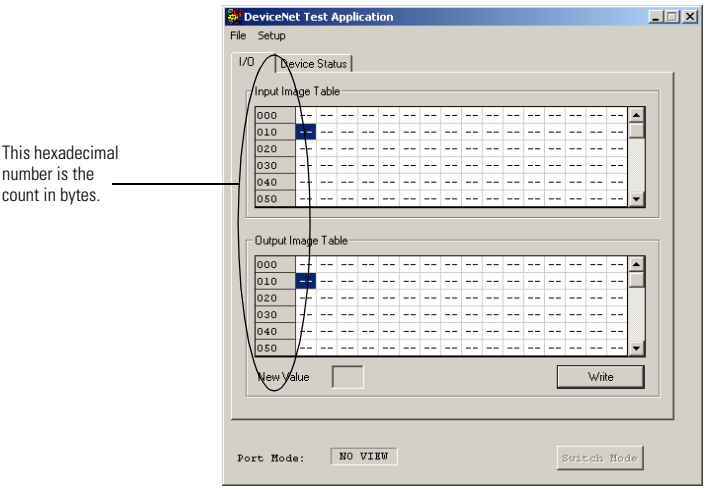
Once you create a view, the Switch Mode button changes the mode between Run and Idle.

Read Inputs

Read Inputs lets you read as many as 2048 bytes from the input image table of the 1784-PCIDS. A simple dialog box with scrolling capability (shown in the figure below) is displayed and is automatically updated when inputs change.

TIP

The hexadecimal number on the left side of the input or output table is the count in bytes.



Write Outputs

Write Outputs lets you write as many as 2048 bytes to the output image table of the scanner using manual data entry in a dialog box. The scanner must be in Run Mode for writes to be seen at the output device.

1. Select the desired byte(s).
2. Type in the desired value(s).
3. Press the **Write** button. The transfer is performed.

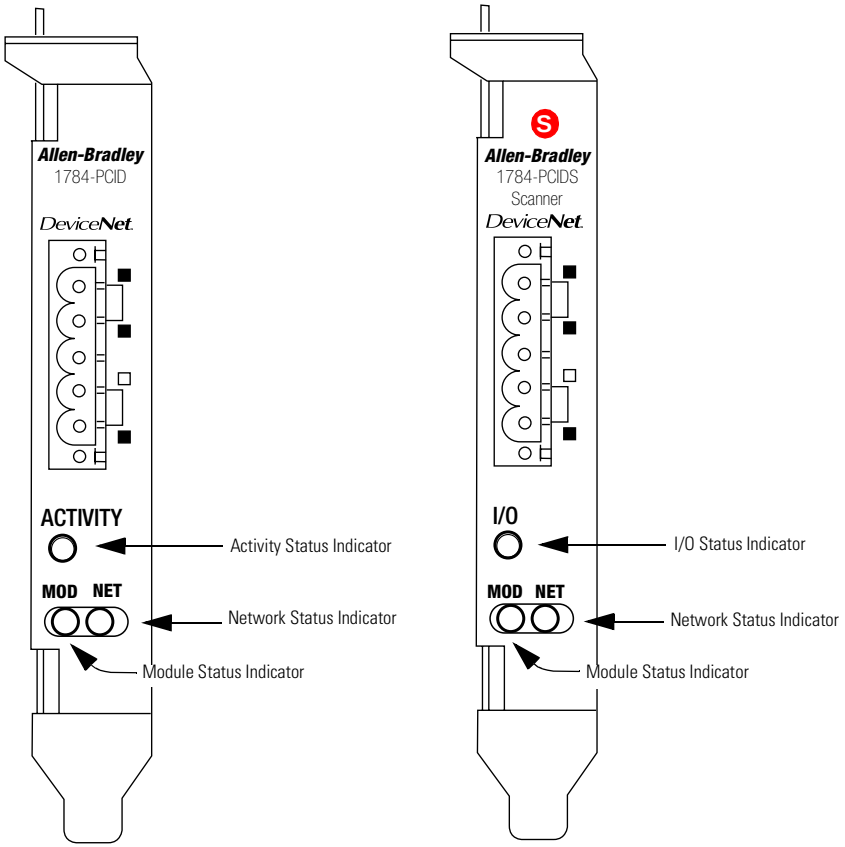
Use the Device Status Screen

The Device Status screen displays an Idle/Failure Table where you can double-click on a node to see its status, i.e., MAC ID, status code, and status info, e.g., device stopped communicating.

If you double-click on an empty node, you see the response, “OK or not in scan list.”

Interpret Status Indicators (LEDs)

The three status indicators on the card give you information about your network and its connections. This figure identifies each status indicator.



The tables on pages 33 through 35 outline the indicator condition and the corresponding status, and explain what each condition means to you.

1784-PCIDS I/O Status Indicator

This bi-color (green/red) LED provides information concerning the states of inputs and/or outputs.

condition	status	indicates
off	output(s) inactive input(s) inactive	All Outputs are inactive. All inputs are inactive.
green	output(s) active	One or more outputs are active and under control, and no outputs are faulted.
	input(s) active	One or more inputs are active and producing data, and no inputs are faulted.
flashing green[1]	output(s) idle	One or more outputs are idle and no outputs are active or faulted.
flashing red[1]	output(s) faulted	One or more outputs are faulted, and may be in the fault state.
	input(s) faulted	One or more inputs are faulted, and may be in the fault state.
red	output(s) forced off	One or more outputs are forced off (may be an unrecoverable fault).
	input unrecoverable fault	One or more inputs has an unrecoverable fault.

[1] The flash rate of the LED is approximately 1 flash per second. The LED should be on for approximately 0.5 seconds and off for approximately 0.5 seconds.

1784-PCID Activity Status Indicator

This LED provides information about the activity of the card and driver.

condition	indicates
off	Card is not receiving any commands from the driver.
quick green flash (50 ms)	Card received packet from the driver and is attempting to transmit the packet onto DeviceNet.
slow green flash (500 ms)	Card accepted a command from the driver, such as go online / offline.

Module (MOD) Status Indicator

This bi-color (green/red) LED provides device status. It indicates whether or not the device has power and is operating properly.

condition	status	indicates
off	no power	No power applied to device.
green	device operational	Device is operating in a normal condition.
flashing green[1]	device in standby (device needs commissioning)	Device needs commissioning due to configuration missing, incomplete, or incorrect. Device may be in the standby state. Refer to the DeviceNet Specification, Volume II, Identity Object.
flashing red[1]	recoverable fault	E.g., the device's scan list configuration does not match the actual network configuration.
red	unrecoverable fault	Device has an unrecoverable fault. Cycle power to the card by shutting down and cycling power to your computer. If the problem persists, the device may need to be replaced.
flashing red-green	device self testing	Device is in self test. Refer to the DeviceNet Specification, Volume II, Identity Object.

[1] The flash rate of the LED is approximately 1 flash per second. The LED should be on for approximately 0.5 seconds and off for approximately 0.5 seconds.

Network (NET) Status Indicator

This bi-color (green/red) LED indicates the status of the communication link.

condition	status	indicates
off	not powered, not online	Device is not online. The device has not completed the Dup_MAC_ID test yet. The device may not be powered; look at the Module Status LED.
flashing green[1]	online, not connected	Device is online, but has no connections in the established state. The device has passed the Dup_MAC_ID test, is online, but has no established connections to other nodes.
green	link okay, online, connected	The device is online and has connections in the established state.
flashing red[1]	connection time-out	One or more I/O connections are in the timed-out state. Not applicable for the PCID because the card does not support I/O connections.
red	critical link failure	Failed communication device. The device has detected an error that has rendered it incapable of communicating on the network (Duplicate MAC ID or Bus-off). Check network integrity and baud rate of all devices. Then cycle power to the card by shutting down and cycling power to your computer.

[1] The flash rate of the LED is approximately 1 flash per second. The LED should be on for approximately 0.5 seconds and off for approximately 0.5 seconds.

Specifications

General Specifications	
PCI local bus	compliant to PCI Rev 2.1
mechanical form factor	PCI 5V, 32-bit short card 4.2" (10.7 cm) H x 4.721" (12 cm) L
driver compatibility	Windows NT 4.0 with Service Pack 5 or later
power requirements PC DeviceNet [1]	 5V @ 625 mA max.[4] +24V dc @ 90 mA max. Class 2 [1]
conductor	Category 2 [3]
Environmental Conditions	
ambient slot temperature rating • operating [2] • non-operating	 0 to 55C (32 to 131F) -40 to +85 C (-40 to 185F)
ambient humidity rating	5% to 95% without condensation
vibration (operating)	0 to 70Hz, constant .012" displacement 70 to 500Hz, constant 2G acceleration
shock • operating [2] • non-operating	 30G peak/11 ms 50G peak/11 ms
Agency Certification	
(when product or package is marked)	Certified Component Process Control Equipment Certified Component, Class I, Division 2, Groups A, B, C, D UL Recognized Industrial Control Equipment Marked for all applicable directives DeviceNet

[1] The DeviceNet power supply must be compliant with the requirements for CLASS 2 as defined in NFPA-70 National Electrical Code and/or CSA C22.1 Canadian Electrical Code, Part 1.

[2] The operating parameters describe the environment within the PCI slot. Refer to the documentation for your computer for environmental requirements. The PCID/PCIDS card should not exceed those specifications.

[3] Refer to the Industrial Automation Wiring and Grounding Guidelines, publication 1770-4.1.

[4] This equipment must be powered from UL Listed Information Technology Equipment, UL Listed Industrial Control Equipment, CSA Certified Information Technology Equipment, or CSA Certified Process Control Equipment.

CSA Hazardous Location Approval

CSA certifies products for general use as well as for use in hazardous locations. Actual CSA certification is indicated by the product label as shown below, and not by statements in any user documentation.
Example of the CSA certification product label:

To comply with CSA certification for use in hazardous locations, the following information becomes a part of the product literature for this CSA-certified industrial constrol product.

- This equipment is suitable for use in Class I, Division 2, Groups A, B, C, D, or non-hazardous locations only.
- The products having the appropriate CSA markings (that is, Class I, Division 2, Groups A, B, C, D) are certified for use in other equipment where the suitability of combination (that is, application or use) is determined by the CSA or the local inspection office having jurisdiction.

IMPORTANT

Due to the modular nature of a programmable control system, the product with the highest temperature rating determines the overall temperature code rating of a programmable control system in a Class I, Division 2, location. The temperature code rating is marked on the product label as shown.

Temperature code rating:

Look for temperature code rating here.

The following warnings apply to products having CSA certification for use in hazardous locations.

ATTENTION

Explosion hazard!

- Substitution of components may impair suitability for Class I, Division 2.
- Do not replace components unless power has been switched off or the area is known to be non-hazardous.
- Do not disconnect equipment unless power has been switched off or the area is known to be non-hazardous.
- Do not disconnect connectors unless power has been switched off or the area is known to be non-hazardous. Secure any user-supplied connectors that mate to external circuits on this equipment by using screws, sliding latches, threaded connectors, or other means such that any connection can withstand a 15 Newton (3.4 lb.) separating force applied for a minimum of one minute.
- If the Product contains batteries, they must only be changed in an area known to be non-hazardous.

Approbation d'utilisation dans des environnements dangereux par la CSA

La CSA certifie des produits pour une utilisation générale aussi bien que pour une utilisation en environnements dangereux. La certification CSA en vigueur est indiquée par l'étiquette produit et non par des indications dans la documentation utilisateur. Exemple d'étiquette de certification d'un produit par la CSA :

Pour satisfaire à la certification CSA en environnements dangereux, les informations suivantes font partie intégrante de la documentation des produits de commande industrielle certifiés.

- Cet équipement ne convient qu'à une utilisation dans des environnements de Classe 1, Division 2, Groupes A, B, C, D ou non dangereux.
- Les produits portant le marquage CSA approprié (c'est-à-dire Classe 1, Division 2, Groupes A, B, C, D) sont certifiés pour une utilisation avec d'autres équipements, les combinaisons d'applications et d'utilisation étant déterminées par la CSA ou le bureau local d'inspection.

IMPORTANT

De par la nature modulaire des systèmes de commande programmables, le produit ayant le code de température le plus élevé détermine le code de température global du système dans un environnement de Classe I, Division 2. Le code de température est indiqué sur l'étiquette produit.

Code de température :

Le code de température est indiqué ici.

Les avertissements suivants s'appliquent aux produits ayant la certification CSA pour une utilisation dans des environnements dangereux.

ATTENTION

Risque d'explosion

- La substitution de composants peut rendre ce matériel inadapté à une utilisation en environnement de Classe 1, Division 2.
- Couper le courant ou s'assurer que l'environnement est classé non dangereux avant de remplacer des composants.
- Couper le courant ou s'assurer que l'environnement est classé non dangereux avant de débrancher l'équipement.
- Couper le courant ou s'assurer que l'environnement est classé non dangereux avant de débrancher les connecteurs. Fixer tous les connecteurs fournis par l'utilisateur pour se brancher aux circuits externes de cet appareil à l 'aide de vis, loquets coulissants, connecteurs filetés ou autres, de sorte que les connexions résistent à une force de séparation de 15 Newtons (1,5 kg - 3,4 lb.) appliquée pendant au moins une minute.
- S'assurer que l'environnement est classé non dangereux avant de changer les piles.

AVERTISSEMENT :Le sigle CSA est une marque déposée de la Canadian Standards Association.

Notes:

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