Allen-Bradley

DeviceNet Universal PCI Scanner Card

1784-PCIDS Series B

Installation Instructions

Rockwell Automation

Important User Information

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

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

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

No patent liability is assumed by Rockwell Automation, Inc. with respect to use of information, circuits, equipment, or software described in this manual.

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

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

ATTENTION

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.

NOTE: 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.

ATTENTION

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.

North American Hazardous Location Approval

The following information applies when operating this equipment in hazardous locations:	**Informations sur l'utilisation de cet équipement en environnements dangereux:**
Products marked "CL I, DIV 2, GP A, B, C, D" are suitable for use in Class I Division 2 Groups A, B, C, D, Hazardous Locations and nonhazardous locations only. Each product is supplied with markings on the rating nameplate indicating the hazardous location temperature code. When combining products within a system, the most adverse temperature code (lowest "T" number) may be used to help determine the overall temperature code of the system. Combinations of equipment in your system are subject to investigation by the local Authority Having Jurisdiction at the time of installation.	Les produits marqués "CL I, DIV 2, GP A, B, C, D" ne conviennent qu'à une utilisation en environnements de Classe I Division 2 Groupes A, B, C, D dangereux et non dangereux. Chaque produit est livré avec des marquages sur sa plaque d'identification qui indiquent le code de température pour les environnements dangereux. Lorsque plusieurs produits sont combinés dans un système, le code de température le plus défavorable (code de température le plus faible) peut être utilisé pour déterminer le code de température global du système. Les combinaisons d'équipements dans le système sont sujettes à inspection par les autorités locales qualifiées au moment de l'installation.

WARNING 	EXPLOSION HAZARD • Do not disconnect equipment unless power has been removed or the area is known to be nonhazardous. • Do not disconnect connections to this equipment unless power has been removed or the area is known to be nonhazardous. Secure any external connections that mate to this equipment by using screws, sliding latches, threaded connectors, or other means provided with this product. • Substitution of components may impair suitability for Class I, Division 2. • If this product contains batteries, they must be changed only in an area known to be nonhazardous.	**AVERTISSEMENT** 	RISQUE D'EXPLOSION • 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 externes reliés à cet équipement à l'aide de vis, loquets coulissants, connecteurs filetés ou autres moyens fournis avec ce produit. • La substitution de composants peut rendre cet équipement inadapté à une utilisation en environnement de Classe I, Division 2. • S'assurer que l'environnement est classé non dangereux avant de changer les piles.

About the 1784-PCIDS Universal PCI Scanner Card

What is a 1784-PCIDS Universal PCI Scanner Card?

The 1784-PCIDS Universal PCI Scanner Card is a Universal Peripheral Component Interconnect (PCI) open-bus interface card that provides DeviceNet monitoring, configuration, explicit messaging and I/O scan capabilities.

Purpose of This Manual

Use this document to learn how to install and use the 1784-PCIDS DeviceNet Universal PCI Scanner Card.

Intended Audience

Read this manual before you install or use the 1784-PCIDS Universal PCI Scanner Card. You should be familiar with DeviceNet technology when applying products such as those described in this publication.

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.

What Your Package Contains

With this package you should receive:

- one 1784-PCIDS card
- one terminal block connector
- one IOLinx 1784-PCIDS driver CD-ROM
- DeviceNet Universal PCI Scanner Card Installation Instructions, publication 1784-IN004

For Further Reference

Refer to these publications for more information on installing and using your 1784-PCIDS card:

Publication Number	Publication Title
DNET-UM004	DeviceNet Modules in Logix5000 Control Systems User Manual
1789-UM002	SoftLogix5800 System User Manual
DNET-UM072	DeviceNet Media Design and Installation Guide
9230-IOLINX SDK	IOLinx Software Development Kit

Chapter 6
Use the DeviceNet Test Application to Verify the Configuration

Chapter 7
Interpret Status Indicators (LEDs)

Appendix A
Specifications

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Install IOLinx

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 Install IOLinx procedure on page 1-3.

1. Shut down all applications that use the IOLinx DeviceNet Driver, including RSLinx and SoftLogix.

In This Operating System	Select
Windows 2000	Start ⇒Settings ⇒Control Panel, then double-click the Add/Remove Programs icon
Windows XP	Start ⇒Control Panel ⇒Add or Remove Programs, or Start ⇒Control Panel, then double-click the Add or Remove Programs icon

2. Depending on which previous version of IOLinx was installed, click on one of the following to remove it:
   - IOLinx for DeviceNet
   - 1784-PCIDS Drivers for IOLinx
   - IOLinx for the 1784-PCIDS Card

3. Select **Remove**.

4. Select **Yes** to uninstall IOLinx.

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

5. Reboot the computer.

Install IOLinx

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

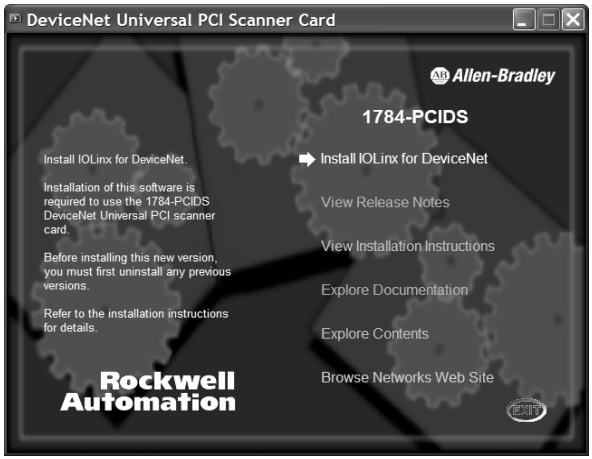
TIP The CD-ROM supports Windows Autorun. If you have Autorun configured, once the CD is inserted into the CD-ROM drive, the installation will automatically start at the first setup screen.

1. Insert the CD in the computer's CD-ROM drive or access the compressed file you downloaded and saved to a temporary directory.

2. If you are installing from CD-ROM and Autorun is enabled for your CD-ROM drive, go to step 5 on page 1-4.

3. Select **Start ⇒Run**.

4. At the Run pop-up screen, type **x:\setup** where **x** is the drive where the installation files are stored and click **OK**.



5. Select **Install IOLinx for DeviceNet**.

   You see the IOLinx for DeviceNet Setup Wizard screen.

6. Click **Next**.

You see the Select Installation Folder screen.

7. Use the default path to the folder. Select the **Everyone** or **Just me** radio button, depending on your application.

8. Click **Next**. You see the Confirm Installation screen.

9. Click **Next** to install IOLinx.

10. After the installation is complete, you see the Installation Complete screen. Click **Close**.

Notes:

Install the 1784-PCIDS Card

Before You Begin

WARNING

If you connect or disconnect the communications cable with power applied to this module or any device on the network, an electrical arc can occur. This could cause an explosion in hazardous location installations.

When used in a Class I, Division 2, hazardous location, this equipment must be mounted in a suitable enclosure with proper wiring method that complies with the governing electrical codes.

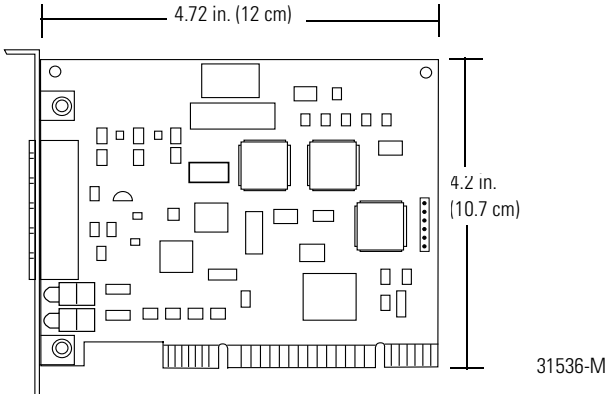
If you insert or remove the card while host power is on, an electrical arc can occur. This could cause an explosion in hazardous location installations.

Be sure that power is removed or the area is nonhazardous before proceeding.

To install the card, you need to:

- access the computer's expansion slots
- insert the card into the computer

IMPORTANT The card's dimensions are shown below.



Access the Computer's PCI Local Bus Expansion Slots

To install the card, you must access the computer's PCI local bus expansion slots. Follow these general steps, or refer to your computer's user guide for further instructions:

1. Shut down the host computer.
2. Remove the computer's cover.
3. Select a vacant PCI local bus expansion slot.
4. Loosen the screw (if present) on the back (rear bracket) of the computer.
5. Remove the slot's expansion cover.

Insert the Card Into the Computer

To insert the card inside the computer:

1. Handle the card so that you prevent electrostatic discharge.

   Refer to the Preface of this manual for more information.

2. Insert the card into the edge connector and tighten the expansion slot screw (if present).

3. Replace the computer's cover.

4. Turn on the computer to be certain that it comes up correctly.

If The Computer	Then
powers up	go to the next section, Connect to the Network, on page 2-3
hangs up	either the card is not seated correctly in the PCI slot or you have a memory or I/O conflict. You should: • remove and reinsert the card into the same PCI slot and try again • remove and reinsert the card into a different PCI slot and try again • remove all other non-essential cards and try again If you continue to experience difficulty, contact your local Rockwell Automation sales representative or distributor, or call Rockwell Automation Technical Support at 440.646.5800.

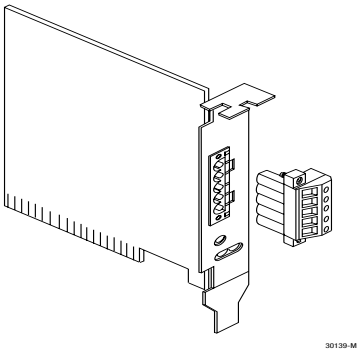
Connect to the Network

WARNING

If you connect or disconnect the DeviceNet cable with power applied to this module or any device on the network, an electrical arc can occur. This could cause an explosion in hazardous location installations. Be sure that power is removed or the area is nonhazardous before proceeding.

Figure 2.1 and the table which follows it show the necessary network connections you make to the card. The label (on the card's metal retaining bracket) is color-coded for easy wiring.

Figure 2.1 Wiring the Card



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

For detailed wiring information, refer to the DeviceNet Media Design and Installation Guide, publication DNET-UM072.

What Is Next?

In This Operating System:	Do This:
Windows XP	go on to Chapter 3 to install the driver
Windows 2000	go on to Chapter 4 to install the driver

Install the 1784-PCIDS Driver in Windows XP

IMPORTANT Be sure that your 1784-PCIDS card is properly installed. Refer to Chapters 1 and 2 of this manual to install the card.

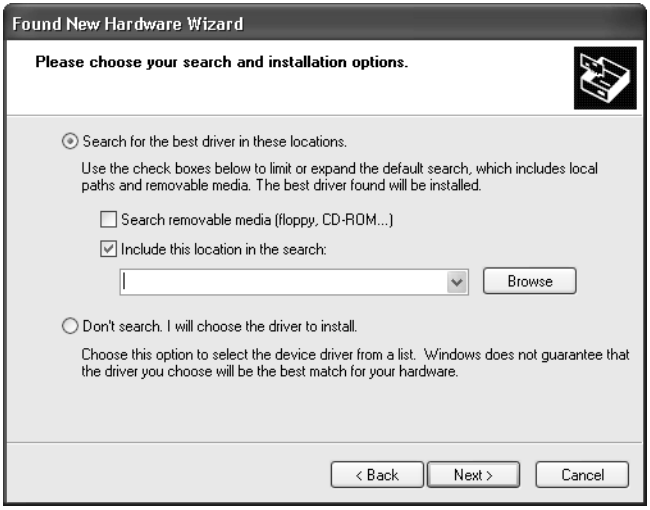
Install the Driver in Windows XP For the First Time

IMPORTANT Use this procedure only if this is the first time that you are installing the 1784-PCIDS driver and IOLinx on this computer. Otherwise, use the Update the Existing Driver in Windows XP procedure on page 3-4 instead of this procedure.

1. When you boot up your computer for the first time after installing your 1784-PCIDS card, you see the Found New Hardware Wizard screen.

2. Click on the **Install from a list or specific location (Advanced)** radio button.

3. Click **Next**.



4. Click the **Search for the best driver in these locations** radio button.

5. Select the **Include this location in the search** checkbox and uncheck the remaining checkboxes.

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

   x:\Program Files\Rockwell Software\IOLinx\IOLinx for DeviceNet\Drivers

   where x is the drive where IOLinx is installed.

7. Click **OK**.
8. Click **Next** to install the drivers.
9. Click **Finish**.
10. Shut down and re-start the PC. The driver is now ready to use. Go on to Chapter 5.

Update the Existing Driver in Windows XP

IMPORTANT Use this procedure only if you have previously installed the 1784-PCIDS driver and IOLinx on this computer. If you have not previously installed the 1784-PCIDS driver and IOLinx on this computer, use the Install the Driver in Windows XP For the First Time procedure on page 3-2 instead of this procedure.

IMPORTANT During the update procedure, communication through the card will be disrupted.

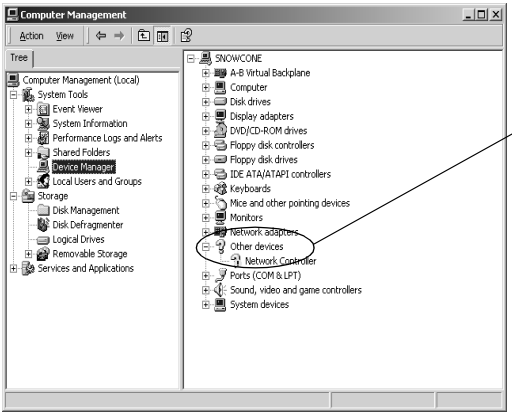
1. Select **Start.**
2. Right-click on **My Computer**.

3. Select **Manage**.

4. On the Computer Management screen that appears, select **Device Manager.**

If This Driver Version Was Installed	Then
1.14 or earlier	go to step 5 on page 3-6
1.15 or later	go to step 6 on page 3-6

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

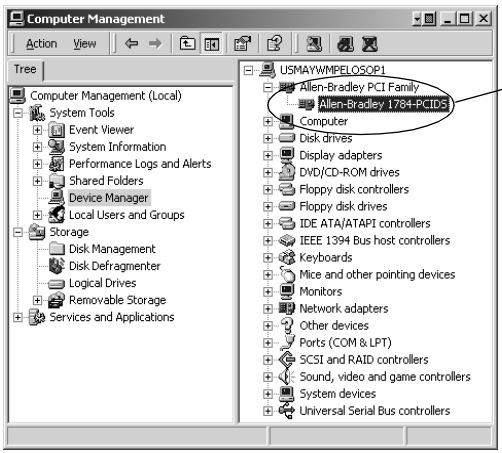


   b. Right-click on the **Network Controller** that corresponds to the 1784-PCIDS card that you are updating and select **Properties**.

TIP If you see more than one 1784-PCIDS entry, perform the update on only one of the entries.

   c. Go to step 7.

6. If driver version 1.15 or later was installed, follow this procedure:
   a. Click on **Allen-Bradley PCI Family** to expand the list.



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

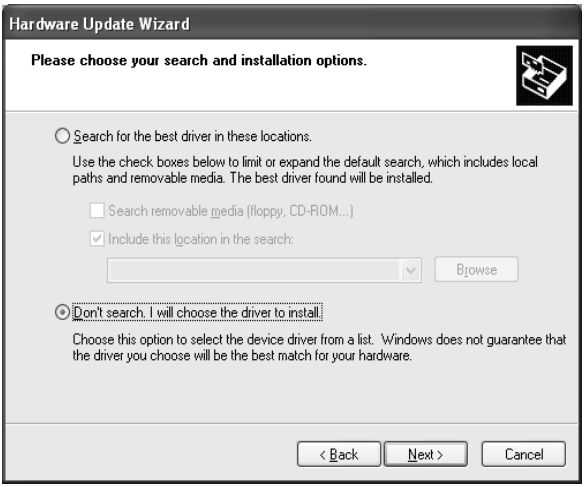
TIP If you see more than one 1784-PCIDS entry, perform the update on only one of the entries.

7. Click on the **Driver** tab, then click **Update Driver**.

   You see the Hardware Update Wizard.

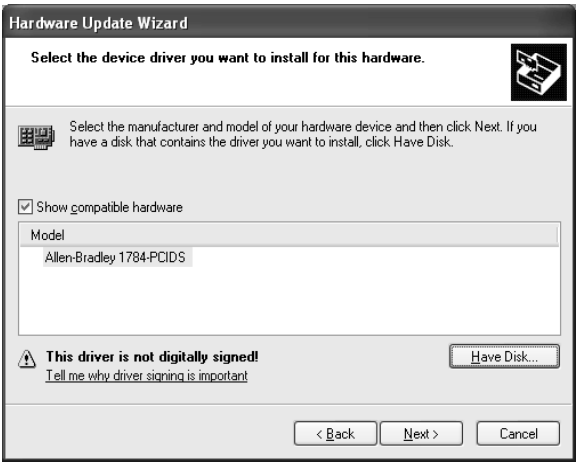
8. Select the **Install from a list or specific location (Advanced)** radio button.

9. Click **Next**.



10. Click the **Don't search. I will choose the driver to install** radio button.

11. Click **Next**.



12. Click the **Have Disk...** button.

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

    x:\Program Files\Rockwell Software\IOLinx\IOLinx for DeviceNet\Drivers

    where x is the drive where IOLinx is installed.

14. Click **Open**.

15. Click **OK**.

16. Click **Allen-Bradley 1784-PCIDS** to highlight it.

17. Click **Next**.

18. Click **Finish**.

19. Shut down and re-start the PC.

    The driver is now ready to use. Go on to Chapter 5.

Notes:

Install the 1784-PCIDS Driver In Windows 2000

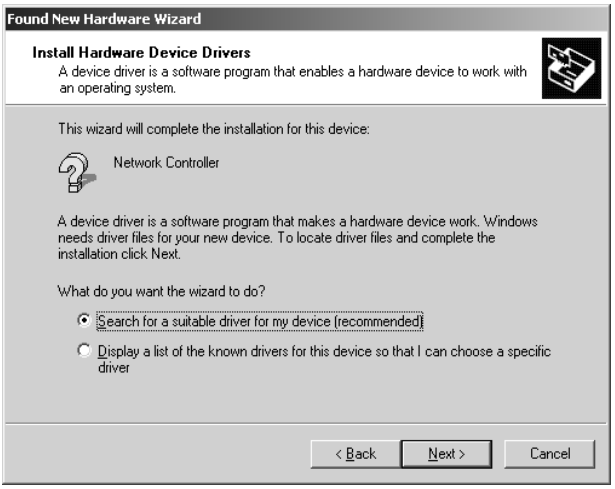
IMPORTANT Be sure that your 1784-PCIDS card is properly installed. Refer to Chapters 1 and 2 of this manual to install the card.

Install the Driver in Windows 2000 For the First Time

IMPORTANT Use this procedure only if this is the first time that you are installing the 1784-PCIDS driver and IOLinx on this computer. Otherwise, use the Update the Existing Driver in Windows 2000 procedure on page 4-4 instead of this procedure.

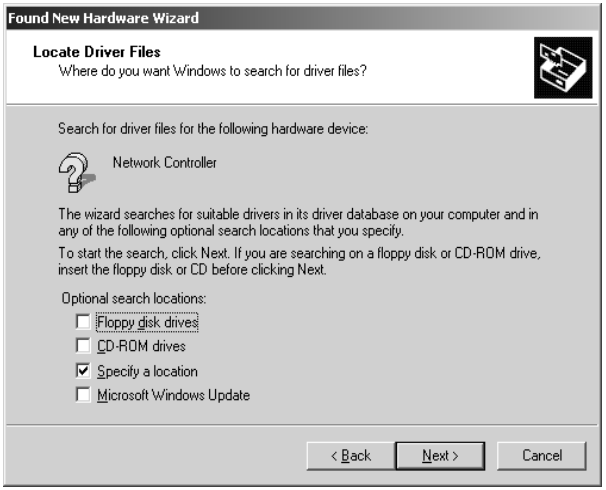
1. When you boot up your computer for the first time after installing your 1784-PCIDS card, you see the Found New Hardware Wizard screen.

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**.

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

   x:\Program Files\Rockwell Software\IOLinx\IOLinx for DeviceNet \Drivers\abpcids.inf

   where x is the drive where IOLinx is installed.

8. Click **Open**.

9. Click **OK**.

10. Click **Next** to install the new driver.

11. Click **Finish**.

12. Shut down and re-start the PC.

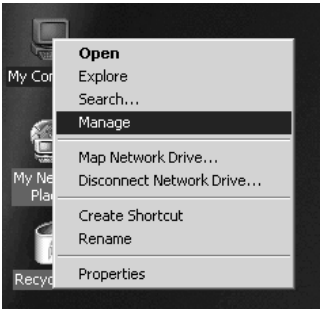
    The driver is now ready to use. Go on to Chapter 5.

Update the Existing Driver in Windows 2000

IMPORTANT Use this procedure only if you have previously installed the 1784-PCIDS driver and IOLinx on this computer. If you have not previously installed the 1784-PCIDS driver and IOLinx on this computer, use the Install the Driver in Windows 2000 For the First Time procedure on page 4-1 instead of this procedure.

IMPORTANT During the update procedure, communication through the card will be disrupted.

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

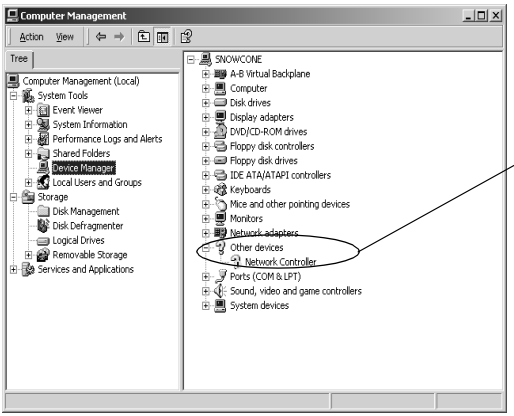


3. On the Computer Management screen that appears, select **Device Manager.**

If	Then
driver version 1.14 or earlier was installed	go to step 4 on page 4-5
driver version 1.15 or later was installed	go to step 5 on page 4-6

4. If driver version 1.14 or earlier was installed, follow this procedure:

a. Click on **Other Devices** to expand the list.



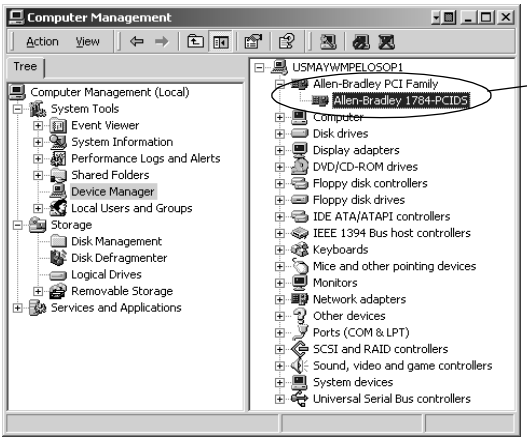
Click on **Other Devices** to expand it. Then right-click on **Network Controller**.

b. Right-click on the **Network Controller** that corresponds to the 1784-PCIDS card that you are updating and select **Properties**.1784-

TIP If you see more than one 1784-PCIDS entry, perform the update on only one of the entries.

c. Go to step 6.

5. If driver version 1.15 or later was installed, follow this procedure:
   a. Click on **Allen-Bradley PCI Family** to expand the list.



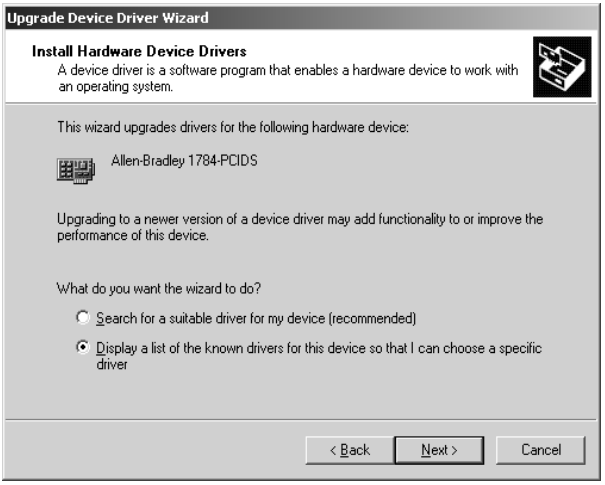
   b. Right-click on the **Allen-Bradley 1784-PCIDS** that corresponds to the PCIDS card you are updating and select **Properties**.

TIP If you see more than one 1784-PCIDS entry, perform the update on only one of the entries.

6. Click on the **Driver** tab, then click **Update Driver**.

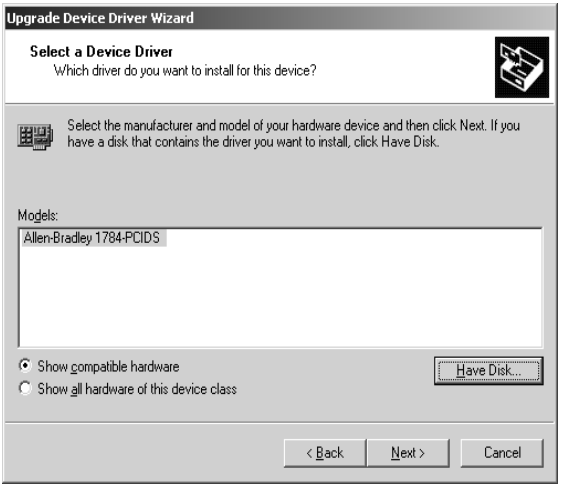
   You see the Upgrade Device Driver Wizard screen.

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**.



10. Click the **Have Disk...** button.

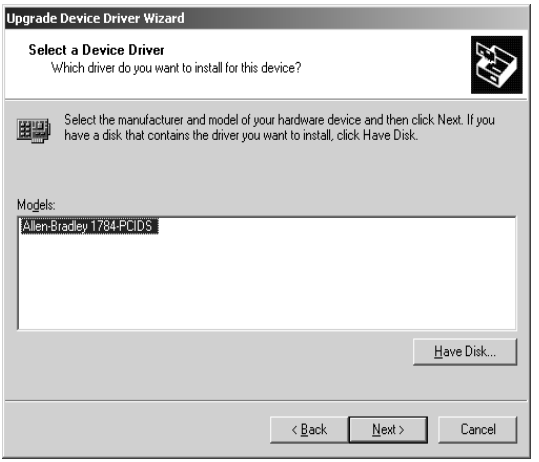
11. Click **Browse** and browse to this location:

    x:\Program Files\Rockwell Software\IOLinx\IOLinx for DeviceNet \Drivers\abpcids.inf

    where x:\ is the drive where IOLinx is installed.

12. Click **Open**.

13. Click **OK**.



14. Click **Allen-Bradley 1784-PCIDS** to highlight it.

15. Click **Next**.

16. Click **Next**.

17. Click **Finish**.

18. Close the Allen-Bradley 1784-PCIDS Properties screen.

19. Close the Device Manager screen.

20. Shut down and re-start the PC.

21. The driver is now ready to use.

    Go on to Chapter 5.

Once You Have Completed the Installation

Once you have installed the card and driver, you can do the following:

Register the EDS File

You can find the EDS file in the \EDS Files folder on the 1784-PCIDS Driver CD-ROM or download it from http://www.ab.com/networks/eds/.

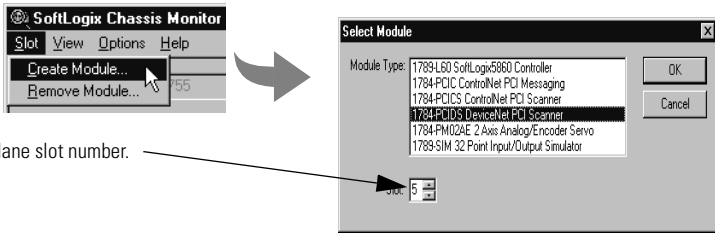
Use the EDS wizard in either RSLinx or RSNetWorx for DeviceNet software to register the EDS file (0001000C00300300.eds) for the 1784-PCIDS card.

- In Windows, select **Start ⇒Programs ⇒Rockwell Software ⇒RSLinx Tools ⇒EDS Hardware Installation Tool**.
- In RSNetWorx for DeviceNet, select **Tools ⇒EDS Wizard...**.

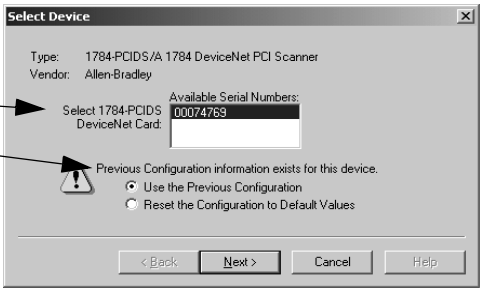
Connect a SoftLogix5800 Controller to DeviceNet

Before you can connect the SoftLogix system to the DeviceNet network, you must create the 1784-PCIDS card as part of the SoftLogix chassis.

1. From the SoftLogix chassis monitor, select **Slot** ⇒**Create Module** or right-click the appropriate slot and select **Create**. Select the **1784-PCIDS** card.



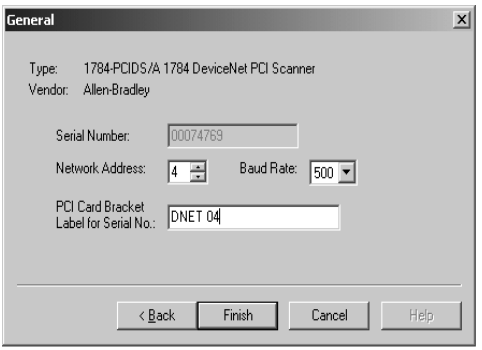
2. Specify the backplane slot number.
3. Click **OK**.
4. Select the serial number of the 1784-PCIDS card you want.



5. Select the serial number of the card.

If you previously configured the 1784-PCIDS card that you selected by serial number, the chassis monitor remembers the configuration from the last time you used the card (whether in the same or a different slot).

6. Click **Next**.
7. Specify configuration settings for the 1784-PCIDS card:



A. Specify the network address (MAC ID) on the DeviceNet network.

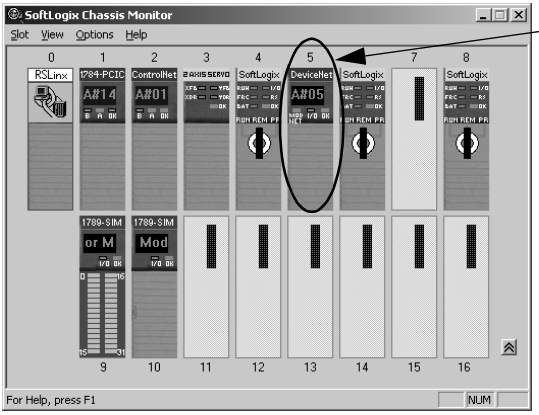
B. Specify the baud rate.

C. Enter the label name for the card (this is the name you wrote on the label of the card to help you identify the card when you have others in the same computer).

8. Click **Finish**.

You can specify any slot number greater than 0 for the communication card. RSLinx software resides in slot 0.

The chassis monitor shows the 1784-PCIDS card as a virtual module in the SoftLogix chassis. The LEDs on the virtual monitor emulate a 1756-DNB communication module.

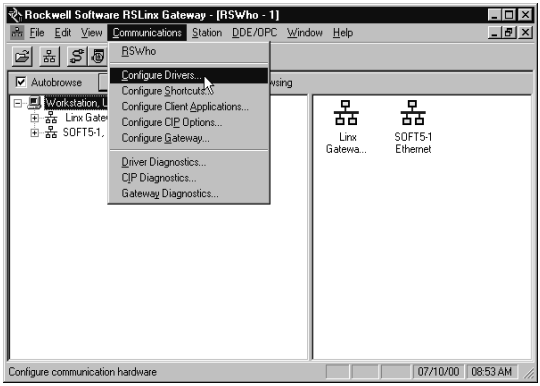


This chassis monitor has a 1784-PCIDS card installed in slot 5.

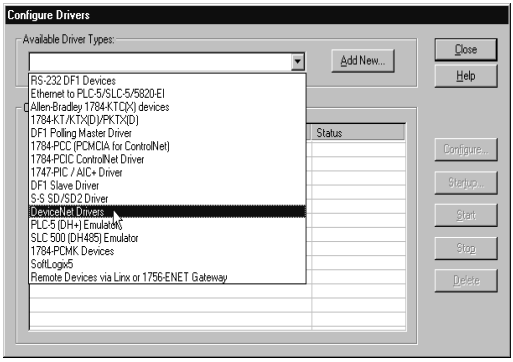
Configure the DeviceNet Communication Driver in RSLinx Software

RSNetWorx for DeviceNet uses the RSLinx DeviceNet communication driver to communicate with the devices on the DeviceNet network. To use this driver you must first configure the DeviceNet port and driver in RSLinx.

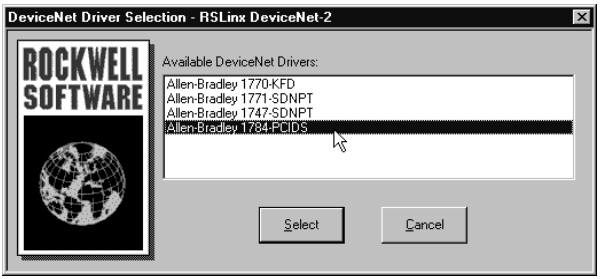
1. Start **RSLinx**.



2. Select **Communications** ⇒**Configure Drivers**.

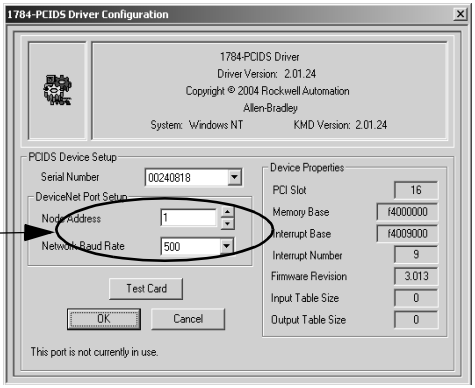


3. From the list of Available Driver Types, select **DeviceNet Drivers** and click on **Add/New**. You see the **DeviceNet Driver Selection** screen listing the drivers available on your machine.



4. Highlight the **Allen-Bradley 1784-PCIDS** driver and click on **Select**. The **1784-PCIDS Driver Configuration** screen opens.

If you have configured the driver with SoftLogix5800 Chassis Monitor, these two fields appear grayed out.

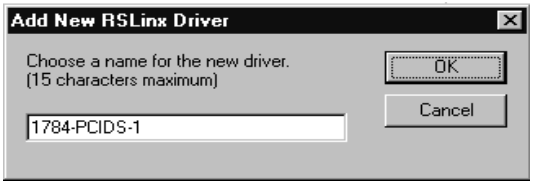


5. In the **DeviceNet Port Setup** area of the Driver Configuration screen, set the Node Address and Network Baud Rate (we used Node Address 1 and a Baud Rate of 500K for the example network).

TIP

If you have configured the driver with SoftLogix5800 Chassis Monitor, the Node Address and Network Baud Rate fields appear grayed out. You cannot change the node address or network baud rates on this screen.

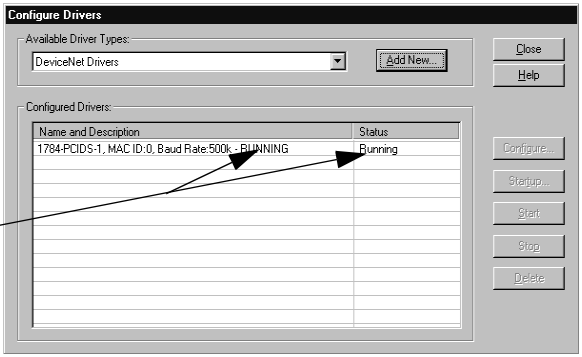
6. Click **OK**.



7. Enter a name for the new RSLinx driver and click **OK**.

   The new driver will be added to the list of configured RSLinx drivers. (Your screen will display the drivers you have configured on your system.)

TIP Browse the network by expanding the DeviceNet port on the desired 1784-PCIDS communication card.



The driver's Status should be "Running". If not, there is a problem. Check the physical connection to the 1784-PCIDS card. If the physical connection is intact, verify the network baud rate and ensure that the 1784-PCIDS card's node number is unique. Also check the external 24V power connections. The Network LED on the 1784-PCIDS card should be solid or flashing green when the card is connected to the DeviceNet network.

Configure the Scan List

Use RSNetWorx for DeviceNet to configure the scan list for the 1784-PCIDS card. Refer to the following publications for details.

Publication Number	Publication Title
DNET-UM004	DeviceNet Modules in Logix5000 Control Systems User Manual
1789-UM002	SoftLogix5800 System User Manual

Notes:

Use the DeviceNet Test Application to Verify the Configuration

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

In addition, you can use the application to make certain that the 1784-PCIDS card has been correctly installed and is functioning in the PC.

Before You Begin

Before you begin, you must have done the following:

- Installed the card
- Connected it to the DeviceNet network, and
- Used RSNetWorx for DeviceNet to load a scan list into the card

Start the Test Application

The test application is automatically installed as part of the driver installation procedure.

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

If the driver cannot establish communication with the module, an error message is displayed.

Configure the Port

You must configure the port the first time you use a 1784-PCIDS card.

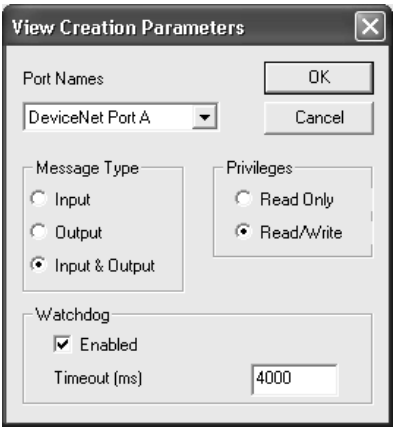
To configure the port, follow these steps:

1. Select **Configure Port...** from the Setup menu.
2. Select **Allen-Bradley 1784-PCIDS** from the DeviceNet Driver Selection screen.
3. Click on **Select**.
4. Set Node Address (0 - 63).
5. Set Baud Rate (125/250/500 kbs).
6. Click **OK**. You see a dialog box that tells you operation was successful, followed by a similar message box that tells you that the port has been configured.

Create a View

To go online and create a view, follow these steps:

1. From the **Setup** menu, select **Create View...**. You see the View Creation Parameters screen.



2. Select the port name corresponding to the port for which you are creating the view.

3. Select the message type (input, output, or input/output) that you want to use for the view you are creating.

4. Select the privilege (read only, read/write) that you want to use for the view that you are creating.

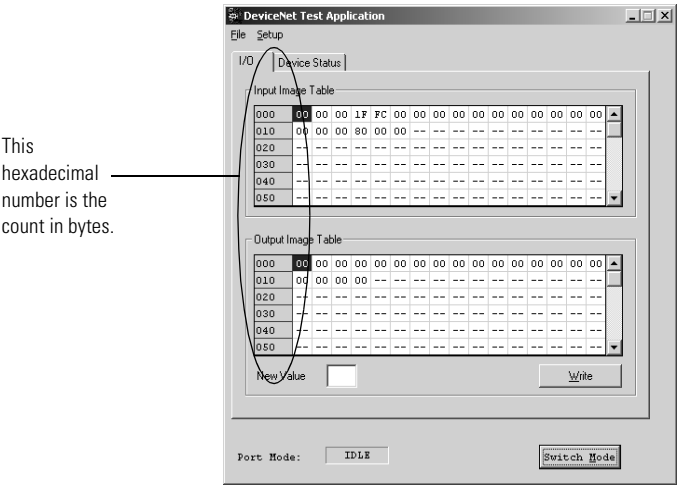
5. If you want to use the Watchdog timer for the view you are creating, check the Enabled checkbox and enter the watchdog timeout value (in milliseconds) that you want to use.

6. Click **OK**. You see a dialog box that tells you that the operation was successful.

Read Inputs

The DeviceNet Test Application lets you read as many as 2048 bytes from the input image table of the 1784-PCIDS card. A simple screen (shown in the following figure) 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

The DeviceNet Test Application lets you write as many as 2048 bytes to the output image table of the scanner.

1. On the I/O tab, select the desired byte(s) in the Output Image Table.
2. Type the desired value(s) in the New Value field.
3. Click the **Write** button. The data transfer is performed.

Change the Scanner Mode

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

When the view is initially created, the scanner mode is set to Idle. The view state must be set to Run in order for the I/O devices to energize their outputs based on the output data from the scanner.

ATTENTION

Changing the view state to Run will cause the I/O devices to energize their outputs based on the output data from the scanner.

To avoid personal injury and property damage, before setting the view state to Run, verify that the output values are appropriate for the I/O devices.

Use the Switch Mode button to change the mode between Run and Idle. Once the mode is set to Run, active outputs are sent to the associated I/O devices.

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, for example, MAC ID, status code, and status messages such as 'device stopped communicating'.

If you double-click on an empty node, you see this response:

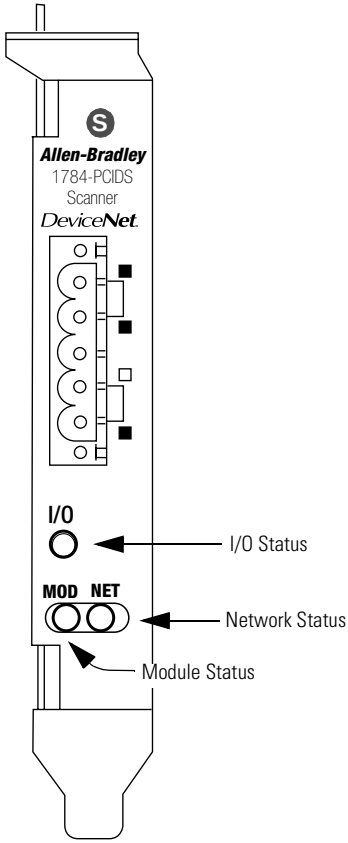
OK or not in scan list.

Notes:

Interpret Status Indicators (LEDs)

The three status indicators on the 1784-PCIDS card provide information about the DeviceNet network and its connections. See Figure 7.1 for an illustration of the status indicators.

Figure 7.1 Status Indicators



The tables on pages 7-3 through 7-5 outline the indicator condition and the corresponding status, and explain what each condition means to you.

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	All Outputs are inactive.
	input(s) 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.

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.
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.

Notes:

Specifications

PCI local bus	compliant to PCI Rev. 2.2. The 1784-PCIDS card is compatible with 5V and 3.3V PCI slots, 32-bit and 64-bit PCI slots, and PCI-X slots. **Attention:** The 1784-PCIDS is not compatible with PCI Express and should not be inserted into a PCI Express slot.
mechanical form factor	Universal PCI 32-bit short card 4.2 in. (10.7 cm) H x 4.72 in. (12 cm) L
host PC requirements	One of the following operating systems: • Microsoft Windows XP with Service Pack 1 or higher • Microsoft Windows 2000 with Service Pack 4 or higher Microsoft Windows NT 4.0 is not supported.
capacity	2048 bytes of input image table 2048 bytes of output image table
software compatibility	Rockwell Software RSLinx 2.42.00 or later Rockwell Software RSNetWorx for DeviceNet 2.11.51 or later
operational temperature	IEC 60068-2-1 (Test Ad, Operating Cold), IEC 60068-2-2 (Test Bd, Operating Dry Heat), IEC 60068-2-14 (Test Nb, Operating Thermal Shock): 0 to 55 °C (32 to 131 °F) The operating parameters describe the environment within the PCI slot. Refer to the documentation for your computer for environmental requirements. This card should not exceed those specifications.
storage temperature	IEC 60068-2-1 (Test Ab, Un-packaged Non-operating Cold), IEC 60068-2-2 (Test Bb, Un-packaged Non-operating Dry Heat), IEC 60068-2-14 (Test Na, Un-packaged Non-operating Thermal Shock): -40 to 85 °C (-40 to 185 °F)
relative humidity	IEC 60068-2-30 (Test Db, Un-packaged Non-operating Damp Heat): 5 to 95% non-condensing
vibration	IEC 60068-2-6 (Test Fc, Operating): 2g @ 10-500Hz
operating shock	IEC 60068-2-27 (Test Ea, Unpackaged Shock): 30g

non-operating shock	IEC 60068-2-27 (Test Ea, Unpackaged Shock): 50g
emissions	CISPR 11: Group 1, Class A
ESD immunity	IEC 61000-4-2: 6kV contact discharges 8kV air discharges
radiated RF immunity	IEC 61000-4-3: 10V/m with 1kHz sine-wave 80%AM from 80MHz to 2000MHz 10V/m with 200Hz 50% pulse 100%AM at 900MHz 10V/m with 200Hz 50% pulse 100%AM at 1890MHz
EFT/B immunity	IEC 61000-4-4: +/-2kV at 5kHz on communications ports
surge transient immunity	IEC 61000-4-5: +/-2kV line-earth (CM) on communications ports
conducted RF immunity	IEC 61000-4-6: 10Vrms with 1kHz sine-wave 80% AM from 150kHz to 80MHz
enclosure type rating	none (open-style)
power requirements	In US, this equipment must be powered from UL Listed Information Technology Equipment or UL Listed Industrial Control Equipment. In Canada, this equipment must be powered by an SELV source, CSA Certified Information Technology Equipment, or CSA Certified Process Control Equipment. PC: 5V dc, 700mA maximum, Class 2. 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. DeviceNet: +24V dc @90 mA max. Class 2
power dissipation	3.5W
isolation voltage (continuous-voltage withstand rating)	50V continuous Tested to withstand 500V for 60 seconds.
wire size	12 AWG (minimum) copper wire 24 AWG (maximum) copper wire

wiring category[1]	2 - on communications ports
certifications (when product is marked)[2]	UR UL Recognized Component Industrial Control Equipment CSA CSA Accepted Component for Process Control Equipment CSA Accepted Component for Process Control Equipment in Class I, Division 2 Group A,B,C,D Hazardous Locations CE European Union 89/336/EEC EMC Directive, compliant with: EN 50082-2; Industrial Immunity EN 61326; Meas./Control/Lab., Industrial Requirements EN 61000-6-2; Industrial Immunity EN 61000-6-4; Industrial Emissions C-tick Australian Radiocommunications Act, compliant with: AS/NZS CISPR 11; Industrial Emissions ODVA Conformance tested to DeviceNet specifications

1 Use this Conductor Category information for planning conductor routing as described in the appropriate System Level Installation Manual.

2 See the Product Certification link at www.ab.com for Declarations of Conformity, Certificates, and other certification details.

Notes:

Numerics

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Pub. Title/Type DeviceNet Universal PCI Scanner Card

Cat. No. 1784-PCIDS Series B Pub. No. 1784-IN004E-EN-P Pub. Date April 2005 Part No. 957928-38

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