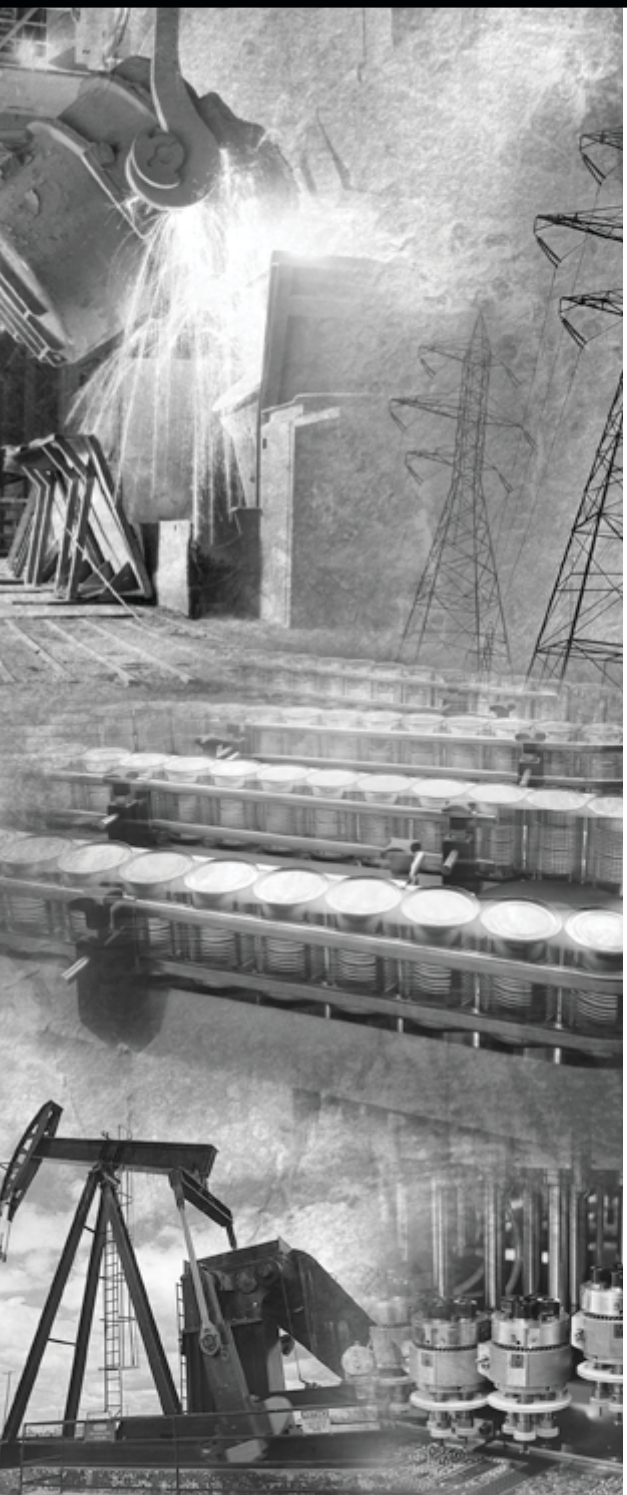

Allen-Bradley

ControlNet Universal PCI Scanner Card

1784-PKTCS

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 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.

Throughout this manual 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 to alert people that dangerous voltage may be present.
BURN HAZARD	Labels may be located on or inside the equipment to alert people that surfaces may be dangerous temperatures.

Environment and Enclosure

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.

Preventing Electrostatic Discharge

ATTENTION

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.

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 only be changed 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.

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.

About the 1784-PKTCS Universal PCI Scanner Card

For Information On This Topic	Refer To Page
About the 1784-PKTCS Universal PCI Scanner Card	7
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Intended Audience	7
Terminology	8
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What Is a 1784-PKTCS Universal PCI Scanner Card?

The ControlNet 1784-PKTCS card is a Universal Peripheral Component Interconnect (PCI) open-bus interface card. The card enables PCI local bus compatible computers to communicate directly with other ControlNet products.

The 1784-PKTCS scanner card provides ControlNet I/O scanning as well as monitoring and configuration capabilities.

Purpose of This Manual

Use this document to learn how to install and use the 1784-PKTCS scanner card.

Intended Audience

Read this manual before you install or use the ControlNet PCI communication interface cards. You should be familiar with ControlNet technology when applying products such as those described in this publication.

Terminology

this term	means
ControlNet	networking standard maintained by ControlNet International
PCI	peripheral component interconnect

What Your Package Contains

With this package you should receive:

- one 1784-PKTCS card
- one IOLinx 1784-PKTCS driver CD-ROM
- ControlNet Universal PCI Scanner Card Installation Instructions, publication 1784-IN042

For Further Reference

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

Publication Number	Publication Title
CNET-UM001	ControlNet Communication Modules in Logix5000 Control System User Manual
1789-UM002	SoftLogix5800 System User Manual
CNET-IN002	ControlNet Coax Media Planning and Installation Guide
9230-IOLINXSDK	IOLinx Software Development Kit

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Install the Driver in Windows 2000

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Install IOLinx

For Information On This Topic	Refer To Page
Uninstall the Previous Version of IOLinx	1-1
Install IOLinxInstall IOLinx	1-2

IMPORTANT Do not install the 1784-PKTCS ControlNet Universal PCI scanner card in the same PC as a 1784-KTCS ControlNet ISA-bus scanner card. Before installing the 1784-PKTCS card, remove all the 1784-KTCS cards and uninstall the associated drivers.

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 1-2.

1. Shut down all applications that use the IOLinx ControlNet 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. Click on **IOLinx for ControlNet** to remove it.

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.

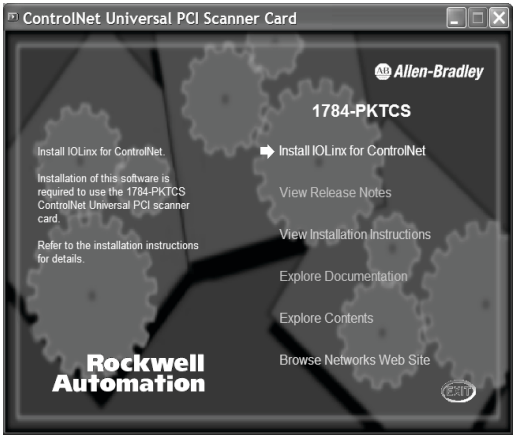
Install IOLinx

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 1-3.
3. Select **Start** ⇒**Run**.

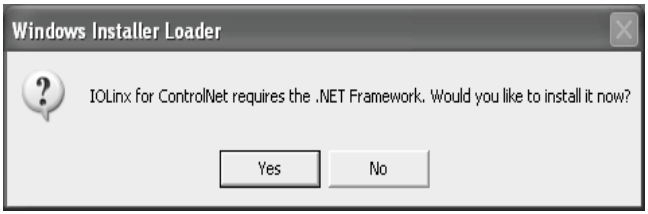
4. At the Run pop-up window, type **x:\setup** where **x** is the drive where the installation files are stored. You see the ControlNet Universal PCI Scanner Card screen.



5. Select **Install IOLinx for ControlNet**.

6. If the Microsoft .NET Framework is already installed on your computer, go to step 10.

   If the Microsoft .NET Framework is not installed on your PC, you will be prompted to install it.

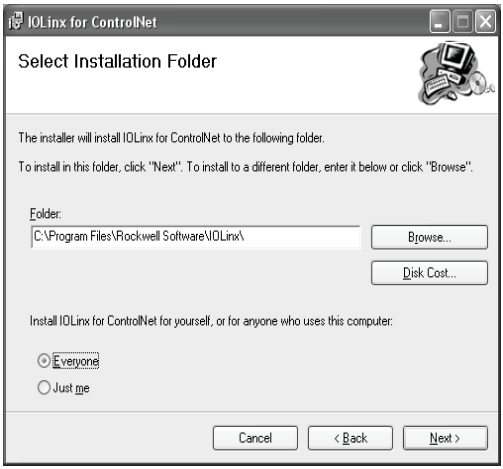


7. Click Yes to install the Microsoft .NET Framework.

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

9. When you have finished installing the.NET Framework, return to step 5.

10. Click **Next**.



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

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

13. Click **Next** to install IOLinx.

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

Notes:

Install the 1784-PKTCS Card

For Information On This Topic	Refer To Page
Before You Begin	2-1
Access the Computer's PCI Local Bus Expansion Slots	2-2
Insert the Card into the Computer	2-2
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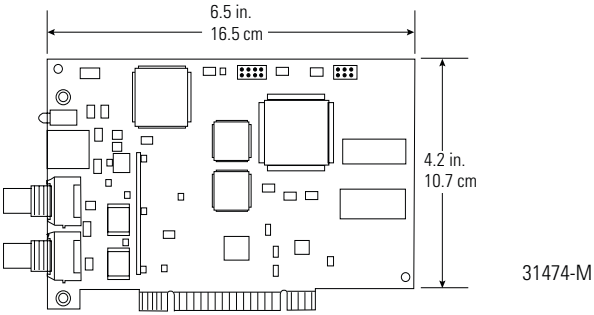
Before You Begin

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

WARNING

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 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 on 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

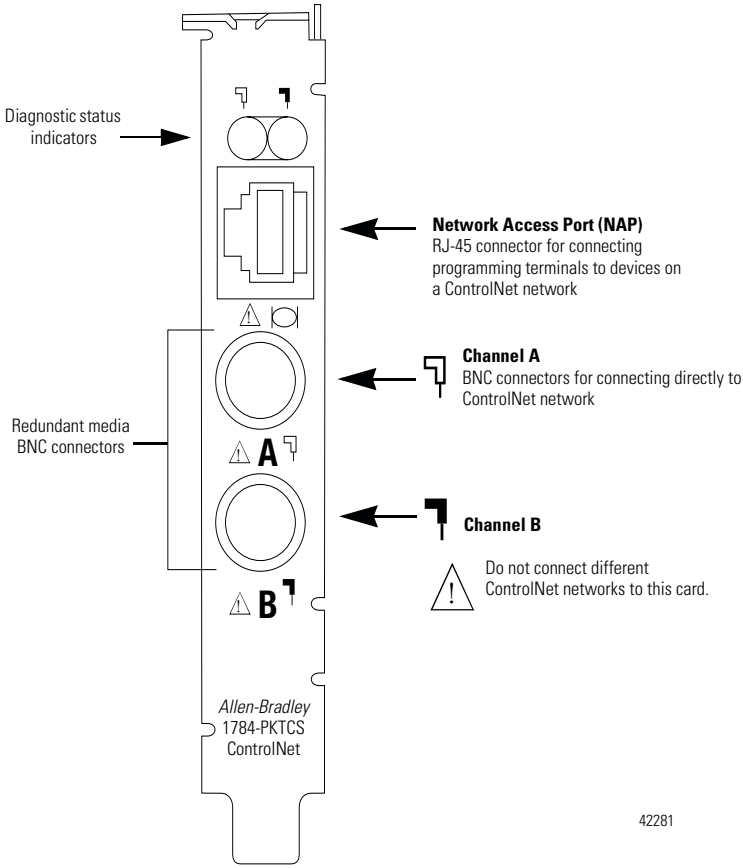
If you connect or disconnect the ControlNet cable with power applied to this module or any device on the network, an electrical arc can occur. This could cause an explosion in hazardous location installations.

After you have installed the card, you can connect it:

- directly to a ControlNet network, which requires a tap (page 2-5)
- to a device already connected to the ControlNet network (page 2-6)

See Figure 2.1 on page 2-4 for the connectors and indicators.

Figure 2.1 1784-PKTCS card



ATTENTION

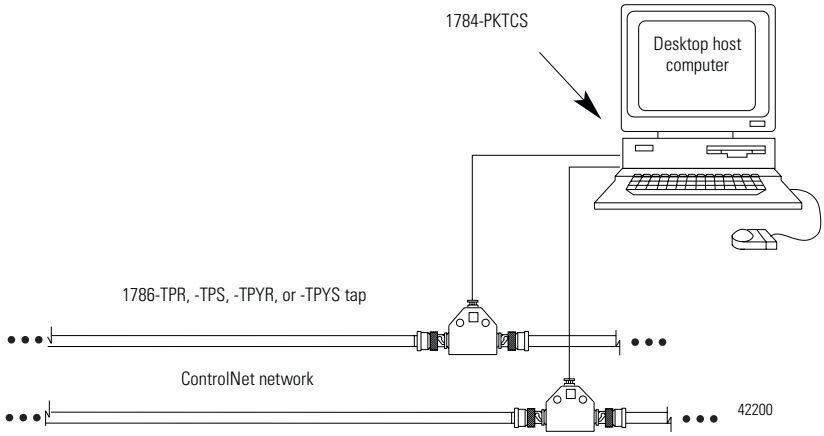
Do not connect different ControlNet networks to this card. If you attempt to connect a second network to this card, your communication system will operate erratically.

Connect the Card Directly to the ControlNet Network

To connect the card directly to a ControlNet network as shown in Figure 2.2, follow the instructions in these publications:

- ControlNet Coax Tap Installation Instructions, publication 1786-IN007
- ControlNet Coax Media Planning and Installation Manual, publication CNET-IN002

Figure 2.2 Connect the card directly to the ControlNet network



ATTENTION

If you connect the product to a cable system that does not support redundant media, connect the tap dropline to the BNC connector labeled channel A. Channel B is left unconnected.

If the cable system is redundant, connect the product so that all devices on the network use the same cable for the same channel. That is, all channel A connectors connect to one cable; all channel B connectors connect to the other cable.

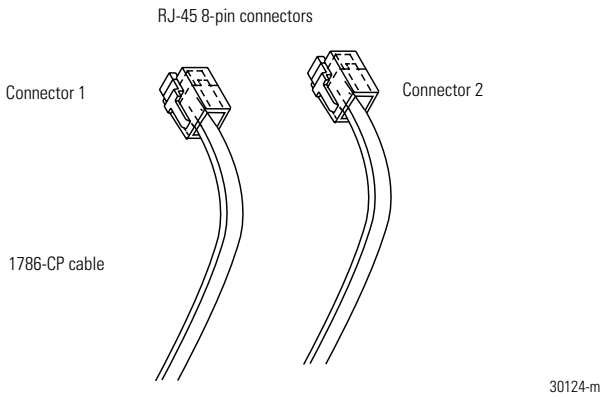
TIP

If you use a non-redundant cable system, all ControlNet devices must be on the same channel, channel A.

Connect to a Device on the ControlNet Network

The 1786-CP cable (Figure 2.3) connects a host computer to another ControlNet device. It has two RJ-45 8-pin connectors.

Figure 2.3 1786-CP cable



ATTENTION

Use only the **1786-CP** cable when you connect a programming terminal to the network through the network access port (NAP). If you use a different cable, it could result in possible network failures or product damage.

See Table 2.1 and Table 2.2 for the wiring for the 1786-CP cable.

Table 2.1 Wiring for 1786-CP connector cable

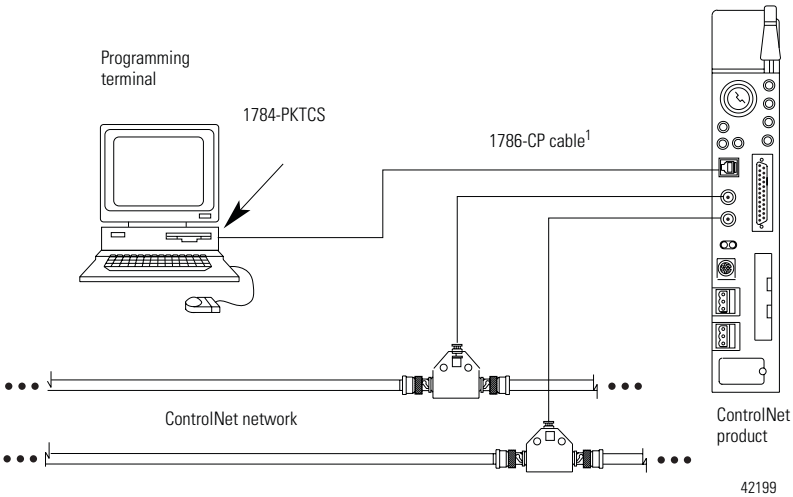
Connector 1		
Wire Number	**Signal Mnemonic**	**Signal Name**
1	ISO-GND	Isolated Ground
2	N.C.	No Connection
3	PTTX-H	Transmit Data High
4	PTTX-L	Transmit Data Low
5	PTRX-L	Receive Data Low
6	PTRX-H	Receive Data High
7	N.C.	No Connection
8	ISO-GND	Isolated Ground

Table 2.2 Wiring for 1786-CP connector cable

Connector 2		
Wire Number	**Signal Mnemonic**	**Signal Name**
1	ISO-GND	Isolated Ground
2	N.C.	No Connection
3	PTRX-H	Receive Data High
4	PTRX-L	Receive Data Low
5	PTTX-L	Transmit Data Low
6	PTTX-H	Transmit Data High
7	N.C.	No Connection
8	ISO-GND	Isolated Ground

When you use the RJ-45 connector, you can connect the card to a ControlNet network without a tap through the Network Access Port (or NAP) of a programmable controller, I/O adapter, or other ControlNet compliant devices (Figure 2.4 and Figure 2.5).

Figure 2.4 Connect a programming terminal to a ControlNet network through another ControlNet device

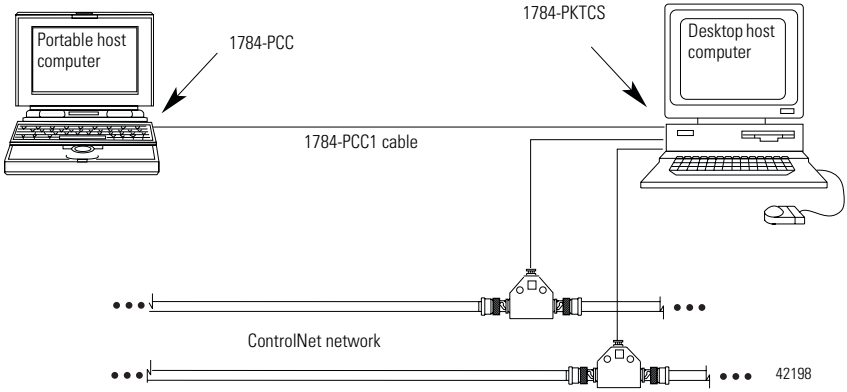


1 The 1786-CP cable can be plugged into any ControlNet product's NAP to provide programming capability on the ControlNet network. When you connect a programming terminal through this cable, it is counted as a node and must have a unique address.

ATTENTION

If the 1784-PKTCS card is using scheduled communication to control I/O, or produce or consume tags, do not use the 1786-CP cable to connect the card to the ControlNet network. Instead, connect the card directly to the ControlNet network as shown in Figure 2.2.

Figure 2.5 Connect a portable host computer to the ControlNet network through the 1784-PKTCS card



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

Notes:

Install the Driver in Windows XP

For Information On This Topic	Refer To Page
Install the Driver in Windows XP for the First Time	3-1
Update the Existing Driver in Windows XP	3-3

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

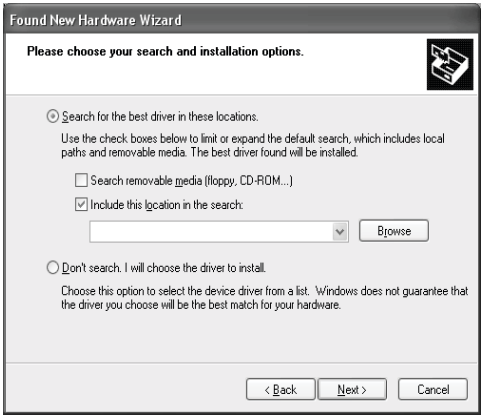
Install the Driver in Windows XP for the First Time

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

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

2. Select 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. Check 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 ControlNet\Drivers

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

7. Click **OK**.

8. Click **Next**.

IMPORTANT If prompted to overwrite existing files, click **Yes**.

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

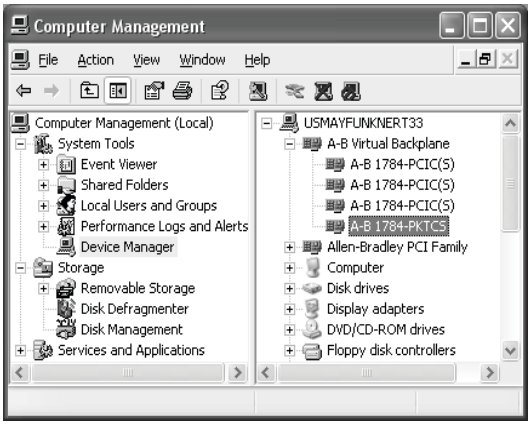
IMPORTANT Use this procedure only if you have previously installed the 1784-PKTCS driver and IOLinx on this computer. If you have not previously installed the 1784-PKTCS driver and IOLinx on this computer, use the Install the Driver in Windows XP for the First Time procedure on page 3-1 instead of this procedure.

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

1. Select **Start.**

2. Right-click **My Computer**.

3. Click **Manage**.



4. In the left window pane, click the + to the left of **System Tools** to open it.

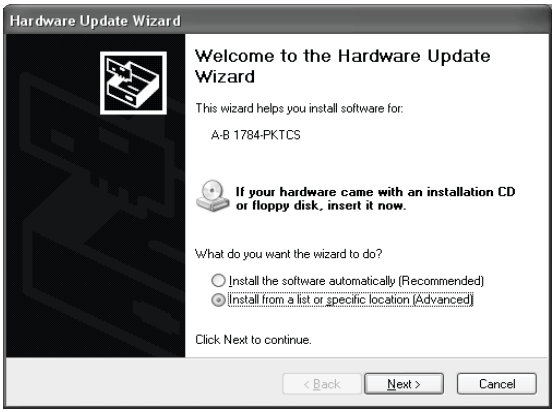
5. Under System Tools, click **Device Manager**.

6. In the right window pane, click the **+** to the left of A-B Virtual Backplane to expand it.

7. Right-click **A-B 1784-PKTCS**.

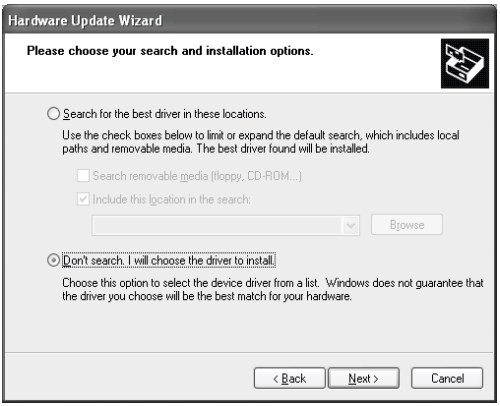
TIP If you see more than one A-B 1784-PKTCS entry, perform the update on only one of the entries.

8. Click **Update Driver**. The Hardware Update Wizard appears.



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

10. Click **Next**.



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

12. Click **Next**.

13. Click **Have Disk**.

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

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

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

15. Click **Open**.

16. Click **OK**.

17. Click **A-B 1784-PKTCS** to highlight it.

18. Click **Next**.

IMPORTANT If prompted to overwrite existing files, click **Yes**.

19. Click **Finish**.

20. Shut down and re-start the PC.

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

Install the Driver in Windows 2000

For Information On This Topic	Refer To Page
Install the Driver in Windows 2000 for the First Time	4-1
Update the Existing Driver in Windows 2000	4-4

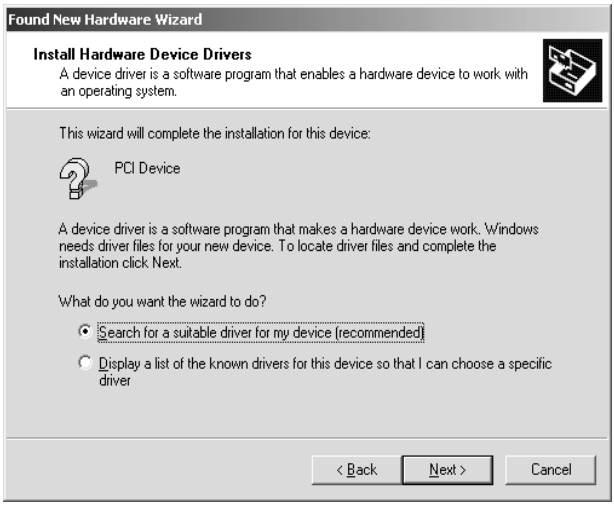
IMPORTANT Be sure that your 1784-PKTCS card is properly installed. Refer to Chapters 1 and 2 of this manual to install the card.

Install the Driver in Windows 2000 for the First Time

IMPORTANT Use this procedure if this is the first time that you are installing the 1784-PKTCS 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-PKTCS card, you see the Found New Hardware Wizard screen.

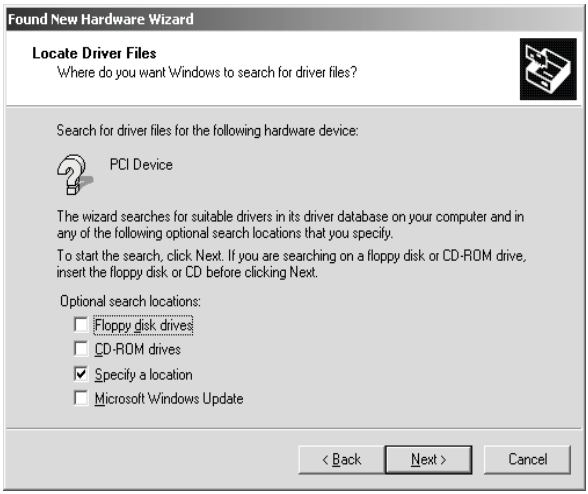
2. Click **Next**.



3. Click the **Search for a suitable driver for my device (recommended)** radio button.

4. Click **Next**.

.



5. Check the **Specify a location** checkbox and uncheck the remaining checkboxes.

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 ControlNet\Drivers\abpktcs.inf

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

8. Click **Open**.

9. Click **OK**.

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

IMPORTANT If prompted to overwrite existing files, click **Yes**.

11. Click **Finish** to close the Found New Hardware Wizard.

12. Shut down and re-start the PC.

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

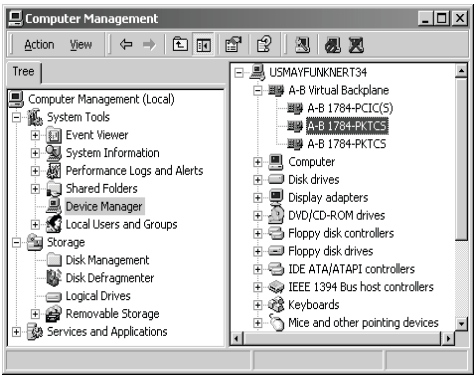
Update the Existing Driver in Windows 2000

IMPORTANT Use this procedure only if you have previously installed the 1784-PKTCS driver and IOLinx on this computer. If you have not previously installed the 1784-PKTCS 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 **My Computer**.

2. Click **Manage**.



3. In the left window pane, click the + to the left of **System Tools** to open it.

4. Under System Tools, click **Device Manager**

5. In the right window pane, click the **+** to the left of A-B Virtual Backplane to expand it.

6. Right-click **A-B 1784-PKTCS**.

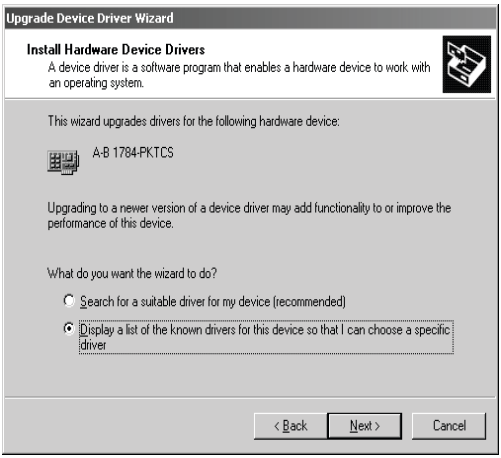
TIP If you see more than one A-B 1784-PKTCS entry, perform the update on only one of the entries.

7. Click **Properties**.

8. Click the **Driver** tab.

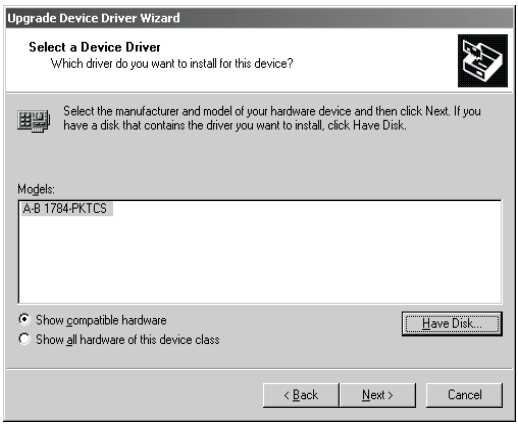
9. Click **Update Driver**. The Upgrade Device Driver Wizard appears.

10. Click **Next**.



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

12. Click **Next**.



13. Click **Have Disk**.

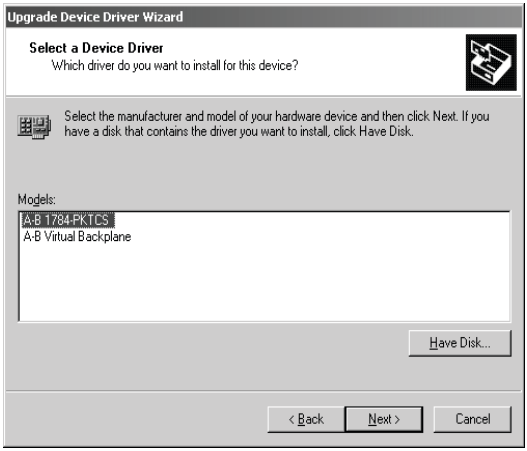
14. Click **Browse** and browse to this location:

    x:\Program Files\Rockwell Software\IOLinx\IOLinx for ControlNet\Drivers\abpktcs.inf

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

15. Click **Open**.

16. Click **OK**.



17. Click **A-B 1784-PKTCS** to highlight it.

18. Click **Next**.

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

IMPORTANT If prompted to overwrite existing files, click **Yes**.

20. Click **Finish**.

21. Close the A-B 1784-PKTCS Properties screen.

22. Close the Device Manager screen.

23. Shut down and re-start the PC.

    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 drivers, you can do the following:

For Information On This Topic	Refer To Page
Register the EDS File	5-1
Configure the Card	5-2
Configure a Virtual Backplane Driver in RSLinx Software	5-3
Configure the Scan List	5-4
Go On Line With RSNetWorx for ControlNet Software	5-4

Register the EDS File

1. To obtain the EDS file, do one of the following:
   - on the 1784-PKTCS Driver CD supplied with your card, browse to:

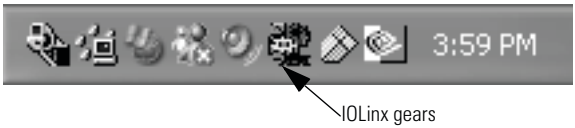
     \EDS Files\0001000C00700400.eds

   - download from http://www.ab.com/networks/eds/0001000C00700400.eds
2. Use the EDS wizard in either RSLinx or RSNetWorx for ControlNet software to register the EDS file for the 1784-PKTCS card
   - In Windows, select **Start** ⇒**Programs** ⇒**Rockwell Software** ⇒**RSLinx Tools** ⇒**EDS Hardware Installation Tool**.
   - In RSNetWorx for ControlNet, select **Tools** ⇒**EDS Wizard**.

Configure the Card

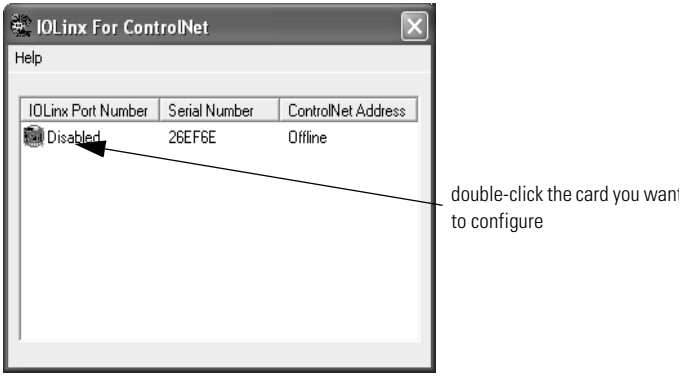
Use the IOLinx configuration application to set the card's ControlNet node address, IOLinx port number, and virtual backplane slot.

1. If the IOlinx gears do not appear in the system tray, start the IOLinx configuration application by selecting **Start ⇒Programs ⇒Rockwell Software ⇒IOLinx for ControlNet ⇒IOLinx for ControlNet**.



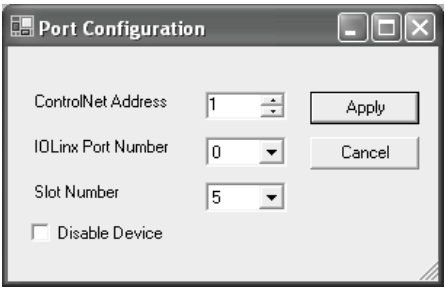
2. Open the IOLinx configuration application by double-clicking the IOLinx gears in the system tray.

3. Double-click the row corresponding to the scanner card you want to configure.



TIP The IOLinx configuration application shows all of the installed cards. Be certain to select the correct card.

4. You see the Port Configuration screen.



In This Field	Do This
ControlNet Address	select an unused ControlNet address from the pull-down menu
IOLinx Port Number	select an unused IOLinx port number from the pull-down menu
Slot Number	select an unused virtual backplane slot address from the pull-down menu (note that this is not the physical PCI slot in which the card is inserted)
Disable Device	uncheck the checkbox

5. Close the IOLinx configuration application.

Configure a Virtual Backplane Driver in RSLinx Software

1. Open RSLinx software.

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

3. On the Configure Drivers menu, select **Virtual Backplane (SoftLogix 58xx)**' from the Available Driver Types menu.

4. Click on **Add New**.

5. Enter a name for the driver and click on **OK**.

6. Click on **Close**.

   The Virtual Backplane driver is now available to use.

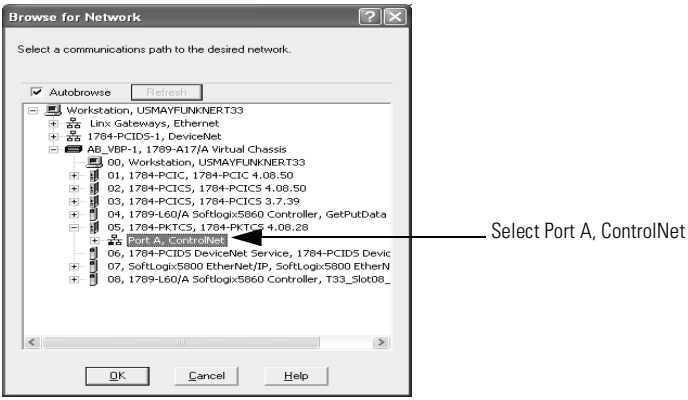
Configure the Scan List

Use RSNetWorx for ControlNet to configure the scan list for the 1784-PKTCS card. Refer to publication CNET-UM001, ControlNet Modules in Logix5000 Control Systems User Manual, for details.

Go On Line With RSNetWorx for ControlNet Software

When going on line with RSNetWorx for ControlNet software via the 1784-PKTCS card:

1. Double-click on the **+** sign to the left of the Virtual Chassis.
2. Double-click on the **+** sign to the left of the 1784-PKTCS card to expand it.
3. Click on **Port A, ControlNet**.



When You Use RSNetWorx for ControlNet Software

Keep the following in mind when you use RSNetWorx for ControlNet software.

1784-PKTCS Card Will Not Establish Connections Until Output Data is Initialized

The 1784-PKTCS card will not establish new or modified connections that require data to be produced by the 1784-PKTCS card until the controlling application has initialized the output data.

Examples of controlling applications include:

- RSView applications
- IOView test application
- Custom IOLinx applications

For Information On This Topic	Refer To
Using The IOView Test Application	Chapter 6 of this manual
Creating Custom IOLinx Applications	the IOLinx Software Development Kit (catalog number 9230-IOLINXSDK) online help

Examples of connection types that require output data from a controlling application include:

- Exclusive Owner connections to I/O racks
- Exclusive Owner connections to I/O modules
- Send Data connections

Examples of connection types that do **not** require output data from a controlling application include:

- Input Only connections to I/O racks
- Input Only connections to I/O modules
- Listen Only connections to I/O racks
- Listen Only connections to I/O modules
- Receive Data From connections

If The Controlling Application Has Not Provided Output Data For A(n)	RSNetWorx for ControlNet Displays This Error Message On The Connection Status Tab Of The Scan List Configuration Screen
Exclusive Owner connection	No Originator Application Data Available
Send Data connection	No Target Application Data Available

RSNetWorx for ControlNet 6.00.00 or later is required to display these error messages. If RSNetWorx for ControlNet 5.11.00 is used, "Unknown Error" will be displayed on the Connection Status tab of the scan list configuration screen.

Resolve the Errors

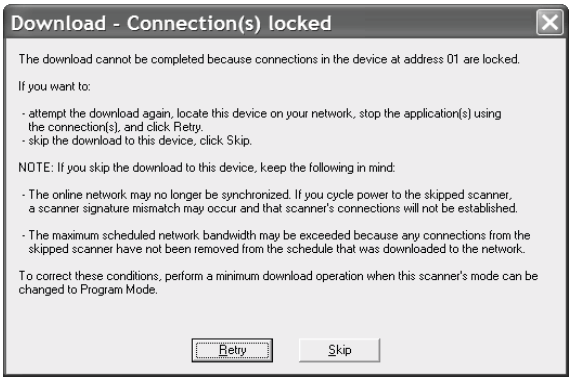
Follow this procedure to resolve error conditions on the PC containing the 1784-PKTCS card reporting the error:

1. Start the controlling application.
2. Verify that the size of the output data provided by the controlling application is as large as the output data configured in the scan list of the 1784-PKTCS card.
3. Verify that the controlling application has written the output data at least once.

Shut Down the Controlling Application Before You Download a Configuration to the Network or Modify the Scan List

You cannot modify or delete scan list entries of the 1784-PKTCS card that correspond to connections being controlled by your application.

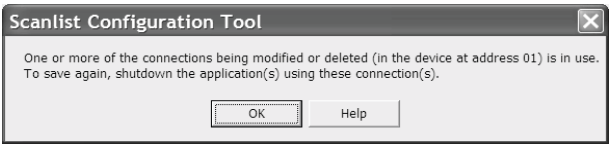
- If you attempt to download a configuration to your network and connections are being controlled by your application, RSNetWorx for ControlNet displays the following screen:



  If you see this screen, you should:

  – Shut down the application that is controlling the connections.
  – Use RSNetWorx to download the configuration to your network.

- If you modify or delete connections that are being controlled by your application, RSNetWorx for ControlNet displays the following screen when you attempt to save your changes:



If you see this screen, you should:

  – Shut down the application that is controlling the connections.
  – Save your changes in RSNetWorx.

Resource Calculations In RSNetWorx for ControlNet Software

RSNetWorx for ControlNet software calculates the 1784-PKTCS resources your configuration requires. These calculations are performed whether you are on line or off line with RSNetWorx. The 1784-PKTCS card can handle a particular configuration provided that:

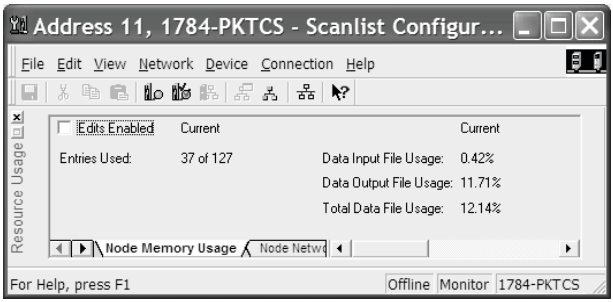
- the number of scan list entries in the card is not more than 127
- the I/O Data File usage of the card is not more than 8192 16-bit words
- the Peak Scheduled usage of the card is not more than 100%,
- the CPU usage of the card is less than 100%
- the Consume and Produce usage of the card is not more than 100%

Follow these steps to see the resources required for your configuration:

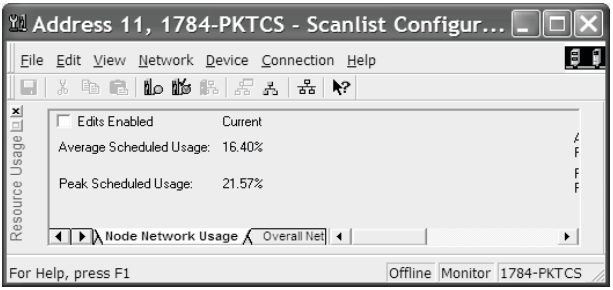
1. On the RSNetWorx for ControlNet main window, right-click the 1784-PKTCS card.

2. Select **Scanlist Configuration**.

3. Select the Node Memory Usage tab to see the number of scan list entries used and the Data File usage.

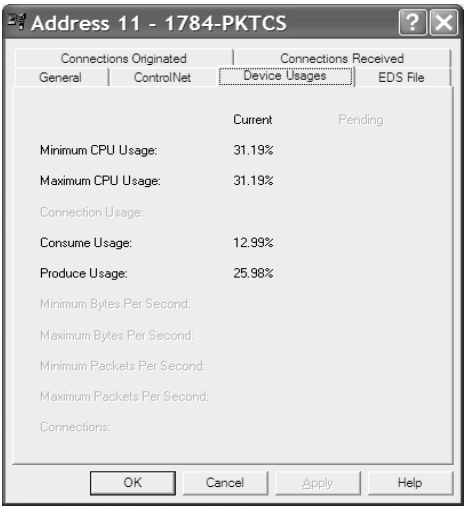


4. Select the Node Network Usage tab to see the Peak Scheduled usage.



5. On the RSNetWorx for ControlNet main window, right-click the 1784-PKTCS card.

6. Select **Properties…**, and select the Device Usages tab to see the CPU usage and the Consume and Produce usage.



If the system exceeds any of the usage limits described previously, use RSNetWorx for ControlNet to reconfigure your system. Consider one or more of the following options:

- increase the Requested Packet Interval (RPI) of the entries in the scan list of the1784-PKTCS card
- increase the Network Update Time (NUT) for your ControlNet network
- decrease the number of entries in the scan list of the 1784-PKTCS card
- decrease the Input and/or Output Sizes of the entries in the scan list of the1784-PKTCS card

Notes:

Use IOView to Verify the Configuration

For Information On This Topic	Refer To Page
Before You Begin	6-11
Start IOView	6-12
Create a View	6-12
Read Inputs and Write Outputs	6-14
Change the View State	6-16
Delete a View	6-16

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

In addition, you can use the test application to make certain that the 1784-PKTCS 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 ControlNet network, and
- Used RSNetWorx for ControlNet to load a scan list into the card

Start IOView

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

To start IOView, click **Start** ⇒ **Programs** ⇒ **Rockwell Software** ⇒ **IOLinx** ⇒ **IOLinx for ControlNet** ⇒ **Samples** ⇒ **IOView**.

TIP You may invoke multiple instances of IOView at the same time.

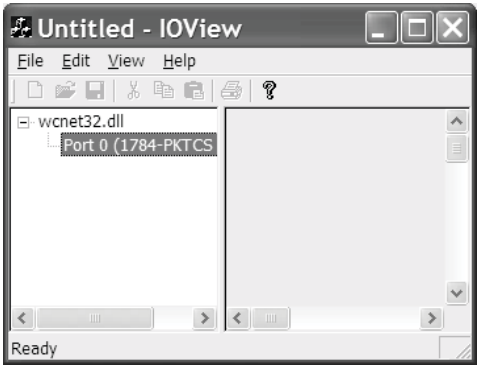
Create a View

The 1784-PKTCS card supports Network views and I/O Set (IoSet) views. A Network view encapsulates I/O data from all of the devices in the scan list. The data is organized according to the input and output addresses that you entered with the scanner configuration tool in RSNetWorx for ControlNet.

An I/O Set view encapsulates I/O data from one specified scan list entry. A scan list entry is specified by the Entry Name that you entered with the scanner configuration tool in RSNetWorx for ControlNet.

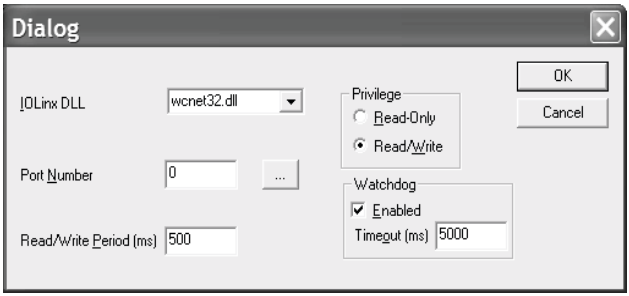
To create a view, follow these steps:

1. In IOView, select the port number of the 1784-PKTCS card for which you want to create a view.



2. Create either a Network view or an I/O Set view.
   - To create a Network view, select **Edit** ⇒ **Create Network View.**
   - To create an I/O Set view, select **Edit** ⇒ **Create I/O Set View**.

   You see this screen:



In This Field	Do This
Port Number	Verify the Port Number corresponds to the 1784-PKTCS card for which you want to create the view
Read/Write Period (ms)	Select the Read/Write Period (in milliseconds)
Privilege	Select whether the view is Read-Only or Read/Write
Watchdog	Set the card-to-driver watchdog timeout (in milliseconds)

TIP Input data from a connection can be contained in multiple views. Output data for a connection can be contained only in one view which has Read/Write privileges.

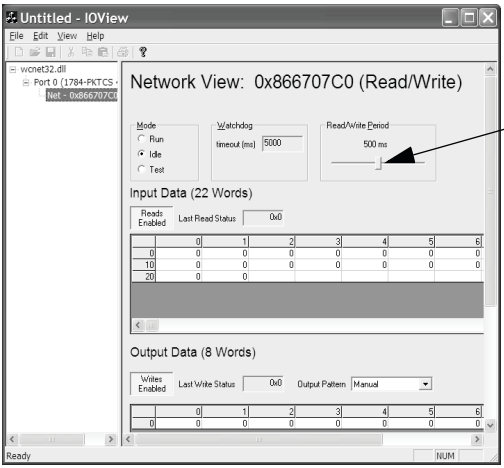
3. Select **OK** to create the view.

Read Inputs and Write Outputs

The input data (if any) and output data (if any) associated with the view are displayed in the Input Data and Output Data sections, respectively.

Change the Read/Write Period

The data transfer between IOView and the card occurs at the Read/Write Period. You can change this period by moving the Read/Write Period slider.



Move the Read/Write period slider to change the read/write period.

Change Output Data

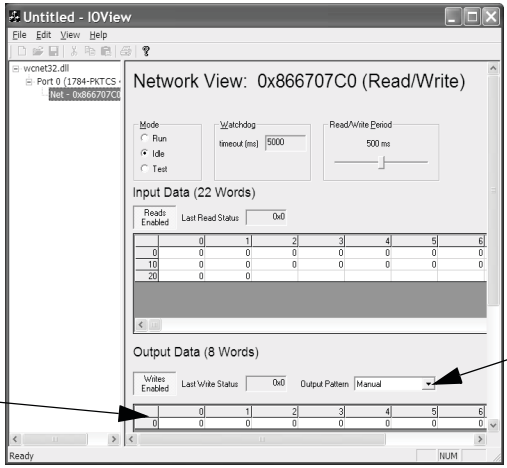
You can change output data for Read/Write views by doing one of the following:

- manually entering values into the Output Data section
- selecting a pre-determined output pattern

Manually Enter Values

To manually enter the output values:

1. On the IOView screen, select **Manual** from the Output Pattern pull-down list.
2. In the Output data area of the IOView screen, enter the desired output values.



Select **Manual** from the Output Pattern pull-down list.

Enter the desired output values here.

Select a Pre-determined Output Pattern

When you select a setting other than Manual, IOView automatically generates the output data based on the selected pattern. To select a pre-determined output pattern, select a setting other than Manual from the Output Pattern pull-down list.

Change the View State

When the view is initially created, the view state is set to Idle. The view state must be set to Run in order for the I/O adapters and I/O modules to energize their outputs based on the output data associated with the view.

ATTENTION

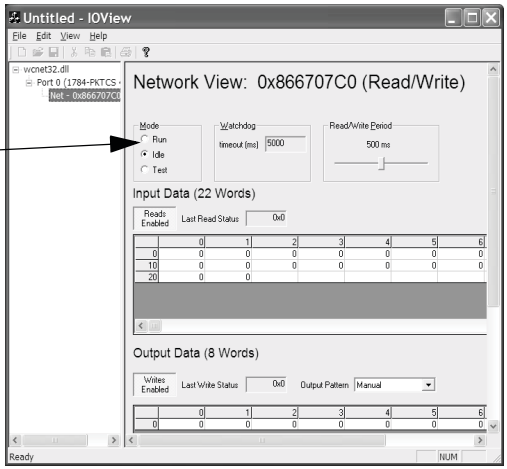
Changing the view state to Run will cause the I/O adapters and I/O modules to energize their outputs based on the output data associated with the view.

Produced data for a Send Data connection will be sent to the consuming device and consumed data for a Receive Data From connection will be received from the producing device regardless of the view state.

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

Set the view state to Run by selecting the **Run** radio button on the IOView screen. Once the view state is set to Run, active outputs are sent to the associated output devices.

Select the **Run** radio button to change the view state to Run.



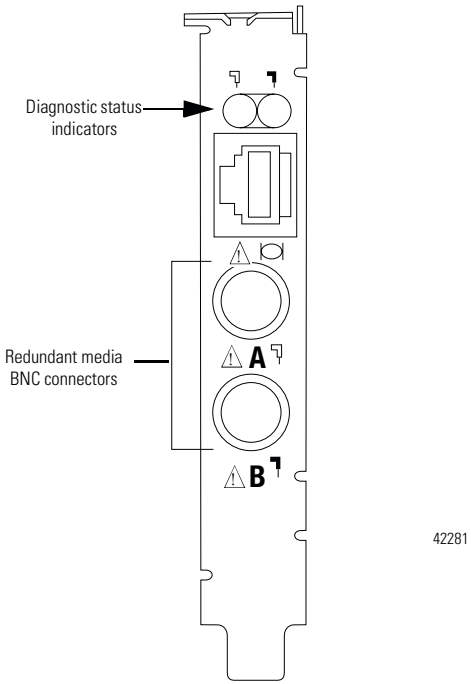
Delete a View

To delete a view, either:

- In the left-hand pane of the IOView screen, select the view to be deleted, then select **Edit** ⇒ **Delete View**.
- Select **File** ⇒ **Exit** to shut down IOView.

Interpret Status Indicators

The status indicators on the card give you information about the card and the network when the card is connected to the network with the BNC connectors. Table 7.1 outlines the states and explains what each state means to you and the action you should take, if any, to correct that state.



IMPORTANT When you connect the module to a ControlNet network using only the network access port (NAP), the status indicators are meaningless.

- **steady** - indicator is on continuously in the defined state.
- **alternating** - the two indicators alternate between the two defined states at the same time (applies to both indicators viewed together). The two indicators are always in opposite states, out of phase.

- **flashing** - the indicator alternates between the two defined states (applies to each indicator viewed independent of the other). If both indicators flash, they must flash together, in phase.

Table 7.1 ControlNet status interpretation

A and B	Cause:	Action:
off	• no power	• none or apply power to the PC
	• 1784-PKTCS card not configured	• Configure the card. See page 5-2.
	• 1784-PKTCS driver not installed	• Install the driver. Refer to Chapter 3.
	• faulted card	• check operating system event log for details of fault (if the PC's operating system supports an event log) • cycle power to the PC • verify that you have firmly inserted the 1784-PKTCS card into a PCI local bus expansion slot and that the expansion slot screw is tightened • if fault persists, contact your Rockwell Automation representative or distributor
steady red	• faulted card	• check operating system event log for details of fault (if the PC's operating system supports an event log) • cycle power to the PC • verify that you have firmly inserted the 1784-PKTCS card into a PCI local bus expansion slot and that the expansion slot screw is tightened • if fault persists, contact your Rockwell Automation representative or distributor
alternating red/green	• self-test	• none
alternating red/off	• incorrect node configuration • duplicate ControlNet node address	• check 1784-PKTCS node address and other ControlNet configuration parameters
off	• channel disabled	• use RSNetWorx to configure the ControlNet network for redundant media, if required

Table 7.1 ControlNet status interpretation

A and B	Cause:	Action:
steady green	• normal operation	• none
flashing green/off	• temporary network errors	• check media for broken cables, loose connectors, missing terminators, etc. • if condition persists, refer to the ControlNet Media Planning and Installation Manual, publication CNET-IN002
flashing red/off	• media fault	• check media for broken cables, loose connectors, missing terminators, etc. • if condition persists, refer to the ControlNet Media Planning and Installation Manual, publication CNET-IN002
	• no other nodes present on network	• add other nodes to the network
flashing red/green	• incorrect node address	• change 1784-PKTCS node address so that it is less than or equal to UMAX[1]
	• incorrect network configuration	• use RSNetWorx to reconfigure the ControlNet network so that UMAX[1] is greater than or equal to the 1784-PKTCS node address

[1] UMAX is the highest node address on a ControlNet network that can transmit data.

Notes:

Specifications

PCI local bus	compliant to PCI Rev. 2.2 The 1784-PKTCS card is compatible with 5V and 3.3V PCI slots, 32-bit and 64-bit PCI slots, and PCI-X slots. **Attention:** The 1784-PKTCS card 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. (10.7cm) H x 6.5 in. (16.5cm) L
host PC requirements	Microsoft .NET Framework 1.1 or later and 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	8192 16-bit words of I/O data file space 127 scanlist entries for scheduled connections 128 unscheduled connections 50 unconnected messages
software compatibility	Rockwell Software RSLinx 2.42.00 or later Rockwell Software RSNetWorx for ControlNet • 5.11.00 or later required • 6.00.00 or later recommended Rockwell Software RSLogix 5000 • V13 or later required • V15 or later recommended
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 1kH 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. 5V dc, 700mA maximum, Class 2
power dissipation	3.5W
isolation voltage (continuous-voltage withstand rating)	50V continuous Tested to withstand 500V for 60 seconds.

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 CI ControlNet International conformance tested to ControlNet 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.

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