# CA Series PC/104 Multiport Serial Module User's Manual

www.moxa.com/product

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# CA Series PC/104 Multiport Serial Module User's Manual

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# 1 Introduction

Welcome to the CA Series of PC/104 communication modules, a multiport serial module for industrial applications. It is designed for PC/104 CPU boards that accept the PC/104 expansion interface. Optional DB9 and DB25 cables are available to connect different devices. The device drivers make full use of the 64-byte Tx/Rx FIFO and on-chip flow control, which allows up to 921.6 Kbps data transmission.

The CA Series includes the following models:

CA-108:	8 ports, RS-232
СА-108-Т:	8 ports, RS-232, wide temperature
CA-114:	4 ports, RS-232/422/485
CA-114-T:	4 ports, RS-232/422/485, wide temperature
CA-134I:	4 ports, RS-422/485, optical isolation protection
CA-134I-T:	4 ports, RS-422/485, optical isolation protection, wide temperature
CA-104 V2:	4 ports, RS-232
CA-104-T V2:	4 ports, RS-232, wide temperature
CA-132 V2:	2 ports, RS-422/485
CA-132-T V2:	2 ports, RS-422/485, wide temperature
CA-132I V2:	2 ports, RS-422/485, optical isolation protection
CA-132I-T V2:	2 ports, RS-422/485, optical isolation protection, wide temperature

2 KV optical isolation is provided on optical isolation models. Wide temperature models are rated for operation between -40 to 85°C.

The following topics are covered in this chapter:

- **Overview**
- Package Checklist
- Product Features
- **D** Product Specifications

## **Overview**

The CA Series PC/104 module is designed to be used with PC/104 CPU modules or CPU cards with the PC/104 expansion interface. Models are available for RS-232, RS-422, and RS-485, with 2, 4, or 8 ports. The serial ports are accessed through a 20 or 40-pin box header connector on the module. DIP switches allow you to configure the I/O base address and INT vector of each port. The industry-standard MOXA UART (16C550 compatible) is fully programmable. Built-in 15 KV ESD protection protects devices connected to the serial network.

# Package Checklist

MOXA performs a careful mechanical and electrical inspection of each module prior to shipping. Your module should arrive in perfect electrical order, free of any marks or scratches. Please handle the module by the edges only, since your body's static charge can damage the integrated circuits. When the module is not in use, please keep it in the anti-static package provided. You may also use this package to return the module if it requires repair.

The CA Series module is shipped with the following items:

- CA Series PC/104 multiport serial module
- Documentation and Software CD
- Quick Installation Guide
- 5-year product warranty statement

Note: Please notify your sales representative if any of the above items are missing or damaged.

# **Product Features**

The CA Series module features the following:

- 2, 4, or 8 serial ports (depending on model)
- RS-232, RS-422, or RS-485 operation (depending on model)
- 64-byte FIFOs and on-chip flow control
- Up to 921.6Kbps data transmission speed
- Built-in 15 KV ESD protection
- Configurable IRQ and I/O settings
- Onboard Tx, Rx LED indicators for each port
- Optional wide temperature support (-40 to 85°C)

# **Product Specifications**

## CA Series PC/104 Multiport Serial Module

Hardware	
I/O controller	16C550C or compatible
Connector Type	40-pin box header (CA-108, CA-114, CA-134I, CA-104 V2) 20-pin box header (CA-132 V2, CA-132I V2)
Interface	
Bus	PC/104 bus (Ver. 2.4)
No. of Ports	2 ports (CA-132 V2, CA-132I V2) 4 ports (CA-114, CA-134I, CA-104 V2) 8 ports (CA-108)
Max. No. of Modules	4
Signals	
RS-232	TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND
RS-422	TxD+(B), TxD-(A), RxD+(B), RxD-(A), GND
4-wire RS-485	TxD+(B), TxD-(A), RxD+(B), RxD-(A), GND
2-wire RS-485	Data+(B), Data-(A), GND
Performance	
Baudrate	50 bps to 921.6 Kbps
Configuration	
Parity	None, Even, Odd, Space, Mark
Data Bits	5, 6, 7, 8
Stop Bit(s)	1, 1.5, 2
IRQ	Shared IRQ for all ports (includes IRQ 3, 4, 5, 6, 7, 9, 10, 11, 12, 15)
FIFO	64 bytes
Additional Settings	I/O base address, interrupt vector, serial interface (all by DIP switch)
Driver Support	DOS Windows 2000, XP, 2003, Vista Linux 2.4, Linux 2.6
Power and Environment	
Operating Temperature	Standard models: 0 to 55°C (32 to 131°F) "-T" models:, -40 to 85°C (-40 to 185°F)
Operating Humidity	5 to 95% RH
Storage Temperature	-40 to 70°C (-40 to 158°F)
ESD Protection	Embedded 15 KV ESD protection

#### Other

Dimensions (W x D) Regulatory Approvals

Warranty

96 x 90 mm EN55022 Class A, EN55024, EN6100-3-2, EN61000-3-3, FCC Part 15 Class A 5 years

# **Hardware Installation**

This chapter explains how to install the CA Series PC/104 multiport serial module.

The following topics are covered:

□ Hardware Installation

#### Block Diagrams

- ➢ I/O Base Address
- Interrupt Vector
- ➢ Serial Interface
- ≻ IRQ

# Hardware Installation

Installing the CA Series module is easy. Before inserting the module into the PC/104 slot, you must first configure the I/O base address, interrupt vector, IRQ, and serial interface (for select models).



# Safety First!

To prevent damage to your system or board, make sure your embedded PC's power is turned off before installing your CA Series module.

- Step 1: Shut off power to your embedded PC and to any peripheral devices. After shutting off power, remove the cover of your embedded PC.
- Step 2: Use the DIP switches on the module to select I/O base address, interrupt vector, IRQ, and serial interface (for select models). Details for each model are provided later in this chapter.
- Step 3: Insert the module firmly into the embedded PC's PC/104 slot.

Step 4: Screw the control board in place.

Step 5: Connect the cables.

Step 6: Power on the embedded PC.

# **Block Diagrams**







#### CA-134I, CA-132 V2, CA-132I V2



CA-104 V2



# I/O Base Address

Use DIP switch SW1 to set port 1's I/O base address. The other ports will be configured automatically. The default I/O base address is  $0 \times 180$  and allows settings from  $0 \times 000$  to  $0 \times 3$ FF. Some popular settings are provided below:

A3	<b>A</b> 4	A5	A6	A7	<b>A</b> 8	A9	
8	1	2	4	8	1	2	Hex
ON	ON	ON	ON	ON	ON	ON	0×000
ON	ON	ON	ON	ON	ON	off	0×200
ON	ON	ON	ON	ON	off	off	0×300
ON	ON	ON	ON	off	off	off	0×380
ON	ON	ON	off	off	off	off	0×3C0
ON	ON	off	off	off	off	off	0×3E0
ON	off	off	off	off	off	off	0×3F0
off	off	off	off	off	off	off	0×3F8
off	ON	ON	ON	ON	ON	ON	0×008
off	off	ON	ON	ON	ON	ON	0×018
off	off	off	ON	ON	ON	ON	0×038
off	off	off	off	ON	ON	ON	0×078
off	off	off	off	off	ON	ON	0×0F8
off	off	off	off	off	off	ON	0×2F8

For example, an I/O base address of 0×180 should be set as follows:



The other serial ports will be set automatically to  $0 \times 188$ ,  $0 \times 190$ ,  $0 \times 198$ , etc.

## Interrupt Vector

Use DIP switch SW2 to set port 1's interrupt vector. The default interrupt vector is  $0 \times 1C0$ , with SW2 set as follows:



# Serial Interface

For the CA-114, use S3, S4, and S5 to select the serial interface as follows:

Mode	<b>S</b> 3	S4	S5
RS-232			ON
RS-422		ON	off
4-wire RS-485	ON	off	off
2-wire RS-485	off	off	off

For the CA-134I, CA-132 V2, and CA-132I V2, use the 2-WIRE/4-WIRE and RS-422/RS-485 DIP switches to select the serial interface as follows:

Interface	2-WIRE/4-WIRE	RS422/RS485
RS-422		OFF
4-wire RS-485	OFF	ON
2-wire RS-485	ON	ON

# IRQ

Before selecting an IRQ, please enter the PC's BIOS and reserve a dedicated IRQ for the module. On the module, the IRQ is set by a jumper. Before inserting the module into the PC/104 slot, use the jumper to select an IRQ (3, 4, 5, 6, 7, 9, 10, 11, 12, or 15).

# **Software Installation**

After installing the CA Series module in your embedded computer, the next step is installing the software. Drivers for various operating systems are provided, including DOS, Windows, and Linux. This chapter explains how to install and remove the CA Series driver.

The following topics are covered in this chapter:

#### □ Windows Vista (32-bit)

- ➢ Installing the Driver
- Using Device Manager to Verify Installation
- Port Configuration

#### **Windows XP, 2003 (32-bit)**

- ➢ Installing the Driver
- Using Device Manager to Verify Installation
- Port Configuration
- Using PComm
- Using Event Log
- Disabling the Module
- ➢ Uninstalling the Module

#### □ Windows 2000

- ➢ Installing the Driver
- Using Device Manager to Verify Installation
- Port Configuration
- Using PComm
- Using Event Log
- Disabling the Module
- Uninstalling the Module

#### Windows NT

- > Installing the Driver
- Uninstalling the Module

#### **Windows 95, 98, Me**

- Installing the Driver
  - Uninstalling the Module

#### **Linux**

- **D** DOS
  - ➢ Installing the Driver
  - Driver Setup
  - Loading the Driver
  - Unloading the Driver

# Windows Vista (32-bit)

The Windows Vista (32-bit) drivers conform to the Win32 COMM API standard and support all models in the CA Series. In the following instructions, the CA-114 is used as an example.

# Installing the Driver

- 1. After turning the embedded computer on, log into Windows as Administrator.
- 2. Insert the Document and Software CD in your PC's CD-ROM drive.
- 3. Select Add Hardware from Control Panel/Classic View.



4. A window will appear stating that Windows needs your permission to continue. Click **Continue**.

5. The Add Hardware Wizard will open. Click Next to continue.



6. Select Install the hardware that I manually select from a list (Advanced) and click Next to continue.

The	e wizard can help you install other hardware
	The wizard can search for other hardware and automatically install it for you. Or, if you know exactly which hardware model you want to install, you can select it from a list.
	What do you want the wizard to do?
	Search for and install the hardware automatically (Recommended)
	Install the hardware that I manually select from a list (Advanced)
	< <u>Back</u> <u>N</u> ext > Cance

7. Select Multi-port serial adapters and click Next to continue.

If you do not see the hardware category you want, clic	k Show All Devices.
Common <u>h</u> ardware types:	
🥮 Media Center Extender	
Memory technology driver	
Modems	
Multi-port senal adapters	E
Therwork adapters	
IPCMCIA adapters	
PCMCIA adapters     Portable Devices	
PCMCIA adapters  Contable Devices  Ports (COM & LPT)	

8. Click Have Disk.

dd Har	dware	
Select the device driver you want to install for this hardware.		
F	Select the manufacturer and model of your hardware device and then click Next. If you have a disk that contains the driver you want to install, click Have Disk.	
(Unable	e to find any drivers for this device)	
1	Have Disk	
	< Back Next > Cancel	

9. For 32-bit (x86) platforms, select the \CA Series\Software\Windows Vista\x86 folder on the CD and click OK to continue.



	nstall for this hardware.
Select the manufacturer and model of have a disk that contains the driver yo	your hardware device and then click Next. If y u want to install, click Have Disk.
/lodel	
MOXA CA104 Series MOXA CA108 Series MOXA CA114 Series MOXA CA132 Series	
This driver is not digitally signed! Tell me why driver signing is important	Have Dis
	< Back Next > Can
f Hardware The wizard is ready to install your har	dware
f Hardware The wizard is ready to install your har Hardware to install:	dware
I Hardware The wizard is ready to install your har Hardware to install; MOXA CA114 Series	dware
I Hardware The wizard is ready to install your har Hardware to install: MOXA CA114 Series To start installing your new hardware, clic	dware k Next.

10. Select your CA Series model and click Next to continue.

11. If you see a warning that the software has not passed Windows Logo testing, click **Install this** driver software anyway.

۱ 📎	Windows can't verify the publisher of this driver software
	Don't install this driver software
	for your device.
	Install this driver software anyway
	Only install driver software obtained from your manufacturer's website or disc. Unsigned software from other sources may harm your computer or steal information.

12. After the files have been installed, click Finish.

Add Hardware Please wait while the wizard install	s the softwar	e	
Installing software to support:			
Ď	0	Þ	
	< <u>B</u> a	ick <u>N</u> ext >	Cancel

#### **Software Installation**

#### **CA Series User's Manual**



13. After the module is installed, you will be prompted to install the new serial ports. A Found New Hardware Wizard window will open for the first serial port, port 0. Select Locate and install driver software (recommended) to continue.

Found New Hardware	×
Windows needs to install driver software for your MOX communication port	A
Locate and install driver software (recommended) Windows will guide you through the process of installing driver soft for your device.	tware
Ask me again later Windows will ask again the next time you plug in your device or lo	g on.
Don't show this message again for this device Your device will not function until you install driver software.	
Ca	ncel

14. Select I don't have the disc. Show me other options.



15. Select Browse my computer for driver software (advanced).



16. For 32-bit (x86) platforms, select the \CA Series\Software\Windows Vista\x86 folder on the CD and click OK to continue.

			E
Found New Hardware - MOXA communication port			
Browse for driver software on your computer			
Search for driver software in this location:			
D:\CA Series\Software\Windows Vista\x86	•	B <u>r</u> owse	
☑ Include subfolders			
		Next	Cancel

17. Windows will install the driver software.

G I Found New Hardware - MOXA communication port	
Installing driver software	

18. If you see a warning that the software has not passed Windows Logo testing, click **Install this driver software anyway**.

9 Wi	ndows can't verify the publisher of this driver software
•	Don't install this driver software You should check your manufacturer's website for updated driver software for your device.
4	Install this driver software anyway Only install driver software obtained from your manufacturer's website or disc. Unsigned software from other sources may harm your computer or stea information.

19. After the files have been installed, click **Close**. The remaining serial ports will automatically install in the background.

Found New Hardware - MOXA Communication Port 1 (COM3)	×
The software for this device has been successfully installed	
Windows has finished installing the driver software for this device:	- 1
MOXA Port 0	
	Close

# Using Device Manager to Verify Installation

You can use Windows Device Manager to verify proper installation of the CA Series module. In the following instructions, the CA-114 is used as an example.

1. Under My Computer, click System Properties.



2. In the System window, click Device Manager.



3. In the **Device Manager** window, you should see your CA Series module under Multi-port serial adapters. You should also see MOXA communication ports under Ports (COM & LPT).



4. If you see any special marks, such as a question mark or an exclamation mark, next to the MOXA items, the installation of your module or serial ports was not successful. Examine the Windows event log for details.

# Port Configuration

After the driver is installed, a CA Series Properties window will appear. The system will map the serial ports automatically. It will prompt you to take care of port configuration if another CA Series module has been installed on the PC.

1. Select a specific port under the Port Configuration tab and click Port Setting.

Port 1	COM No.	Bx FIFO 1 56	Fing. Tx FIFU Size 64	
2	COM 4	56	64	
3	COM 5	56	64	
4	COM 6	56	64	
				Port Setting

2. Under Port Number, select a COM number to assign to the serial port.

🔽 Auto E	Enumerating CO	M Numbe
<u>R</u> x FIFO Trigger	56	•
🔽 Set the	e change to <u>a</u> ll p	orts
<u>T</u> x FIFO Size	64	•
✓ Set the	e change to all p	orts

Select **Auto Enumerating COM Number** to map subsequent ports in numerical order. For example, if COM 3 is assigned to Port 1, then COM 4 will be automatically assigned to Port 2.

- 3. Select an **Rx FIFO Trigger.** The default value is 56 bytes (high level). Select **Set the change to all ports** to use this setting for all serial ports on the module.
- 4. Select a **Tx FIFO Size**. The default value is 64 bytes (high level). Select **Set the change to all ports** to use this setting for all serial ports on the module.
- 5. Click **OK** to approve the port settings. Click **OK** again to close the **CA Series Properties** window and apply the new port settings.

# Windows XP, 2003 (32-bit)

The Windows XP and 2003 (32-bit) drivers conform to the Win32 COMM API standard and support all models in the CA Series. In the following instructions, the CA-114 is used as an example.

# Installing the Driver

1. Select Add Hardware Wizard from the Control Panel. When the wizard opens, click Next to continue.



2. Select Yes, I have already connected the hardware and click Next to continue.



3. Select Add a new hardware device and click Next to continue.

Add Hardware Wizard			
The following hardware is already installed on your computer			
From the list below, select an installed hardware device, then click Next to check properties or troubleshoot a problem you might be having.			
To add hardware not shown in the list, click "Add a new hardware device."			
Installed hardware: Intel(R) 82801DB/DBM USB2 Enhanced Host Controller - 24CD USB Root Hub USB Root Hub USB Root Hub Add a new hardware device			
< <u>B</u> ack Next > Cancel			

4. Select Install the hardware that I manually select from a list (Advanced) and click Next to continue.

Add Hardware Wizard
The wizard can help you install other hardware
The wizard can search for other hardware and automatically install it for you. Or, if you know exactly which hardware model you want to install, you can select it from a list.
What do you want the wizard to do? <ul> <li>Search for and install the hardware automatically (Recommended)</li> <li>Install the hardware that I manually select from a list (Advanced)</li> </ul>
< <u>₿</u> ack <u>N</u> ext > Cancel

5. Select Multi-port serial adapters and click Next to continue.

Add Hardware Wizard		
From the list below, select the type of hardware you are installing	₹\$	
If you do not see the hardware category you want, click Show All Devices. Common <u>h</u> ardware types:		
Show All Devices Show All Devices Sipplay adapters Sipplay adap		
< <u>B</u> ack <u>N</u> ext >	Cancel	

6. Click Have Disk.

Add Hardware Wizard			
Select the device driver you	want to install for this hardware.		
Select the manufacturer an have a disk that contains the	id model of your hardware device and then click Next. If you ne driver you want to install, click Have Disk.		
Manufacturer Digi International	Model		
This driver is digitally signed. Tell me why driver signing is imp	<u>H</u> ave Disk		
	< <u>B</u> ack <u>N</u> ext > Cancel		

7. You will be prompted to insert the installation disk.

Install From Disk			
	Insert the manufacturer's installation disk, and then make sure that the correct drive is selected below.	OK Cancel	
	Copy manufacturer's files from:	Browse	

Insert the Document and Software CD into the CD-ROM drive and select the \CA Series\Software\Windows XP\_2003\x86 folder on the CD. Click OK to continue.

8. Select your CA Series model and click Next to continue.

Add Hardware Wizard		
Select the device driver you want to inst	all for this hardware.	
Select the manufacturer and model of you have a disk that contains the driver you w	ir hardware device and then click Next. If you vant to install, click Have Disk.	
Model		
MOXA CA104 Series	=	
MOXA CA108 Series		
MOXA CA114 Series		
MOXA CA132 Series	×	
This driver is not digitally signed! <u>Tell me why driver signing is important</u>	Have Disk	
	< <u>B</u> ack <u>N</u> ext > Cancel	

9. To begin installing the module, click Next.

Add Hardware Wizard
The wizard is ready to install your hardware
Hardware to install:
MOXA CA114 Series
To start installing your new hardware, click Next.
< <u>B</u> ack Next> Cancel

10. If you see a warning that the software has not passed Windows Logo testing, click **Continue Anyway**.

Hardwa	re Installation
1	The software you are installing for this hardware: MDXA CA114 Series has not passed Windows Logo testing to verify its compatibility with Windows XP. (Tell me why this testing is important.) Continuing your installation of this software may impair or destabilize the correct operation of your system either immediately or in the future. Microsoft strongly recommends that you stop this installation now and contact the hardware vendor for software that has passed Windows Logo testing.
	Continue Anyway

11. Windows will install the drivers. When the installation is complete, click Finish.

Copying Files.			X
Ď	B	Þ	
mxisport.sys To C:\WINDOW	/S\system32\DRIVE	ERS	
			Cancel



12. After the module is installed, you will be prompted to install the new serial ports. A Found New Hardware Wizard window will open for the first serial port, port 0. Select No, not this time and click Next.

Found New Hardware Wizard		
	Welcome to the Found New Hardware Wizard         Windows will search for current and updated software by looking on your computer, on the hardware installation CD, or on the Windows Update Web site (with your permission).         Read our privacy policy         Can Windows connect to Windows Update to search for software?         Yes, this time only         Yes, now and gvery time I connect a device         No. not this time         Click Next to continue.	
	< <u>B</u> ack <u>N</u> ext> Cancel	

- Found New Hardware Wizard

   Image: Second se
- 13. Select Install from a list or specific location (Advanced) and click Next.

14. Select Search for the best driver in these locations and Include this location in the search. Select the \CA Series\Software\Windows XP\_2003\x86 folder on the CD and click Next.

Found New Hardware Wizard		
Please choose your search and installation options.		
● Search for the best driver in these locations.		
Use the check boxes below to limit or expand the default search, which includes local paths and removable media. The best driver found will be installed.		
Search removable media (floppy, CD-ROM)		
✓ Include this location in the search:		
D:\CA Series\Software\Windows 2K V Browse		
O Don't search. I will choose the driver to install.		
Choose this option to select the device driver from a list. Windows does not guarantee that the driver you choose will be the best match for your hardware.		
< <u>₿</u> ack <u>N</u> ext > Cancel		

15. If you see a warning that the software has not passed Windows Logo testing, click **Continue Anyway**.

Hardwar	re Installation
1	The software you are installing for this hardware: MOXA Port 0 has not passed Windows Logo testing to verify its compatibility with Windows XP. ( <u>Tell me why this testing is important</u> .) <b>Continuing your installation of this software may impair</b> or destabilize the correct operation of your system either immediately or in the future. Microsoft strongly recommends that you stop this installation now and contact the hardware vendor for software that has passed Windows Logo testing.
	Continue Anyway

16. Windows will install the necessary drivers.

Found New Hardware Wizard			
Please wait while the wizard installs the software			
MOXA Port 0			
6			
Setting a system restore point and backing up old files in case your system needs to be restored in the future.			
< <u>B</u> ack <u>N</u> ext > (	Cancel		

17. After the installation is complete, click Finish.



18. Repeat the installation process for the remaining serial ports.

# Using Device Manager to Verify Installation

You can use Windows Device Manager to verify proper installation of the CA Series module. In the following instructions, the CA-114 is used as an example.

1. Right-click My Computer and select Properties in the context menu.



2. In the Hardware tab, click Device Manager.

System Proper	ties		? 🔀
Sustem Ro	storo Autom:	tio Updates	Pomoto
General	Computer Name	Hardware	Advanced
Gronordi	Compator Hamo		Haranood
- Device Mana	ager		
The Device Manager lists all the hardware devices installed on your computer. Use the Device Manager to change the properties of any device.			
		Device Man	ager
Drivers         Driver Signing lets you make sure that installed drivers are compatible with Windows. Windows Update lets you set up how Windows connects to Windows Update for drivers.         Driver Signing       Windows Update         Hardware Profiles         Hardware profiles provide a way for you to set up and store different hardware configurations.			
		Hardware <u>P</u> r	ofiles

3. In the **Device Manager** window, you should see your CA Series module under Multi-port serial adapters. You should also see MOXA communication ports under Ports (COM & LPT).



4. If you see any special marks, such as a question mark or an exclamation mark, next to the MOXA items, the installation of your module or serial ports was not successful. Examine the Windows event log for details.
### Port Configuration

After the driver is installed, a CA Series Properties window will appear. The system will map the serial ports automatically. It will prompt you to take care of port configuration if another CA Series module has been installed on the PC.

1. Select a specific port under the **Port Configuration** tab and click **Port Setting.** 

MOXA C	114 Seri	es Propertie	s		? 🗙
General	Ports Confi	iguration Drive	er Details Res	ources	
Port	COM No.	Rx FIFO Trig.	Tx FIFO Size	J	
2	COM 3 COM 4	56 56	64 64	•	
3	COM 5 COM 6	56 56	64 64		
				Bash Catting	
				Port Setting	
			ſ		
			l		ancei

2. Under Port Number, select a COM number to assign to the serial port.

Port 1 🛛 🔀
Port Number COM3 (current)
<u>Bx</u> FIFO Trigger     56       ▼     Set the change to <u>all ports</u>
Ix FIFO Size     64       ✓     Set the change to all ports
<u> </u>

Select **Auto Enumerating COM Number** to map subsequent ports in numerical order. For example, if COM 3 is assigned to Port 1, then COM 4 will be automatically assigned to Port 2.

- 3. Select an **Rx FIFO Trigger.** The default value is 56 bytes (high level). Select **Set the change to all ports** to use this setting for all serial ports on the module.
- 4. Select a **Tx FIFO Size**. The default value is 64 bytes (high level). Select **Set the change to all ports** to use this setting for all serial ports on the module.

5. Click **OK** to approve the port settings. Click **OK** again to close the **CA Series Properties** window and apply the new port settings.

### **Using PComm**

PComm Diagnostic is a useful program for checking the module's status. It provides internal and external testing of IRQ, TxD/RxD, UART, CTS/RTS, DTR/DSR, and other items. You can use PComm Diagnostic to verify that the module and serial ports are working properly.

🕏 PComm Diagnostic		
File Diagnose Help		
To be tested		
CA114 Series(4 ports) (COM3-COM6) IRQ=10,I/O=1C0	Select 🖭 (Config) to set test option	on
	Select 🔔 (Go) to start testing	
Board Status		
CA11 IRQ= Drive	14 Series(4 ports) (COM3-COM6)	
Ready		//
wRack	n Boards = 1 le Boards = 1	
the Constant of the second	ОК	

You can download the free version of PComm at Moxa's website (www.moxa.com).

### Using Event Log

You may refer to the Windows event log to verify operation of the module. To view the event log, open Event Viewer, which is located under Administrative Tools in the Control Panel. Information about the module will be located under the System category.

### Disabling the Module

1. Right-click My Computer and select Properties in the context menu.



2. In the Hardware tab, click Device Manager.

System Prope	rties			? 🔀
System Re	em Restore Automatic Updates Remote			Remote
General	I Computer Name Hardware Advanc		Advanced	
C Device Man	ager			
Tł or pr	ne Device Ma i your comput operties of an	nager lists all er. Use the D y device.	the hardware device: evice Manager to ch	s installed ange the
			Device Ma	nager
Hardware Pr	iver Signing k mpatible with w Windows o Driver <u>Si</u> ofiles ardware profik ferent hardwa	ets you make Windows. W connects to W igning es provide a w are configurati	sure that installed driv indows Update lets y findows Update for d <u>W</u> indows Up avy for you to set up a ions.	vers are ou set up iivers. adate
			Hardware <u>P</u>	rofiles
		OK	. Cancel	Apply

3. In **Device Manager**, right-click your module under **Multi-port serial adapters** and select **Disable** in the context menu. This will disable the module.

# Uninstalling the Module

1. Right-click My Computer and select Properties in the context menu.



2. In the Hardware tab, click Device Manager.

System Prope	erties		? 🛛
System F	Restore Autom	atic Updates	Remote
General	al Computer Name Hardware Advance		Advanced
Device Ma	nager The Device Manager lists al on your computer. Use the [ oroperties of any device.	I the hardware device Device Manager to ch	es installed lange the
		Device Ma	nager
Drivers	Driver Signing lets you make compatible with Windows. V now Windows connects to V Driver <u>Sig</u> ning	sure that installed dri /indows Update lets y /indows Update for o	vers are you set up frivers.
Hardware F	Profiles Hardware profiles provide a different hardware configura	way for you to set up tions.	and store
		Hardware <u>F</u>	Profiles
	0	Cancel	

#### Software Installation

### CA Series User's Manual

3. Right-click your module under **Multi-port serial adapters** and select **Uninstall** in the context menu.

🖴 Device Manager	
File Action View Help	
← → 📧 🖆 😫 🕺 ≈ 🗶 😹	
<ul> <li>Computer</li> <li>Disk drives</li> <li>Display adapters</li> <li>DVD/CD-ROM drives</li> <li>Floppy disk controllers</li> <li>Floppy disk drives</li> <li>Floppy disk drives</li> <li>IDE ATA/ATAPI controllers</li> <li>Keyboards</li> <li>Mice and other pointing devices</li> <li>Mice and other pointing devices</li> <li>Minitors</li> <li>Multi-port serial adapters</li> <li>Metwork adapters</li> </ul>	
Ports (COM & LPT)     Disable     Dis	
MOXA Communicatio MOXA Communicatio MOXA Communication MOXA Communication Port 3 (COM5) MOXA Communication Port 4 (COM6) Printer Port (LPT1)	

4. A confirmation dialog will appear. Click **OK** to uninstall the device.

Confirm	Device Removal
»Q	MOXA CA114 Series
Warning	: You are about to uninstall this device from your system.
	OK Cancel

## Windows 2000

The Windows 2000 drivers conform to the Win32 COMM API standard and support all models in the CA Series. In the following instructions, the CA-114 is used as an example.

### Installing the Driver

1. Open Add/Remove Hardware in the Control Panel.



2. The Add/Remove Hardware Wizard window will open. Click Next to continue.

Add/Remove Hardware Wizard	
Add/ Kemove hardware wizard Welcome to the Add/Rei Hardware Wizard This wizard helps you add, remove, unple troubleshoot your hardware. To continue, click Next.	<b>move</b> ug, and
< <u>B</u> ack	xt > Cancel

3. Select Add/Troubleshoot a device and click Next.

Add/Remove Hardware Wizard
Choose a Hardware Task Which hardware task do you want to perform?
Select the hardware task you want to perform, and then click Next. Add/Troubleshoot a device Choose this option if you are adding a new device to your computer or are having problems getting a device working.
Uninstall/Unplug a device Choose this option to uninstall a device or to prepare the computer to unplug a device.
< <u>B</u> ack <u>N</u> ext > Cancel

4. Windows will search for new hardware.

Add/Remove Hardware Wizard
New Hardware Detection The wizard automatically locates new Plug and Play hardware.
Windows is searching for new Plug and Play hardware to install. Searching
< Back <u>N</u> ext > Cancel

5. When the search is complete, select Add a new device and click Next to continue.

dd/Remove Hardware Wizard
Choose a Hardware Device Which hardware device do you want to troubleshoot?
The following hardware is already installed on your computer. If you are having problems with one of these devices, select the device, and then click Next. If you are attempting to add a device and it is not shown below, select Add a new device, and then click Next.
Devices
Add a new device
🛄 ACPI Fixed Feature Button
🛄 Intel(r) 82802 Firmware Hub Device
Programmable interrupt controller
🛄 System timer
Direct memory access controller
🗟 Standard 101/102-Key or Microsoft Natural PS/2 Keyboard 🗾
< <u>B</u> ack <u>N</u> ext > Cancel

6. Select No, I want to select the hardware from a list and click Next to continue.

Add/Remove Hardware Wizard
Find New Hardware Windows can also detect hardware that is not Plug and Play compatible.
When Windows detects new hardware, it checks the current settings for the device and installs the correct driver.
Do you want Windows to search for your new hardware?
○ Yes, search for new hardware
No, I want to select the hardware from a list
< <u>B</u> ack <u>N</u> ext > Cancel

7. Select Multi-port serial adapters and click Next to continue.

Add/Remove Hardware Wizard	
Hardware Type What type of hardware do you want to install?	
Select the type of hardware you want to install.	
Hardware types:	
<ul> <li>Imaging devices</li> <li>Infrared devices</li> <li>Memory technology driver</li> <li>Modems</li> <li>Multi-port serial adapters</li> <li>Network adapters</li> <li>NT Apm/Legacy Support</li> <li>Other devices</li> <li>DCMCIA adapters</li> </ul>	
< <u>B</u> ack <u>N</u> ext >	Cancel

8. Click Have Disk.

Add/Remove Hardware Wizard	
Select a Device Driver Which driver do you want to in	nstall for this device?
Select the manufacturer an have a disk that contains the	d model of your hardware device and then click Next. If you a driver you want to install, click Have Disk.
Manufacturers:	Models:
Comtrol Corporation Digi International	RocketHUB 4 Port Device         RocketHUB 8 Port Device         RocketPort 16 Port, ISA-BUS         RocketPort 32 Port, ISA-BUS         RocketPort 4 Port, ISA-BUS         RocketPort 8 Port, ISA-BUS         VS1000 16 to 54 Port Device
	Have Disk
	< Back Next > Cancel

9. You will be prompted to insert the installation disk.



Insert the Document and Software CD into the CD-ROM drive and select the \CA Series\Software\Windows 2K folder on the CD. Click OK to continue.

Install Fro	om Disk		×
_	Insert the manufacturer's installation disk into the drive selected, and then click DK.	OK Cancel	
	Copy manufacturer's files from:	Browse	)

10. Select your CA Series model and click Next to continue.

Add/Remove Hardware Wizard
Select a Device Driver Which driver do you want to install for this device?
Select the manufacturer and model of your hardware device and then click Next. If you have a disk that contains the driver you want to install, click Have Disk.
Mogels: MOXA CA104 Series MOXA CA108 Series MOXA CA114 Series MOXA CA132 Series MOXA CA132 I Series MOXA CA134 I Series MOXA CA134 I Series
<u>H</u> ave Disk
< <u>B</u> ack <u>N</u> ext> Cancel

11. To begin installing the module, click Next.



12. If you see a warning that the Microsoft digital signature was not found, click **Yes** to proceed with the installation.



13. Windows will install the drivers. When the installation is complete, click Finish.

dd/Remove Hardware Wiza	rd
	Completing the Add/Remove Hardware Wizard
	The following hardware was installed: MOXA CA114 Series
	Windows has finished installing the software for this device.
	To close this wizard, click Finish.
	< <u>B</u> ack. <b>[Finish</b> ] Cancel

14. After the module is installed, you will be prompted to install the new serial ports. A **Found New Hardware Wizard** window will open for the first serial port, port 0. Click **Next** to proceed.

Found New Hardware Wizard	
	Welcome to the Found New Hardware Wizard This wizard helps you install a device driver for a hardware device.
	< Back Next > Cancel

15. Select Search for a suitable driver for my device [recommended] and click Next.

Found New Hardware Wizard
Install Hardware Device Drivers A device driver is a software program that enables a hardware device to work with an operating system.
This wizard will complete the installation for this device: MDXA communication port A device driver is a software program that makes a hardware device work. Windows needs driver files for your new device. To locate driver files and complete the installation click Next. What do you want the wizard to do?
<ul> <li>Search for a suitable driver for my device (recommended)</li> <li>Display a list of the known drivers for this device so that I can choose a specific driver</li> </ul>
< <u>B</u> ack Next > Cancel

16. Select **Specify a location** and click **Next**.

Found New Hardware Wizard
Locate Driver Files Where do you want Windows to search for driver files?
Search for driver files for the following hardware device:
MDXA communication port
The wizard searches for suitable drivers in its driver database on your computer and in any of the following optional search locations that you specify.
To start the search, click Next. If you are searching on a floppy disk or CD-ROM drive, insert the floppy disk or CD before clicking Next.
Optional search locations:
□ Floppy disk drives □CD-ROM drives
Specify a location
Microsoft Windows Update
< <u>B</u> ack <u>N</u> ext > Cancel

17. Select the \CA Series\Software\Windows 2K folder on the CD and click Next.

Found Net	w Hardware Wizard	×
	Insert the manufacturer's installation disk into the drive selected, and then click OK.	OK Cancel
	Copy manufacturer's files from: C:\CA Series\Software\Windows 2K	Browse

- **CA Series User's Manual** 
  - 18. When the driver has been found, click Next to proceed.

Found New Hardware Wizard
Driver Files Search Results The wizard has finished searching for driver files for your hardware device.
The wizard found a driver for the following device:
MDXA communication port
Windows found a driver for this device. To install the driver Windows found, click Next.
c:\ca series\software\windows 2k\mxisport.inf
The wizard also found other drivers that are suitable for this device. To view a list of these drivers or install one of these drivers, select the following check box, and then click Next.
Install one of the other drivers
< <u>B</u> ack Cancel

19. Windows will install the necessary drivers. After the installation is complete, click Finish.

Found New Hardware Wizard	
	Completing the Found New Hardware Wizard MOXA Port 0 Windows has finished installing the software for this device.
	< Back Finish Cancel

The remaining serial ports will be installed automatically in the background.

# Using Device Manager to Verify Installation

You can use Windows Device Manager to verify proper installation of the CA Series module. In the following instructions, the CA-114 is used as an example.

1. Right-click My Computer and select Properties in the context menu.

Ļ	
Му Со	<b>Open</b> Explore Search Manage
	Map Network Drive Disconnect Network Drive
	Create Shortcut Rename
	Properties

2. In the Hardware tab, click Device Manager.

System Properties	? ×
General Network Identification Hardware User Profiles Advanced	
Hardware Wizard The Hardware wizard helps you install, uninstall, repair, unplug, eject, and configure your hardware.	
Hardware Wizard	
Device Manager         Image: Device Manager lists all the hardware devices installed on your computer. Use the Device Manager to change the properties of any device.         Driver Signing         Driver Signing         Hardware Profiles         Hardware profiles provide a way for you to set up and store different hardware configurations.	
Hardware Profiles	
OK Cancel App	ly

3. In the **Device Manager** window, you should see your CA Series module under Multi-port serial adapters. You should also see MOXA communication ports under Ports (COM & LPT).



4. If you see any special marks, such as a question mark or an exclamation mark, next to the MOXA items, the installation of your module or serial ports was not successful. You can check the Windows event log for details.

### Port Configuration

After the driver is installed, a CA Series Properties window will appear. The system will map the serial ports automatically. It will prompt you to take care of port configuration if another CA Series module has been installed on the PC.

1. Select a specific port under the **Port Configuration** tab and click **Port Setting.** 

Μ	ЮX	A CAI	14 Series	Properties			? ×
	Ge	eneral	Ports Confi	iguration Drive			
	_	morar		- 101110	111000000001		. 1
		Port	COM No	Bx EIEO Tria	Tx FIEO Size	1	
		1	COM 7	56	64		
		2	COM 8	56	64		
		3	COM 9	56	64		
		4	COM 10	56	64		
						Port Setting	
						<u> </u>	
							1
1	_						
						OK Can	cel

2. Under Port Number, select a COM number to assign to the serial port.

Po	rt 1 X
	Port Number COM7 (current)
	Bx FIFO Trigger 56 ▼ ▼ Set the change to <u>all ports</u>
	Ix FIFO Size 64 ▼ ✓ Set the change to all ports
	<u>OK</u> Cancel

Select **Auto Enumerating COM Number** to map subsequent ports in numerical order. For example, if COM 3 is assigned to Port 1, then COM 4 will be automatically assigned to Port 2.

3. Select an **Rx FIFO Trigger.** The default value is 56 bytes (high level). Select **Set the change to all ports** to use this setting for all serial ports on the module.

- 4. Select a **Tx FIFO Size**. The default value is 64 bytes (high level). Select **Set the change to all ports** to use this setting for all serial ports on the module.
- 5. Click **OK** to approve the port settings. Click **OK** again to close the **CA Series Properties** window and apply the new port settings.

#### Using PComm

PComm Diagnostic is a useful program for checking the module's status. It provides internal and external testing of IRQ, TxD/RxD, UART, CTS/RTS, DTR/DSR, and other items. You can use PComm Diagnostic to verify that the module and serial ports are working properly.

😰 PComm Diagno	ostic	-DX
File Diagnose He	lp	
🖻 🕨 💌 🛯	3 😹	
	To be tested	
CA114 S IRQ=10,	eries(4 ports) (COM7-COM10) 🖂 Select 🖭 (Config) to se	et test option
	Board Status	esting
<b>X</b>	CA114 Series(4 ports) (COM7-COM10)	
Internet Explorer		<i></i>
	Total Configuration Boards = 1 COM Port Available Boards = 1	
Connect to the Internet	<u></u> K	

The free version of PComm is available at Moxa's website (www.moxa.com).

## Using Event Log

You may refer to the Windows event log to verify operation of the module. To view the event log, open Event Viewer, which is located under Administrative Tools in the Control Panel. Information about the module will be located under the System category.

### Disabling the Module

1. Right-click My Computer and select Properties in the context menu.



2. In the Hardware tab, click Device Manager.

System Properties	<u>? ×</u>
General Network Identification Hardware	User Profiles Advanced
Hardware Wizard The Hardware wizard helps you unplug, eject, and configure you	install, uninstall, repair, ir hardware. Hardware Wizard
Device Manager The Device Manager lists all the on your computer. Use the Devic properties of any device.	hardware devices installed ce Manager to change the
Driver <u>S</u> igning	Device Manager
Hardware Profiles Hardware profiles provide a way different hardware configurations	for you to set up and store s.
	Hardware Profiles
OK	Cancel Apply

3. In **Device Manager**, right-click your module under **Multi-port serial adapters** and select **Disable** in the context menu. This will disable the module.

### Uninstalling the Module

1. Right-click My Computer and select Properties in the context menu.

My Co	<b>Open</b> Explore Search Manage
	Map Network Drive Disconnect Network Drive
	Create Shortcut Rename
	Properties

2. In the Hardware tab, click Device Manager.

System Prop	erties			<u>? ×</u>	
General Ne	twork Identification	Hardware	User Profiles Ac	ivanced	
Hardware	Wizard				
	The Hardware wizard helps you install, uninstall, repair, unplug, eject, and configure your hardware.				
		[	<u>H</u> ardware Wi	zard	
_ Device M	anager				
	The Device Manager lists all the hardware devices installed on your computer. Use the Device Manager to change the properties of any device.				
	Driver <u>S</u> igning		<u>D</u> evice Mana	iger	
Hardware Profiles					
$\sim$	Hardware profiles provide a way for you to set up and store different hardware configurations.				
			Hardware <u>P</u> ro	files	
		OK	Cancel	Apply	

3. Right-click your module under **Multi-port serial adapters** and select **Uninstall** in the context menu.



4. A confirmation dialog will appear. Click **OK** to uninstall the device.

Confirm I	Device Removal
»)	MOXA CA114 Series
Warning	: You are about to uninstall this device from your system.
	OK Cancel

## Windows NT

The Windows NT drivers conform to the Win32 COMM API standard and support the CA-104 V2, CA-104-T V2, CA-132 V2, CA-132-T V2, CA-132I V2, and CA-132I-T V2. The CA-108, CA-114, and CA-134I models are not supported under Windows NT.

In the following instructions, the CA-104 V2 is used as an example.

### Installing the Driver

1. Right-click Network Neighborhood and select Properties in the context menu.



2. Under the Adapters tab, click Add....

Network	? ×
Identification Services Protocols Adapters Bindings	
Network Adapters:	
(1) D-Link DFE-530TX PCI Fast Ethernet Adapter (Rev B)	
Add <u>R</u> emove <u>Properties Update</u> <u>Item Notes:</u> D-Link DFE-530TX PCI Fast Ethernet Adapter (Rev B)	
OK Canc	el

3. When prompted to select a network adapter, click Have Disk.

Select Ne	etwork Adapter 🛛 🕐 🗙		
	Click the Network Adapter that matches your hardware, and then click OK. If you have an installation disk for this component, click Have Disk.		
<u>N</u> etwork	Adapter:		
Com 3C508 ISA 16-bit Ethernet Adapter      Som Etherlink II Adapter (also II/16 and II/16 TP)      Som Etherlink III ISA/PCMCIA Adapter      Som EtherLink III PCI Bus-Master Adapter (3C590)      Som EtherLink16 TP Adapter      Com EtherLink16 TP Ada			
	Have Disk		
	OK Cancel		

4. At the prompt, insert the installation disk provided with your module.

Insert Dis	sk	X
f	Insert disk with software provided by the software or hardware manufacturer. If the files can be found at a different location, for example on another drive type a new path to the files below.	OK Cancel
	A:\windows.nt	

For the location, enter A:\windows.nt. Click OK to continue.

5. Windows will install the drivers.

Setup		×
Copying: mxicfg.exe		
To: C:\WINNT\Sustem32		
	45%	
	Cancel	
<u></u>	i	

6. After the files have been installed, a configuration panel will open. Click Add to continue.

oard Type	I/O address	INT vector	IRQ Bu:	Dev	COM Number
			-		

7. Under **Board Type**, select your CA Series model. The window will show the COM port numbers that will be assigned to the CA Series serial ports, as well as other settings. Click **OK** to continue.

P	ropert	у						X
	Ð	oard Type		CA104	Series		•	1
	Iu	int ⊻ecto terrupt No.	or	CA104 CA132 CA132	Series Series Series 10	•		
	B	ase I/O Port	<u>A</u> ddre	ss [	180		_	
	Port	COM No.	Rx FI	O Trig.	TX FIFC	) Size		1
	1	COM3	56		64			
	2	COM4	56		64			
	3	COM5	56		64			
	4	COM6	56		64			
							Port Setting	
					<u>о</u> к		Cancel	

#### Software Installation

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8. The CA Series module will appear as a network adapter. Click **OK** to complete installation of the module.

Network	x
Identification Services Protocols Adapters Bindings	
Network Adapters:	
[1] D-Link DFE-530TX PCI Fast Ethernet Adapter (Rev B)     [8] MOXA PC104 Communication Module Adapter	
Add <u>B</u> emove <u>P</u> roperties <u>U</u> pdate	
Item Notes:	
M0XA PC104 Communication Module Adapter	
OK Cancel	

## Uninstalling the Module

1. Right-click Network Neighborhood and select Properties in the context menu.



2. In the Adapters tab, select your CA Series module and click Remove.

Network
Identification Services Protocols Adapters Bindings
Network Adapters:
[1] D-Link DFE-530TX PCI Fast Ethernet Adapter (Rev B)     [8] M0XA PC104 Communication Module Adapter
Add <u>R</u> emove <u>Properties</u> <u>Update</u>
MDXA PC104 Communication Module Adapter
OK Cancel

3. A confirmation dialog will appear. Click OK to uninstall the device.

₩arning	×
⚠	This action will permanently remove the component from the system. If you wish to reinstall it, you will have to restart the system before doing so.
	Do you still wish to continue?
	<u>Yes</u> <u>N</u> o

## Windows 95, 98, ME

The Windows 95/98/ME drivers conform to the Win32 COMM API standard and support the CA-104 V2, CA-104-T V2, CA-132 V2, CA-132-T V2, CA-132I V2, and CA-132I-T V2. The CA-108, CA-114, and CA-134I models are not supported under Windows 95, 98, or ME.

In the following instructions, the CA-104 is used as an example.

### Installing the Driver

1. Insert the CA Series installation disk and run Setup95.exe through Start menu  $\rightarrow$  Run.



2. Click Next to proceed through the welcome screens. Moxa PC104 Communication Module Drivers Installation



#### **Software Installation**

#### **CA Series User's Manual**

3. Windows will install the drivers. When the installation is complete, click Finish.



4. After the files have been installed, a configuration panel will open. Click Add to continue.

×

Board Type	I/O address	INT vector	IRQ	Bus	Dev	COM Number
		_				
Add		<u>R</u> emove				Property
			_			1
		<u>o</u> k				Cancel

🛄 Moxa PC104 Communication Module Configuration Panel

5. Under **Board Type**, select your CA Series model. The window will show the COM port numbers that will be assigned to the CA Series serial ports, as well as other settings. Click **OK** to continue.

Propert	у						x
B	oard Type		CA104	Series		•	
Ū	INT ⊻ecto	r	CA104 CA132 CA132	Series Series Series			
Įn	terrupt No.		ŀ	10		-	
B	ase I/O Port	<u>A</u> ddre	ss [	180			
Port	COM No.	Rx FI	FO Trig.	T× FIF	0 Size	1	
1	COM3	56		64			
2	COM4	56		64			
3	COMS	56 56		64 64			
11°	COMO	50		04			
						Port Setting	
				<u>o</u> k		Cancel	

6. The CA Series module will now appear in the configuration panel. Click **OK** to complete installation of the module.

Board Type	I/O address	INT vector	IRQ	Bus	Dev	COM Number
A104 Series	180	1C0	10			COM40 COM4
0 dd		Pomouo	1			Droportu
Aug		<u>R</u> emove				Eroperty
		OV.	1			Concel

You can open the configuration panel again through Start  $\rightarrow$  Programs  $\rightarrow$  Moxa Utilities  $\rightarrow$  MOXA PC104 Communication Module Configuration Panel.

# Uninstalling the Module

1. Open the configuration panel through Start → Programs → Moxa Utilities → MOXA PC104 Communication Module Configuration Panel. Select your CA Series module and click Remove.



2. A confirmation dialog will appear. Click Yes to uninstall the device.

Configur	ation Panel 🛛 🕅
?	Do you really want to remove this board ?
	Yes <u>N</u> o

3. To remove the driver from the system, open Add/Remove Programs in the Control Panel.



4. In the Install/Uninstall tab, select MOXA PC104 Communication Module Driver and click Add/Remove.

Add/Remov	e Programs Properties 🛛 📑	? ×
Install/Unin	stall   Windows Setup   Startup Disk	
Þ	To install a new program from a floppy disk or CD-ROM drive, click Install.	
	install	]
3	The following software can be automatically removed by Windows. To remove a program or to modify its installed components, select it from the list and click Add/Remove.	
Microsoft MOXA In MOXA Pi MOXA Sr Nero - Bu PartitionM PComm L PComm F Sentinel S	Jet 4.0 Service Pack 4 tellio Driver 2104 Communication Module Driver martio/Industio Driver urning Rom (Web installer) Aagic 5.0 Lite 2.5 Pro Ver 2.0 System Driver	
	Add/ <u>B</u> emove	
	OK Cancel Apply	

5. A confirmation dialog will appear. Click Yes to remove the driver.

MOXA PC104 Communication Mod	dule Driver	×
Do you really want to remove MOXA P	C104 Communic	cation Module Driver ?
Yes	No	]

6. After the driver is removed, click **OK** to close the window.

MOXA PC104 Communication Module Driver 🛛 🛛 🛛
Remove MOXA PC104 Communication Module Driver complete !
<u>ОК</u>

## Linux

 Execute the following commands from the Linux prompt: #mount /dev/cdrom /mnt/cdrom

#cd /
#mkdir moxa
#cd moxa
#cp /mnt/cdrom/<driver directory>/mxpcdrv.tgz .
#tar xvfz mxpcdrv.tgz

- #cd mxpcdrv # make clean; make install
- #cd /moxa/mxpcdrv/driver #./mpmknod
- 4. Install the module driver using the hardware settings that you selected. For example, for an I/O address of 0x180, an INT vector of 0x1C0, and an IRQ of 10, execute the following command:

#modprobe mxpcdrv ioaddr=0x180 iovect=0x1C0 irq=10

- You can use the Moxa diagnostic utility to verify the driver's status: #cd /moxa/mxpcdrv/utility/diag #./msdiag
- You can use the Moxa terminal utility to test the TTY ports: #cd /moxa/mxpcdrv/utility/term #./msterm

## DOS

MOXA DOS API-232 is a software package that can help you develop or debug serial communications programs. This section will explain how to install the package, set up the driver, and load or unload the driver. For additional information about the API-232 library and utilities, please refer to Chapter 4.

The DOS drivers support the CA-104 V2, CA-104-T V2, CA-132 V2, CA-132-T V2, CA-132I V2, and CA-132I-T V2. The CA-108, CA-114, and CA-134I models are not supported under DOS.

In the following instructions, the CA-104 is used as an example.

#### Installing the Driver

Run the installation program, **DOSINST.EXE**, in the DOS folder. Specify the target directory for the API-232 files (e.g., C:\MOXA). Press F2 to start the installation.

ininini.	🗆 🛛 Ins	stallatio	on		
	Target directory	C: NHOMA			
	PL: Holy	92: Start Inst	allation		
nin min					

After installation is complete, you will be prompted to set up the board and driver initial values. We strongly recommended that you do so.



# Driver Setup

The following instructions are not intended to illustrate every function of the setup program. For more detailed information, please refer to the help files by pressing F1 in the setup program.

- 1. Run the setup program, **BIN\SETUP.EXE**.
- 2. Select your CA Series model and press Enter.



3. You must set the Port No., I/O Address, IRQ and INT Vector properly. These settings must match your module's hardware configuration.



- 4. Press **PgDn** to view advanced port setup options. Your module's configuration will be displayed along with other settings such as port number, buffer size, etc.
- 5. Verify the settings and make any necessary changes.

l Port Setup								
Port Number	81	82	83	84				-
Tab haffer size		18	1K	1K	-	-	-	-
Rul buffen size	1K	1K	1K	1K	-	-	-	-
Baud rate	9600	9600	9600	9600	-	-		-
Character length	8	8	8	8	-	-	-	-
Stop bits	1	1	1	1	-		100	-
Parity	None	None	None	None	-	-		
WTH output state	0n	0n	0m	On		-		
WIS cutput state	On	0n.	Ôn	Ôn				
CTS Flow control	No	No	No	No	-	-	-	-
WIS flow control	No	No	No	No		-	-	-
TE MONOTT entri	No	No	No	No				
Hz HON/OFF catel	No	No	No	No	-			
P1: 1	ielp.	Phi Geo	up edit	19181: S	inve Bs	e: Ahor		_

Port number:	This is the port ID of each port. Application software will refer to a port by its port number (ID). Port numbers must be unique; duplicate port numbers are not allowed. The port ID can range from 0 to 127 as long as it does not overlap with another port. Generally, you should consider the convenience of programming when specifying the port number.				
TxD buffer size:	This is the transmission (output) buffer allocated in the system for each port.				
<b>RxD buffer size:</b>	This is the receiving (input) buffer allocated in the system for each port.				
F5: Group Edit:	This allows you to configure several ports simultaneously as a group.				

1	Port Setup							
Port Minher	L throup	Ed	16	1		-		
no haffer si	PORT PROFILE		PO	arts.		-		
Baud rate	Tall Antien size	18	64			-		
Chevecter hen	Roll Juil for size	18	128	Π.				
Stop hits	Sand cate	9683	256			-	-	
Paulty	Character Longth	R	512					-
FIR output st	Stop hits	1	18			-	-	-
M'S output st	Warity	None	28			1.000		
CIS Fisw cont.	TTR output state	On	48			-		
MTS Flaw cont	358 output state	On	8K			-		
lx NONCOFF en	CTS # low control	No	16K					
Ro MONCOFF on	MIS flow control	No	328	빃		- H		
	Tx X00/0FT entr1	No	1	-				<u>.</u>
	By MONCHET matel	No			÷	e: Abor	8	

6. Press F10 to save the latest configuration and exit the setup program.

### Loading the Driver

After setting up the driver, you must load the driver in order to gain access to the serial ports on the module. Run **BIN\DPC-DRV.EXE** at the DOS prompt. The driver will detect your CA Series module automatically. You should see messages indicating successful detection of your module, such as the following:

```
PC/104 Communication Module DOS driver Version 1.0
Setup driver ...
CA-104 series OK!
Device driver setup O.K.
```

At this point, you can execute applications that support API-232 functions, or start developing applications using the API-232 library.

### Unloading the Driver

To unload or release the CA Series driver from memory, enter DPC-DRV/Q at the DOS prompt.
4

# **Serial Programming Tools**

MOXA provides Windows serial programming libraries and troubleshooting utilities that are easy to use and powerful. You can use these tools to reduce software development time.

The serial communication library is useful for developing applications for data communications, remote access, data acquisition, and industrial control. It provides a simpler solution compared to the more complex Windows Win32 COMM API.

PComm is a professional serial communication tool for Windows PCs. PComm includes the following features:

- Useful utilities for diagnostics, port monitoring, and terminal emulation
- Sample programs
- Comprehensive help files

The following topics are covered in this chapter:

#### □ Serial Programming Library

- **PComm** Utilities
  - Installation
  - PComm Diagnostic
  - PComm Monitor
  - PComm Terminal Emulator

## Serial Programming Library

The serial programming library assists you in developing serial communications programs for any COM port that complies with the Microsoft Win32 API. It facilitates the implementation of multi-process and multi-thread serial communication programs and can remarkably reduce development time.

The library provides a complete set of functions as well as various sample programs for Visual C++, Visual Basic, and Delphi. To view detailed descriptions of the available functions and sample programs, go to Start  $\rightarrow$  Program  $\rightarrow$  PComm Lite and select PComm Lib Help, PComm Porting Notes, or PComm Programming Guide. You may also refer to the sample programs in the PComm directory.

## **PComm Utilities**

This sections provides brief descriptions of the PComm utilities. For more information about these utilities, please refer to the help files or to the API-232.txt file for DOS.

#### Installation

To install PComm, run **Setup.exe** from the installation diskette. Please note that the PComm diagnostic and monitor utilities are for MOXA boards only. These two utilities will not work with other serial boards.

#### **PComm Diagnostic**

PComm Diagnostic is designed for MOXA boards only. It provides internal and external testing of IRQ, TxD/RxD, UART, CTS/RTS, DTR/DSR, DTR/DCD, and other items. You can use PComm Diagnostic to check the operation of both software and hardware.

To run the Diagnostic program, go to **Start**  $\rightarrow$  **Program**  $\rightarrow$  **PComm Lite**  $\rightarrow$  **Diagnostic**.

💱 PComm Diagnostic	
File Diagnose Help	
To be tested	
CA114 Series(4 ports) (COM3-COM6) CIRQ=10,1/0=1C0 Select (Config) to set test option Select (Go) to start testing	on
CA114 Series(4 ports) (CDM3-COM6)	
Ready	
VRack Total Configuration Boards = 1 COM Port Available Boards = 1	
ОК	

#### **PComm Monitor**

PComm Monitor is designed for MOXA board in Windows NT only. It allows you to monitor data transmission of selected MOXA COM ports. It monitors data transmission, throughput, and line status at regular intervals. Click on a specific port to view that port's communication parameters and status.

To run PComm Monitor, go to Start → Program → PComm Lite → Monitor.



#### PComm Terminal Emulator

PComm Terminal Emulator can be used to connect to a serial port to verify that data transmission is functioning correctly. It supports multiple windows and both VT100 and ANSI terminal types. You can interactively transfer data, periodically send patterns, and transfer files using ASCII, XMODEM, YMODEM, ZMODEM, and KERMIT protocols.

To run PComm Terminal Emulator, go to Start  $\rightarrow$  Program  $\rightarrow$  PComm Lite  $\rightarrow$  Terminal Emulator.



# **5** Pin Assignments

The box header connector(s) on the module is used to connect to serial devices. Optional cables are available that provide DB9 or DB25 connectors. The pin assignments of the box header connectors and available cables are provided below.

# **Box Header Pin Assignments**

### RS-232

These pin assignments apply to the CA-108, CA-114, and CA-104 V2. Note that there are two 40-pin box header connectors on the CA-108, each of which connects to 4 serial ports.

Pin	Signal	Pin	Signal	Pin	Signal	Pin	Signal
1	DCD0	11	DCD1	21	DCD2	31	DCD3
2	DSR0	12	DSR1	22	DSR2	32	DSR3
3	RxD0	13	RxD1	23	RxD2	33	RxD3
4	RTS0	14	RTS1	24	RTS2	34	RTS3
5	TxD0	15	TxD1	25	TxD2	35	TxD3
6	CTS0	16	CTS1	26	CTS2	36	CTS3
7	DTR0	17	DTR1	27	DTR2	37	DTR3
8		18		28		38	
9	GND0	19	GND1	29	GND2	39	GND3
10		20		30		40	

## RS-422, 4-wire RS-485

These pin assignments apply to the CA-132 V2, CA-132I V2, CA-114, and CA-134I. Pins 21 to 40 apply to the CA-114 and CA-134I only.

Pin	Signal	Pin	Signal	Pin*	Signal*	Pin*	Signal*
1	TxD0-(A)	11	TxD1-(A)	21	TxD2-(A)	31	TxD3-(A)
3	TxD0+(B)	13	TxD1+(B)	23	TxD2+(B)	33	TxD3+(B)
5	RxD0+(B)	15	RxD1+(B)	25	RxD2+(B)	35	RxD3+(B)
7	RxD0-(A)	17	RxD1-(A)	27	RxD2-(A)	37	RxD3-(A)
9	GND0	19	GND1	29	GND2	39	GND3

#### 2-wire RS-485

These pin assignments apply to the CA-132 V2, CA-132I V2, CA-114, and CA-134I. Pins 21 to 40 apply to the CA-114 and CA-134I only.

Pin	Signal	Pin	Signal	Pin*	Signal*	Pin*	Signal*
5	Data0+(B)	15	Data1+(B)	25	Data2+(B)	35	Data3+(B)
7	Data0-(A)	17	Data1-(A)	27	Data2-(A)	37	Data3-(A)
9	GND0	19	GND1	29	GND2	39	GND3

# **Serial Cable Pin Assignments**

### DB9(M) Connectors



The CBL-F40M9x4-50 and CBL-F20M9x4-50 cables provide DB9(M) connectors for each serial port, with pin assignments as follows:

Pin	RS-232	RS-422 4-wire RS-485	2-wire RS-485
1	DCD	TxD-(A)	
2	RxD	TxD+(B)	
3	TxD	RxD+(B)	Data+(B)
4	DTR	RxD-(A)	Data-(A)
5	GND	GND	GND
6	DSR		
7	RTS		
8	CTS		

## DB25(M) Connectors



The CBL-F40M25x4-50 and CBL-F20M25x4-50 cables provide DB25(M) connectors for each serial port, with pin assignments as follows:

Pin	RS-232	RS-422 4-wire RS-485	2-wire RS-485
2	TxD	RxD+(B)	Data+(B)
3	RxD	TxD+(B)	
4	RTS		
5	CTS		
6	DSR		
7	GND	GND	GND
8	DCD	TxD-(A)	
20	DTR	RxD-(A)	Data-(A)

# **Service Information**

This appendix shows you how to contact Moxa for information about this and other products, and how to report problems.

In this appendix, we cover the following topics.

- **MOXA Internet Services**
- **D** Problem Report Form
- **D** Product Return Procedure

## **MOXA Internet Services**

Customer satisfaction is our number one concern, and to ensure that customers receive the full benefit of our products, Moxa Internet Services has been set up to provide technical support, driver updates, product information, and user's manual updates.

#### The following services are provided

E-mail for technical support:	<u>support@moxa.com</u>
Website for product information:	<u>http://www.moxa.com</u>

# **Problem Report Form**

MOXA CA Series PC/104 Multiport Serial Module

Сι	ustomer name:	:					
Co	ompany:						
Те	l:			Fax:			
Email:				Date:			
1.	Moxa Product:	□ CA-108	□ CA-114	□ CA-134I	□ CA-104 V2		
		□ CA-132 V2		🗆 CA-132I V2			
2.	Serial Number:						

**Problem Description:** Please describe the symptoms of the problem as clearly as possible, including any error messages you see. A clearly written description of the problem will allow us to reproduce the symptoms, and expedite the repair of your product.



## **Product Return Procedure**

For product repair, exchange, or refund, the customer must:

- Provide evidence of original purchase.
- > Obtain a Product Return Agreement (PRA) from the sales representative or dealer.
- Fill out the Problem Report Form (PRF). Include as much detail as possible for a shorter product repair time.
- Carefully pack the product in an anti-static package, and send it, pre-paid, to the dealer. The PRA should be visible on the outside of the package, and include a description of the problem, along with the return address and telephone number of a technical contact.