

ARTISAN®
TECHNOLOGY GROUP

Your **definitive** source for quality pre-owned equipment.

Artisan Technology Group
(217) 352-9330 | sales@artisantg.com | artisantg.com

Full-service, independent repair center
with experienced engineers and technicians on staff.

We buy your excess, underutilized, and idle equipment
along with credit for buybacks and trade-ins.

Custom engineering
so your equipment works exactly as you specify.

- Critical and expedited services
- In stock / Ready-to-ship
- Leasing / Rentals / Demos
- ITAR-certified secure asset solutions

Expert team | Trust guarantee | 100% satisfaction

All trademarks, brand names, and brands appearing herein are the property of their respective owners.

Find the *Rockwell / Allen-Bradley 1784-PCD* at our website: *Click HERE*

Installation Instructions

DeviceNet PC Card

(Catalog Number 1784-PCD series A and B)

Use this document to install and use the DeviceNet™ PC Card (PCMCIA interface), catalog numbers 1784-PCD/A and -PCD/B. This interface enables a system to communicate on a DeviceNet network.

To install the card, read	See page
Verify Package Contents	2
System Requirements	3
About this Interface	3
Compliance to European Union Directives	7
Installing the Card's Drivers on Windows 3.1 or 3.11	8
Installing the Card's Drivers on Windows 95	14
Installing the Card	22
Removing the Card	23
Removing the Card's Drivers	23
Connecting the Card to the DeviceNet Network	24
Communicating with the Card on the DeviceNet Network	26
Specifications	28

We use these conventions in this document:

Convention	Shows
`9 pt Courier`	Screen displays and prompts
`9 pt Courier bold`	Text you type as shown at the DOS prompt
Enter	Keys that you press

Throughout this document, we refer to the DeviceNet PC Card (both series A and series B) as the 1784-PCD card.

1784-5.29 — April 1998

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Verify Package Contents

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

1784-PCD card



1784-PCD installation utility disk



1784-PCD1 cable



installation instructions (publication 1784-5.29)



5-pin linear connector (PN 94215305)



System Requirements

operating systems	Microsoft Windows, version 3.1 or 3.11, or Windows 95
memory	4 MB or higher
hard disk space	300K
diskette drive	one 3.5" diskette drive
PCMCIA slot	one Type II slot
PC card	1784-PCD for interfacing to the DeviceNet network
application software	application software supporting WinDNet16™ software (e.g., DeviceNetManager™ software, cat. no. 1787-MGR, version 2.0)
PCMCIA software[1]	Card and Socket Services, version 2.1 or greater
card services memory[1]	8KB or greater
card services IRQ[1]	at least 1 available IRQ

1 For Windows 3.1x only

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

About this Interface

Read this section to familiarize yourself with **PC card** technology and the 1784-PCD card. **PC card** technology is relatively new, and therefore, has a set of terms that you may want to read about.

What's PCMCIA?

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

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

What's a PC Card?

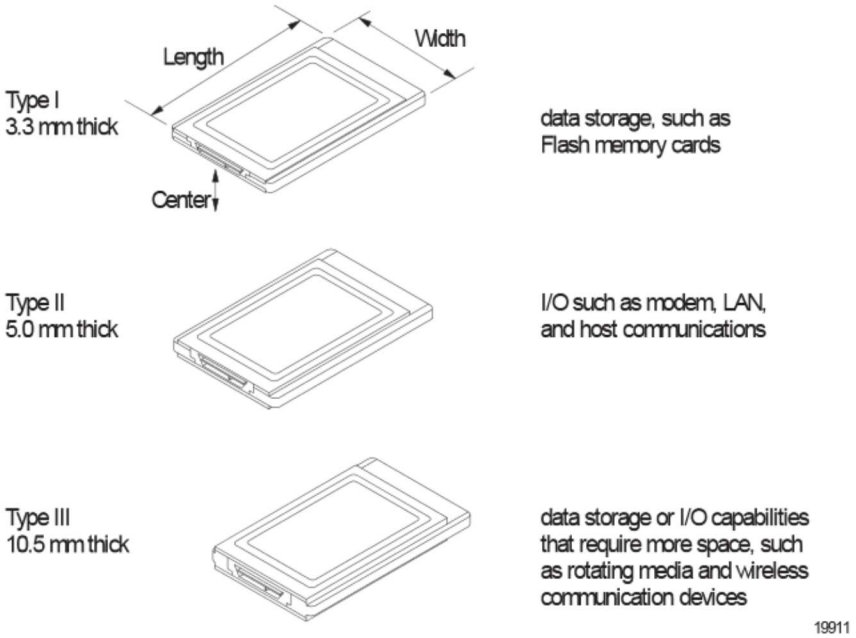
Since personal computers have become smaller, a need for smaller storage media developed. The PC Card is a small form-factor adapter that can add memory, storage, and I/O capabilities to these smaller computers.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Architecture

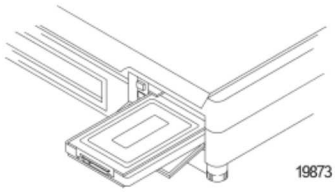
All PC Cards measure the same length and width (54 mm x 85.6 mm), but differ in thickness at the center. The thickness at the connector end and along the rails is the same for all types of PC Cards.

Currently there are three types of PC Cards:



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

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

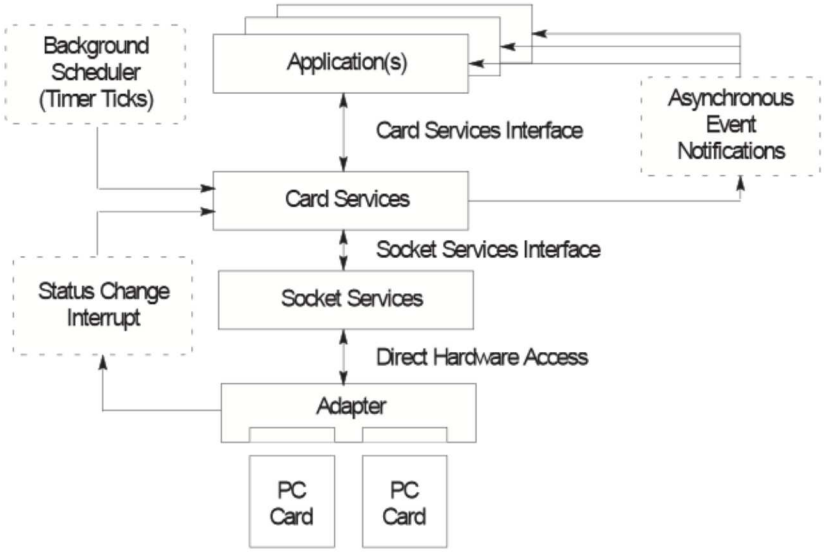


Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Communication

Communication between an installed PC Card and the computer is enabled through software interfaces defined by PCMCIA. These software interfaces are called *Card and Socket Services*. Once communication is established, the PC Card identifies itself through its *Card Identification Structure*.

When a PC Card is inserted into the slot, the connector meets with a *socket*. This socket provides the physical connection to the PC Card. The PC Card then is connected to the I/O bus in your computer through the *adapter*.

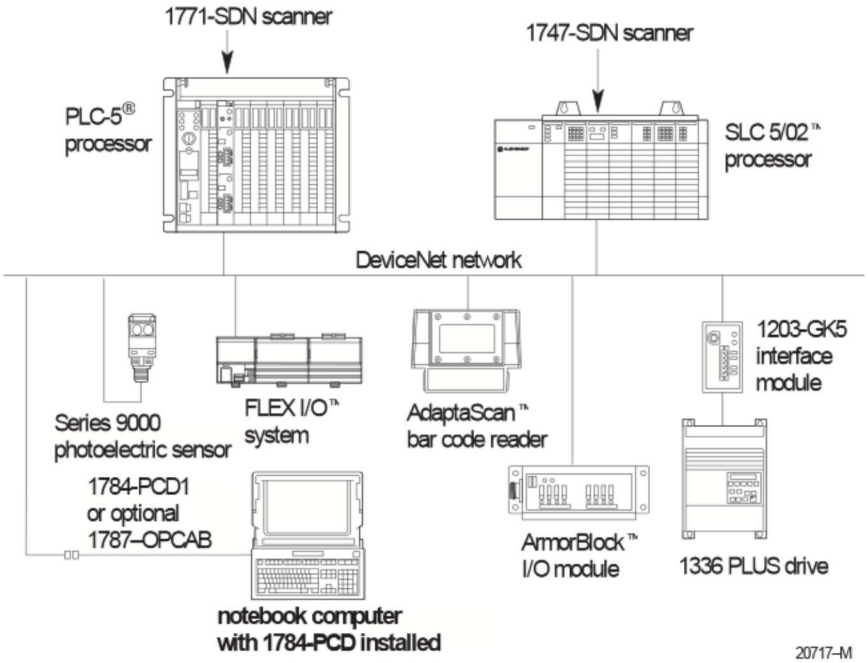


Socket Services identify how many sockets are present in your computer and detects if a PC Card is inserted into one of these sockets. Communication between the PC Card and the I/O bus in your computer is handled by a hardware interface called the adapter. The adapter is controlled by Socket Services.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Using the 1784-PCD Card

The 1784-PCD card is a PC card that interfaces between your system and the DeviceNet network.



Important: Your computer must be PCMCIA 2.1 compliant to support the 1784-PCD card. To verify that your computer is PCMCIA 2.1–compliant, see your computer's user manual.

For additional support using the PCD card, access these Rockwell Automation support services.

Technical Support	Access at
Internet Web Site	http://www.ab.com — as a registered member, open to http://www.ab.com.mem/prodserv/services/technotes/techmain.html
Fax-back System	440.646.5436 (requires a touch-tone telephone)
Telephone	440.646.6800

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Compliance to European Union Directives

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

EMC Directive

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

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

This product is intended for use in an industrial environment.

Low Voltage Directive

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

For specific information required by EN61131–2, see the appropriate sections in this manual as well as the following Allen–Bradley publications:

- Industrial Automation Wiring and Grounding Guidelines for Noise Immunity, publication 1770–4.1
- Automation Systems Catalog, publication B111

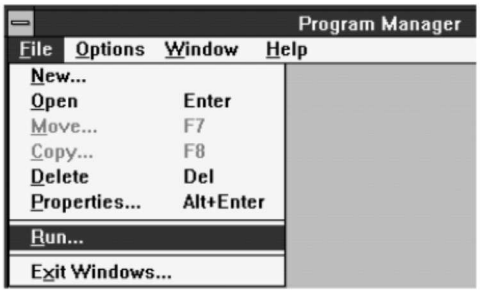
Open Equipment

This equipment is classified as open equipment and must be mounted in an enclosure during operation to provide safety protection.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Installing the Card's Drivers on Windows 3.1 or 3.11

1. Insert the 1784-PCD installation utility disk into your system's 3.5" disk drive.
2. Start Windows and access the Program Manager.
3. From the File menu, choose Run.



4. In the Run dialog box, type:

`A:\SETUP.EXE`

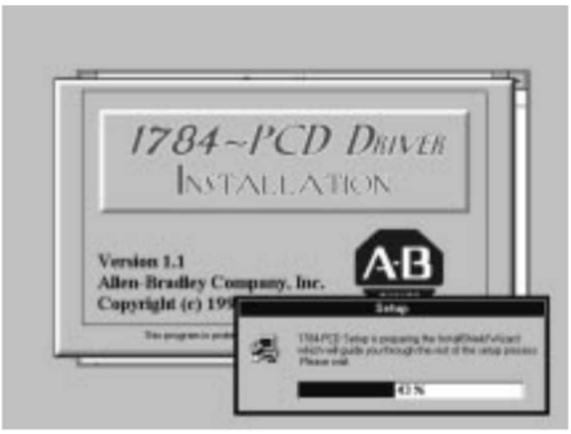
If you inserted the disk into another drive, use the appropriate drive letter instead of a:



5. Press Enter or click OK.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

You see:

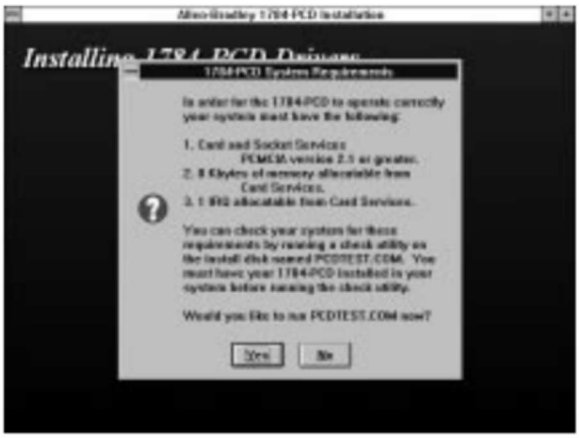




6. Press Enter or click Next.

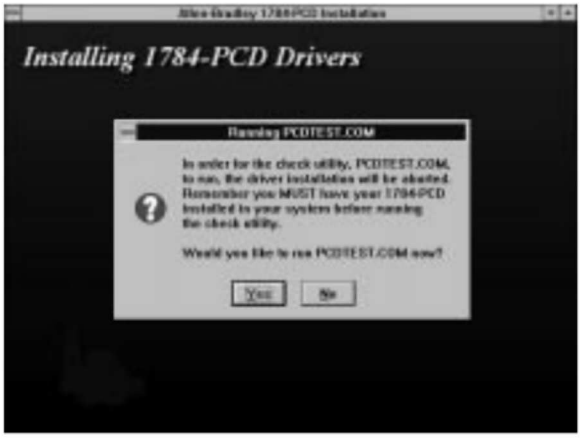
Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

You see:



7. To test your system for the proper requirements, press Enter or click Yes.
   To continue with the installation, click No and go to paragraph after step 9.

   You see:



Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

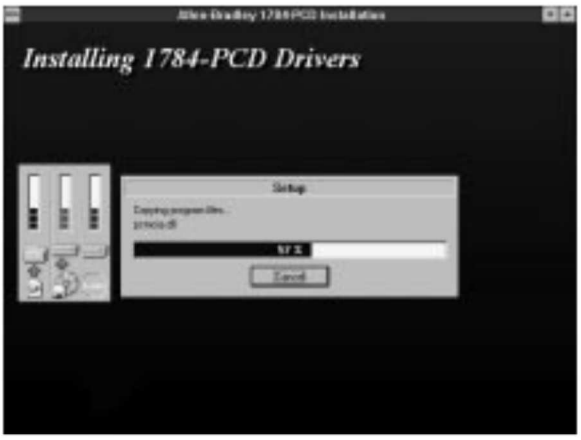
8. To continue with the test, press Enter or click Yes.

   You see an MS-DOS screen that lets you see the results of the system test. See page 2 to see if you meet the requirements.

   Once you've finished viewing the results of the test, press any key to return to the Program Manager.

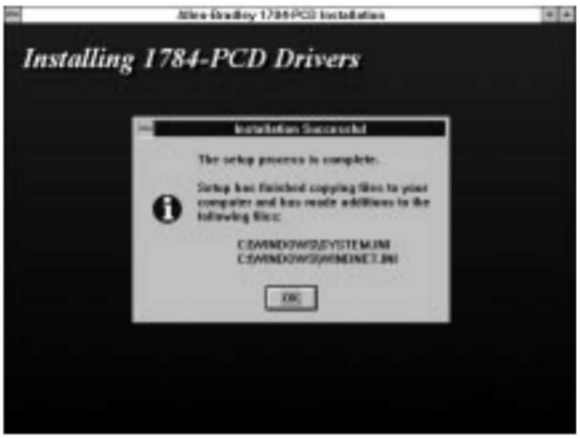
9. Go back to step 3.

   You see:



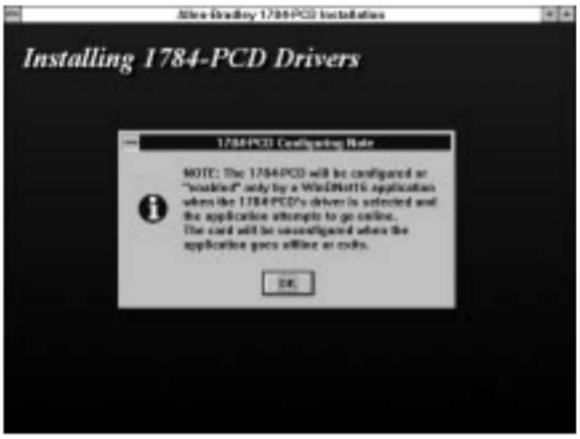
Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Once the installation is complete, you see



10. Press Enter or click OK.

You see:



11. Press Enter or click OK.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

You see the release notes:



12. Press Enter or click Next.

You see:



We recommend that you select "Yes, I want to restart Windows now." Your 1784-PCD card will not work with your software application until you have restarted Windows.

13. Select your option and press Enter or click OK.

If you selected "Yes, I want to restart Windows now" or "Yes, I want to restart my computer now," you see:

```
Allen-Bradley 1784-PCD Driver Version 1.1
Copyright (c) 1996 Allen-Bradley Company, Inc.
```


Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Installing the Card's Drivers on Windows 95 (16-Bit)

You may install the PC card driver with or without the PC card present.

Using the PC Card

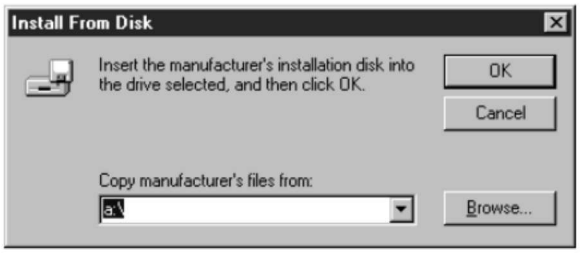
1. Insert the card into your system following the directions on page 22.

   You see:



2. Press Enter or click OK.
3. Insert the 1784-PCD installation utility disk into your system's 3.5" disk drive.

   You see:

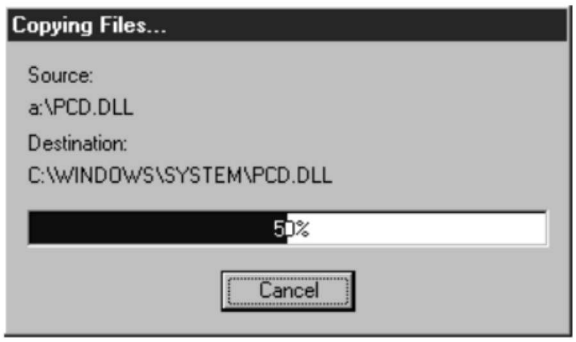


If you inserted the disk into another drive, use the appropriate drive letter instead of a:

4. Press Enter or click OK.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

You see this screen while the driver is installed:



Once the installation is complete, you see:

You see:



We recommend that you select Yes. Your 1784-PCD card will not work with your software application until you have restarted Windows.

5. To restart Windows, press Enter or click Yes.

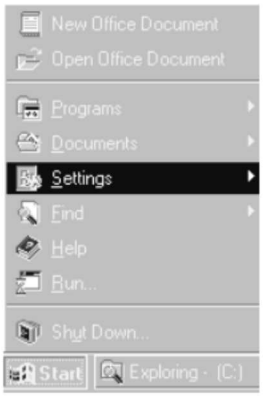
To return to the Windows environment, click No.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

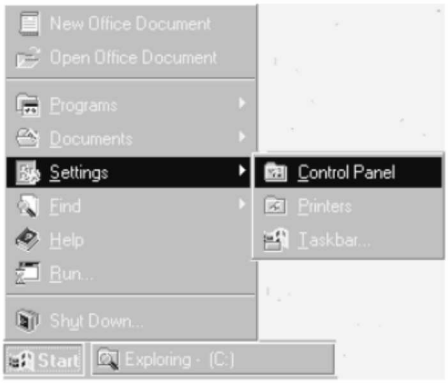
Without the PC Card

1. Click Start in the taskbar.

   You see:



2. From the Settings menu, choose Control Panel.



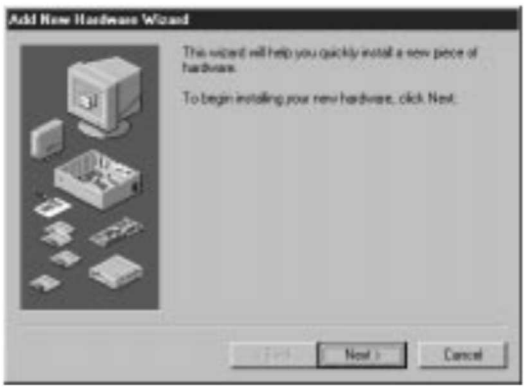
Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

You see:



3. Double-click on Add New Hardware 

You see:



4. Press Enter or click Next.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

You see:



5. Select No.
6. Press Enter or click Next.
   You see:



7. Scroll down the list and select Other Devices.
8. Press Enter or click Next.

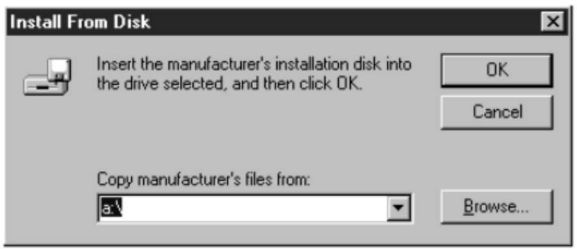
Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

You see:



9. Select Have Disk.

You see:



If you inserted the disk into another drive, use the appropriate drive letter instead of a:

10. Insert the 1784-PCD installation utility disk into your system's 3.5" disk drive.
11. Press Enter or click OK.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

You see:



12. Click Next.

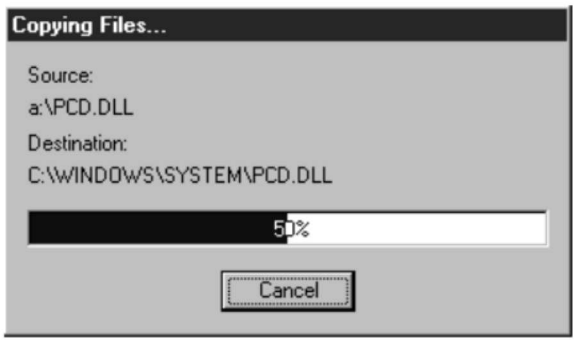
You see:



13. Press Enter or click Next.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

You see this screen while the driver is installed:



You see:



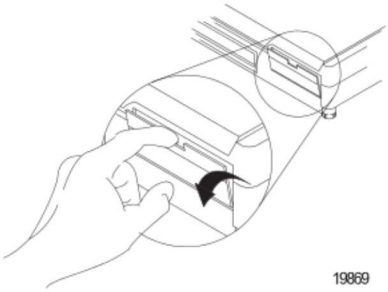
14. Press Enter or click Finish.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Inserting the Card

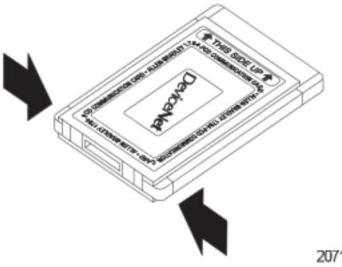
Important: You can insert or remove the card from a powered or unpowered computer.

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



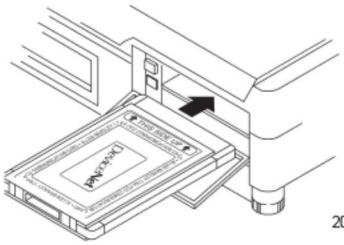
19869

1. Access the PCMCIA slot.



20718-M

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

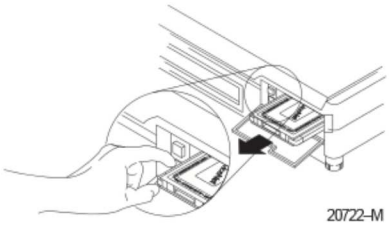


20720-M

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

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Removing the Card



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

Removing the Card's Drivers

For information on removing the 1784-PCD drivers, see the README.txt file on the 1784-PCD installation utility disk.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

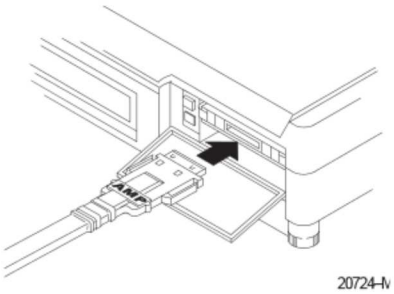
Connecting the Card to the DeviceNet Network

These instructions assume that you have:

- installed your application software
- installed the 1784-PCD drivers and restarted Windows (page 8)
- installed the card (page 22)

Important: If you have questions or need additional information about connecting cables, see the DeviceNet Cable Planning and Installation Manual, publication DN–6.7.2.

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



1. Attach the smaller end of the 1784-PCD1 cable to the 1784-PCD card.



The silver side should face upward as you connect the cable to the 1784-PCD card.

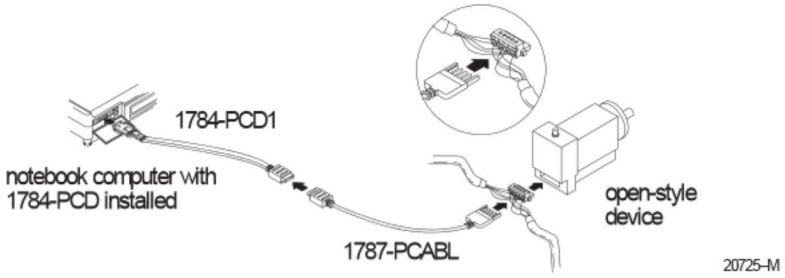
2. Attach the other end of the 1784-PCD1 cable to the linear plug or cable you are using.

You can connect the card to the DeviceNet network using a	Catalog or Part No.	See figure
5-pin probe cable	1787-PCABL	
sealed mini-male cable	1787-MCABL	
5-pin linear plug without jack screws	PN 94215305	
T-style cable	1787-TCABL	on page 25
optional 1787–OPCAB	1787–OPCAB/A	on page 26

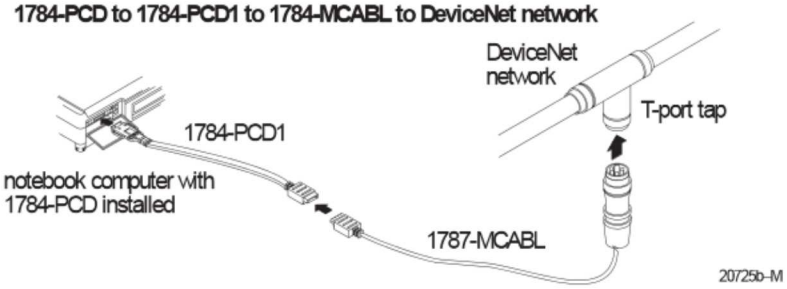
You purchase the cables separately from Allen-Bradley.
This plug is supplied with the 1784-PCD card.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

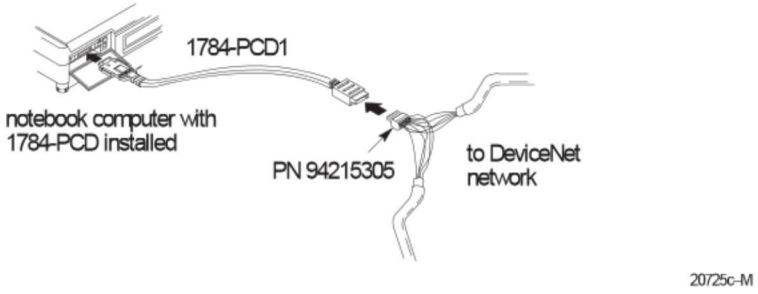
1784-PCD to 1784-PCD1 to 1784-PCABL to DeviceNet network



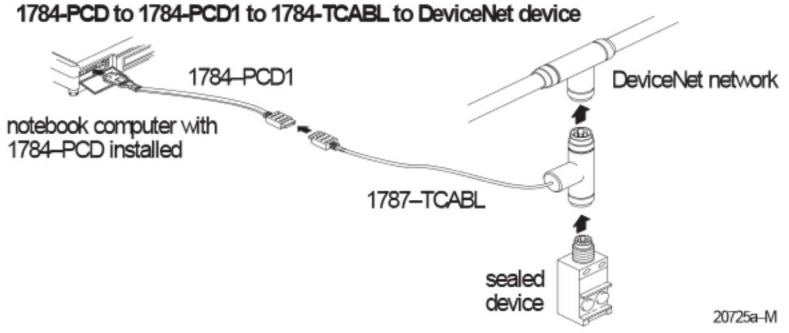
1784-PCD to 1784-PCD1 to 1784-MCABL to DeviceNet network



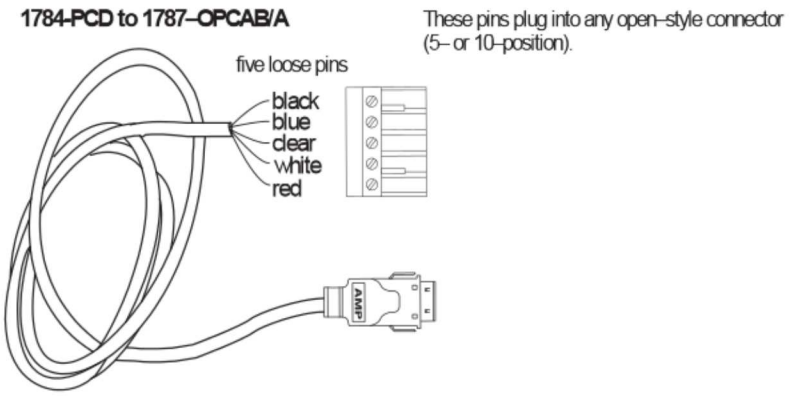
1784-PCD to 1784-PCD1 to 5-pin linear plug (PN 94215305) DeviceNet network



1784-PCD to 1784-PCD1 to 1784-TCABL to DeviceNet device



Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com



Important: The 1787–OPCAB/A is an option only; it does not come with the 1784–PCD product. If you want it, you must order it separately.

3. Verify that you can go online with the card and your application software. If you have difficulty establishing communication, check your cable connections and refer to the documentation for your application software.

Communicating with the Card on the DeviceNet Network

The 1784-PCD card communicates on the DeviceNet network through:

- Allen-Bradley DeviceNet Manager software (cat. no. 1787-MGR), version 2.0^{X} or later. For information on using the card with this software, see the *DeviceNet Manager Software User Manual*, publication 1787-6.5.3.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

- any application software that is compatible WinDNet16 software.[2] WinDNet16 software lets you communicate on the DeviceNet network from your Microsoft Windows application. This software implements the DeviceNet protocol for your application with simple send and receive services, and frees your application from having to have detailed knowledge of the DeviceNet protocol.

[2] This software requires Windows 3.1 or higher.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

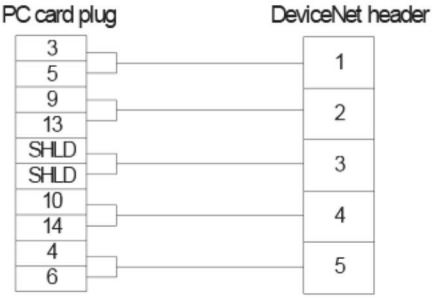
Specifications

1784-PCD

PCMCIA Type	Type II form-factor network adapter card	
PCMCIA Standard	compliant to PCMCIA Standard, release 2.1	
Card and Socket Services Standard	compliant to PCMCIA Card and Socket Services Standard, revision 2.1 or greater	
Power Requirements	PC	DeviceNet network
	series A: 5 V @ 275 mA maximum	25 V maximum 90 mA maximum
	series B: 5 V @ 195 mA maximum	25 V maximum 90 mA maximum
Environmental Conditions	Operating	Non-operating
Slot Temperature	0–50° C (32–122° F)	-40–85° C (-40–185° F)
Humidity	5–95% without condensation	5–95% without condensation
Vibration	0–70 Hz, constant .012" displacement 70–500 Hz, constant 2G acceleration	NA
Shock	30 G peak/11 ms	50 G peak/11 ms
Agency Certification (when product or packaging is marked)	• UL • CE marked for all applicable directives	

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

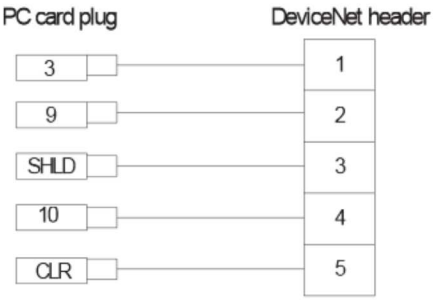
1784-PCD1

Total length of cable	34.9 cm (13.75")
Pin Assignments	

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

1787–OPCAB

Pin Assignments



AdaptaScan, ArmorBlock, DeviceNetManager, FLEX I/O, PLC-5, SLC 5/02, and WinDNet16 are trademarks of Rockwell Automation, Inc.

DeviceNet is trademark of Open DeviceNet Vendors Association (O.D.V.A.).

Microsoft and Windows are registered trademarks of Microsoft Corporation.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Rockwell Automation

Allen-Bradley



Worldwide representation.

Argentina • Australia • Austria • Bahrain • Belgium • Brazil • Bulgaria • Canada • Chile • China, PRC • Colombia • Costa Rica • Croatia • Cyprus • Czech Republic • Denmark • Ecuador • Egypt • El Salvador • Finland • France • Germany • Greece • Guatemala • Honduras • Hong Kong • Hungary • Iceland • India • Indonesia • Ireland • Israel • Italy • Jamaica • Japan • Jordan • Korea • Kuwait • Lebanon • Malaysia • Mexico • Netherlands • New Zealand • Norway • Pakistan • Peru • Philippines • Poland • Portugal • Puerto Rico • Qatar • Romania • Russia–CIS • Saudi Arabia • Singapore • Slovakia • Slovenia • South Africa, Republic • Spain • Sweden • Switzerland • Taiwan • Thailand • Turkey • United Arab Emirates • United Kingdom • United States • Uruguay • Venezuela • Yugoslavia

Allen-Bradley Headquarters, 1201 South Second Street, Milwaukee, WI 53204 USA,
Tel: (1) 414 382-2000 Fax: (1) 414 382-4444

Publication 1784-5.29 — April 1998

PN 955131–96

Copyright 1998 Allen-Bradley Company, Inc. Printed in USA

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Artisan Technology Group is an independent supplier of quality pre-owned equipment

Gold-standard solutions

Extend the life of your critical industrial, commercial, and military systems with our superior service and support.

We buy equipment

Planning to upgrade your current equipment? Have surplus equipment taking up shelf space? We'll give it a new home.

Learn more!

Visit us at **artisantg.com** for more info on price quotes, drivers, technical specifications, manuals, and documentation.

Artisan Scientific Corporation dba Artisan Technology Group is not an affiliate, representative, or authorized distributor for any manufacturer listed herein.

We're here to make your life easier. How can we help you today?

(217) 352-9330 | sales@artisantg.com | artisantg.com

ARTISAN® TECHNOLOGY GROUP