

PCI Modem User's Guide

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Introduction

This Modem User Guide expands the Quick Start included with your modem package and contains all the information you should need to use and troubleshoot your new modem. The Table of Contents shows the various useful sections of this User Guide.

What You Need to Use Your Modem

Make sure that you have received the following items in addition to this manual:

- PCI modem
- Phone cord
- A CD-ROM disc or floppy diskette containing installation software, modem drivers, and communications software.

You also need the following:

- Computer with 16 megabytes of RAM (32 MB recommended) and a hard drive with at least 5 MB available
- An available PCI slot
- For software supplied on a CD-ROM disc, a CD drive
- Windows® 95, 98, Me, 2000 or XP operating system
- A telephone jack to plug the modem into, so the modem can dial out and receive calls
- Screwdriver or tool to remove and replace your computer cover.

Installing Your PCI Modem

Windows 95/98/Me/2000/XP

We have streamlined the installation of your modem by providing an InstallShield® program that you **must** run **before** you install your modem card.

The InstallShield program installs driver files and sets up your computer to recognize the new modem. When you restart your computer after installing the modem, your hard drive will already contain the files Windows needs to complete the installation. Please continue with the **Installing the Drivers** section.

Installing the Drivers

- 1** Your computer should be on. Close any running applications.
Insert the CD-ROM disc that came with your modem into your CD-ROM drive. If the CD does not start automatically, double-click **My Computer** on your desktop; then double-click the icon for your CD-ROM drive. If the installation program doesn't begin immediately, double-click **Setup.exe**.
- 2** When the main installation menu opens, click **Install Modem Drivers**.
The installation program runs and automatically copies driver files to your hard drive. Follow the prompts.
- 3** **Windows 95/98/Me/2000/XP Users:**
When asked whether or not you want to restart your computer, select **No, I will restart my computer later**, click **Finish**, return to the CD's main menu, exit, and shut down manually. Continue with
Installing the Modem Card.

Installing the Modem Card

Follow the steps below to install your modem card.

Note: If your computer has an existing modem, we recommend that you first uninstall the modem drivers. Please refer to **Appendix A** on page 25.

- 1** Before you start the hardware installation, close all running programs and shut down Windows if you have not already done so. Then turn your computer off and unplug it. Don't plug it back in or turn it on until you complete the modem hardware installation.
- 2** Take the cover off your computer.
IMPORTANT: If you no longer want your older modem in your computer, you should remove it now. First unplug any phone cords connected to the card. One cord is the connection to your telephone. You can reuse this cord with your new modem. The other cord is the connection to your telephone line at a wall jack. It is a good idea to replace this cable with the one that came with your new modem. Then remove the screw that is holding the modem card in place and slide it out.
- 3** On the rear of the computer, unscrew and remove the metal cover plate that lines up with a free PCI slot.



Do not handle any internal modem card when the phone line is plugged into it. The voltage present when the line is ringing is potentially harmful.

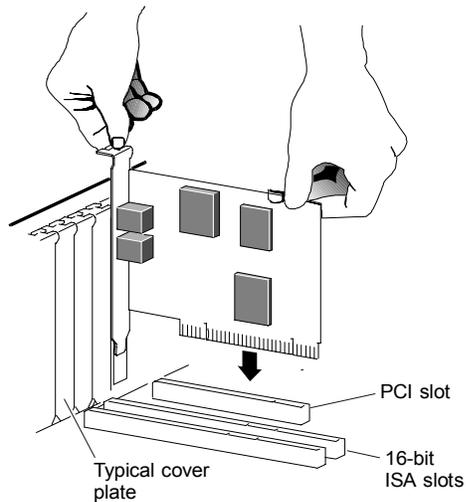


CAUTION

Electrostatic Discharge Protection

Static electricity can damage modem components or your computer. Before removing the modem from its antistatic bag, touch the computer's metal chassis to statically discharge yourself.

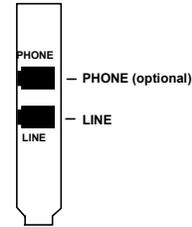
- 4** Remove your new modem from its antistatic bag and record its serial number in the table on page 26 of this manual.
- 5** Slide the modem card firmly into the free PCI slot. See the following illustration:



Be sure that the back end of the card (smaller gold finger area) is properly seated into the connector. If you have a tower or mini-tower computer case with a vertical main board, lay the computer down on its side so you can push straight down on the modem card to seat it firmly in its slot. Be sure that the bracket is lined up properly, then screw the bracket into the computer using the screw you removed earlier.

- 6** Replace the computer cover.

- 7** Connect the telephone cord: Plug one end of the phone cord into the jack marked **LINE**. Plug the other end into a phone jack (typically the wall jack where you would normally connect a phone). Plug your phone into the **PHONE** jack if you want to use a phone on the same line.



- 8** Plug in your computer and turn it on.

- 9** ***Windows 95/98/Me Users:*** As Windows starts up, it detects your new modem. Because the installation program has already provided your computer with the required files, you will see Windows reporting on its progress, but no action is required on your part. Continue with **Completing the Installation**.

Windows 2000 Users: A few seconds after startup, you may see the **Digital Signature Not Found** dialog box. You can safely ignore this message and click **Yes**. Continue with **Completing the Installation**.

Windows XP Users: When the **Found New Hardware Wizard** dialog box appears, click **Next**. A standard disclaimer dialog box appears if your modem has not yet been tested by Microsoft's Windows Hardware Quality Labs (WHQL). There is no cause for concern about the stability of your modem or your PC. You can safely disregard this box and click **Continue Anyway**. Then click **Finish**. Continue with **Completing the Installation**.

Completing the Installation

Perform the following steps to complete the installation:

- 1** Open the **Control Panel** (and, in **Windows XP** only, click **Printers and Other Hardware**). Then double-click the **Modems** or **Phone and Modem Options** icon.

2 You may be asked to fill out **Location Information** if you have not had a modem installed previously. Type the required information and, when done, click **OK** or **Close**.

Windows XP and Windows 2000 Users: Click the **Modems** tab, under **Phone and Modem Options**, to proceed to Step 3.

3 Select the entry for your new modem and then click **Properties**.

4 Set the **Maximum speed** to the highest speed available (probably 115,200).

Windows XP Users: You have to click the **Modem** tab before you can set the **Maximum speed**.

Click **OK** and close the currently open dialog box.

5 Click the **Diagnostics** tab. In **Windows XP**, click **Query Modem**. Select the port next to the entry for your new modem (for example, **COM3**) and click **More info** or **Query Modem**.

This step tests the modem by querying it with **AT** commands. A list of responses means that your new modem is properly connected.

IMPORTANT: If you already have a modem installed in your computer, you'll need to redirect your application software so that it recognizes your new modem. Please turn to the **Troubleshooting** section for instructions, page 13. Otherwise, continue with **Installing the Communications Software** below.

<p>Tip: If you determine that your modem is not working, first try turning off your computer and restarting it. Sometimes this will help Windows identify and activate the correct drivers. If restarting your computer doesn't work, please consult the Troubleshooting section on page 13.</p>
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Congratulations! You have successfully installed your PCI modem. **Installing the Communications Software**, described below, is optional. For uninstallation instructions, go to page 25.

Installing the Communications Software

The modem's CD describes the communications software package and online service included with your modem and provides easy point-and-click installation. If necessary, consult the CD's online help. Please run the modem's CD now. You should not install the drivers again, but you should install any application software you like.

If you have a V.92 modem, after you've installed the CD software, you should read the **Important Information for Owners of V.92 Modems** section of this manual on page 8. If you don't have a V.92 modem, you're done! Enjoy your modem.

Important Information for Owners of V.92 Modems

With V.92, as with the earlier V.90 standard, your connection speed depends on your phone line and your Internet Service Provider (ISP). To enhance compatibility, this modem automatically detects whether to use V.92, V.90, or a slower mode when it connects to your ISP.

Your V.92 modem includes the following capabilities.

- **QuickConnect:**
A V.92 modem remembers the line conditions of the last number called, and uses this information to try to reduce connection times.
- **Modem-on-Hold:**
You have the option of receiving voice calls while online. You can answer the call and put your Internet session on hold if your ISP supports this capability and you have Call Waiting service compatible with the modem.
- **Faster Upload Speeds:**
Upload speeds may be increased, from 33.6K bps to a maximum of 48K bps. (Actual rates vary, depending on line conditions.)
- **V.44 Data Compression:**
The V.44 standard lets you browse the Web and transfer data at higher speeds.

To make the most of your V.92 modem, follow these steps:

1. Contact your ISP and get the phone number of a V.92 connection to the ISP.
2. Check our web site for news of any V.92 updates. If an update is available, follow the directions below for upgrading your modem.

<p>Note: If you want to manually change the way your modem connects, please consult the AT command tables beginning on page 20 in the Troubleshooting section.</p>
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Firmware Upgrades

Your modem's software, or "firmware," can be easily upgraded. This is useful for code updates and feature enhancements. To upgrade your modem's firmware, you simply download the new firmware files from our Web site and then run a program we provide. Before calling your first V.92 site, we strongly suggest that you download the latest firmware.

We also suggest that you register your modem with us so that we can notify you via e-mail when new firmware releases are available.

Communicating with Your Modem

The faxing and communications software that came with your modem sets itself up automatically and takes care of sending any necessary commands to the modem.

You should read this section, however, if you want to learn some general facts about how software works with your modem, or if you intend to use your new modem with other software.

Accessing the Internet

To access the Internet and the World Wide Web, you need an online service such as America Online (AOL) or CompuServe, or an Internet Service Provider (ISP). The best place to start is the CD included with your modem package, which contains Internet and online services for you to try.

Online services provide installation software that makes signing up almost automatic. ISPs typically supply or suggest the browser software needed to access their service. They also provide additional instructions and software for setting up your account.

Note: You may need to redirect your application software to recognize your new modem; refer to the **Troubleshooting** section, page 13, if you need assistance.

Communication Setup Options

If you run into configuration difficulties with your communication software, it may be helpful to read the following section.

In setting up some older software programs, you may be asked to enter certain information. Most programs have default settings that are correct for use with this modem, and there is no need to change them. However, you should be aware of the following items:

If you are asked to select the “modem type” from a menu, and you don’t see this modem listed by name, select the most descriptive name such as **V.92 modem**, **56K modem**, or generic **Class 1 Modem**.

In the dialing directory, set all entries to the highest possible baud rate, if your software and serial port support these speeds (do not go over 115,200 bps). All communications between the computer and the modem take place at this higher speed, independent of the modem-to-modem speed.

If there is a section of your software called “Terminal Settings,” make sure that **Hardware Flow Control (RTS/CTS)** is **ON** (or **YES**).

Set **auto baud detect** to **OFF** (or **NO**).

If your fax software gives you the option of selecting **Class 1** or **Class 2** fax drivers, select **Class 1**.

Finally, some programs ask **Send init if CD high?**, which you should set to **YES**. Otherwise, the modem may not receive the proper initialization string.

Initialization Strings and AT Commands

An initialization string is a group of **AT** command settings that is sent to the modem as soon as you start up the software. The software determines which commands should be included in the initialization string, based on the device you select during installation. The commands remain in effect throughout the communications session, unless the software sends other commands to override them.

The software uses other **AT** command strings for all commands sent to the modem. This is transparent to you—the software does this in the background without you being aware of it.

It is sometimes necessary, however, to add other **AT** commands to initialization strings. You can find a table of **AT** commands on the World Wide Web at www.modems.com. Click **Reference** and then on **AT Command Sets**.

If your software suggests an initialization string for this modem, you should use it. If your software does not list this modem and no initialization string is suggested, use the following: **AT &F**.

Your telephone service may include Call Waiting that you can temporarily suspend by using your phone to dial a special code. (For example, in the U.S., you can disable call waiting by adding *70 to your dialing prefix; please check with your local phone company for the correct code for your area.) You can include that

code, followed by a comma, in the dial string or dial prefix in your software.

If your software does not handle **AT** commands automatically, it should provide a place to enter **AT** commands in its setup menus. However, in some cases you may need to enter **AT** commands directly to the modem. You must do so from a data program's terminal mode.

Refer to the **Troubleshooting** section for more tips about **AT** commands.

Using Terminal Mode to Enter AT Commands

Start your data communications program.

Change to terminal mode (also called command, local, direct, or dumb mode). Check your software documentation for additional instructions.

Type **AT** plus the command you need and press **Enter**. You will see an **OK** response.

When you finish, you can return to the data communications program's standard user interface. See the software program's documentation if you need help.

To return to the factory default settings for the modem, in terminal mode, type **AT &F** and press **Enter**.

Troubleshooting

If your modem stops working, please read this section carefully before calling Customer Support. In addition, your modem CD includes a list of Frequently Asked Questions (FAQs).

Important—If Your Computer Has an Existing Modem

You must redirect your application software so that it recognizes your new modem. To do so, follow these instructions:

- **Dial-up Networking Users:**
From your computer's desktop, double-click **My Computer** and then **Dial-up Networking**. Double-click the **Make New Connection** icon, select your new V.92 modem from the dropdown list, and follow the prompts.
- **America Online Users:**
From within AOL, click the **Setup** button; then click the **Expert Setup** button. Select the **Devices** tab and double-click the new V.92 modem you've installed. Click **OK** and then **Close**.

Plug and Play Setup Problems with Windows

Under some circumstances, the Plug and Play setup under Windows 95/98/Me/2000/XP may not resolve all installation problems. The Windows Help system has an excellent tool for thoroughly diagnosing and solving many problems.

1. On your desktop, double-click the **My Computer** icon.
2. Choose the **Help Topics** command from the **Help** menu. Windows displays the **Windows Help** dialog box.
Windows XP Users: Choose **Help and Support Center** from the **Help** menu. Then use the **Search** feature.
3. Select the **Contents** tab. Note: Windows Me, 2000, and XP include a Help Search option, which you can use instead; search for "hardware conflict," for example.
4. Click **Troubleshooters**. (For Windows 98, you will also have to click **Windows 98 Troubleshooters**.) Then click the hardware conflict help entry.

5. Follow the instructions for determining and resolving a hardware conflict.

This should solve your problem. Remember to write down your COM port setting. Return to page 5 to complete the installation.

If you still have problems, it probably means that although you are running a version of Windows that supports Plug and Play, you may have an older computer that is not completely compatible with this feature. Try the steps in the next section.

Freeing up Resources in BIOS under Windows 95/98/Me/2000/XP

This procedure is a little more difficult than the previous one, but with the help of your computer's documentation you should be able to clear up any remaining problems.

1. Close all running programs. Shut down your computer and restart it: Click **Start** and then **Shut Down**. Shut down your computer completely. Turn the power off, wait about 5 seconds, and turn the power back on.
2. As your computer goes through the startup process, it should display a key or key combination that you can use to enter the **BIOS Setup** program. Enter the BIOS Setup program and disable COM2. Consult your computer's documentation if the procedure is not clear based on the on-screen prompts. **Note:** Some computers may not use the BIOS settings to control the COM ports. Check your computer's documentation to see if you have to reset the computer's jumpers or switches instead.
3. Write down and save the new COM port setting and exit **Setup**.
4. The BIOS automatically reboots your computer.
5. Choose **Control Panel** from the **Settings** command in the **Start** menu.
6. Double-click the **System** icon.
7. Click the **Device Manager** tab.
Find the **Ports (COM & LPT)** device and click the **+** sign. This expands the device list under **Ports**.
8. Select **Communications Port (COM2)**. Click the **Remove** button in the **Device Manager** window. This removes the device currently assigned to COM2.

9. When Windows displays the **Confirm Device Removal** warning, click **OK**.
10. Double-click **Modem** in the **Device Manager** window.
11. Double-click the Modem icon for your model.
12. Click the **Resources** tab.
13. Uncheck the **Use automatic settings** checkbox.
14. Scroll through the Basic configuration options until you find the one that displays the **Input/Output Range 02F8 - 02FF**. This is COM2. The **Conflicting device** list box should say **No conflicts**. If there are conflicts, call Tech Support.
15. If there are no conflicts, close the **Modem Properties** window, **System Properties** window, and **Control Panel** window by clicking **OK** for each.
16. Shut down your computer, turn off the power, and restart it. **Going through this power cycle can be important.** Merely restarting Windows may not allow the BIOS to register the changes properly.

If Windows finds your other serial port, it may try to assign the port to COM2, but won't be able to because your Modem is already using that system resource.

Other Troubleshooting Tips

IMPORTANT:

If you need to reformat your hard drive or to reinstall Windows 95/98/Me/2000/XP, **you must physically remove your modem before doing so.**

Install the drivers and then the modem as a new install, following the instructions in this manual.

Problem: Your system

- doesn't boot-up, or
- doesn't recognize your PCI Modem, or
- doesn't respond in Control Panel | Modems | Diagnostics.

Solution: Your PCI Modem is a BIOS and driver-dependent device. Sometimes the modem will be mistakenly assigned to an IRQ (Interrupt Request) already in use by another device.

If you install the modem in a different slot in your computer, this may solve the problem.

You should also check your computer for an available IRQ if you have other devices connected to your computer.

Windows 95/98/Me Users: Go to **Settings | Control Panel | System | Device Manager**. Highlight **Computer**, press **Properties**, and check for an available IRQ. Any IRQ from 0 to 15 which does not already have a device assigned to it is available for use.

Windows 2000/XP Users: Go to **Control Panel | System | Hardware Device Manager**. Highlight **Computer**, press **Properties**, and check for an available IRQ. Any IRQ from 0 to 15 which does not already have a device assigned to it is available for use.

Windows 95/98/Me/2000/XP Users: When PCI bus IRQ steering is enabled, Windows will direct PCI bus IRQs to devices such as your modem. Sometimes, however, the IRQ that Windows assigns to your modem will conflict with the computer's BIOS.

To disable IRQ steering in computers running these operating systems, from **Control Panel**, go to **System | Device Manager | System Devices | PCI Bus | IRQ Steering** and click the option button to disable IRQ steering. If the PCI modem you have just installed is listed, highlight it and click **Remove**, and then reboot your system. If this doesn't disable the "IRQ Holder for PCI Steering," please contact Microsoft Technical Support.

Assigning an IRQ: Only computers with an updated BIOS will be able to assign an available IRQ to the PCI slot on the motherboard. Check your computer's documentation, or the motherboard itself, for the number of the PCI slot.

If you have a VIA Chip-based motherboard: Computers with this chipset, particularly those running Windows 98, frequently have problems installing PCI modems unless the VIA IRQ Routing Miniport Driver is installed.

If your computer's user's manual doesn't tell you if your motherboard is VIA chipset-based, you need to look on the motherboard itself to check. If you do have a VIA Chip-based motherboard, you can download VIA's IRQ Routing Miniport Driver from: www.via.com.tw/support/faq.htm.

Problem: **Your modem seems to install under Windows 95, 98, Me, 2000 or XP, but Windows cannot find it later.**

Solution: If your computer has a built-in modem on the motherboard, Windows may reinstall it the next time you start up. Consult your computer's documentation or call your computer's manufacturer to get instructions on how to disable the built-in modem.

Problem: **The software cannot find the modem and the modem does not respond to AT commands. (The following comment applies to many other problems as well.)**

Solution: The most common error with modems is that the communications software is not configured for the same COM port as the modem. Check which COM port the modem is using. Make sure that the software's COM port setting matches the modem's COM port setting.

Another problem is that COM port resources may be in use by another device. Make sure that the COM port resources used by the modem are not being used by any other device, such as a soundcard.

Problem: **You type an AT command line in a terminal application and press Enter, but your modem fails**

to execute the command line. Or there was no response after executing a command.

Solution: Be sure you type **AT** at the beginning of the command line.

Make sure the communications software is configured for the same COM port as your modem.

Be sure your modem is not in data mode when you type the command. Use the escape character sequence to switch to terminal mode (The default escape sequence is to wait at least one second, type **+++**, and wait another second or more.)

If you typed a command but did not receive an **OK** response from your modem, the **E0** and **Q1** commands may be in effect, disabling echo and responses. Verify this with the **&V** command. To enable echo and responses, type **ATE1Q0** and press **Enter**.

Problem: The modem speaker volume is too low or too high.

Solution: Your modem has a small speaker on board that gives you audible feedback of dial tones and remote connection signals ("handshaking"). This is not the same as the speaker that you may have connected to your sound card.

If the software allows you to control the volume, make sure the speaker is enabled and set to a comfortable volume.

If the software does not have speaker settings, add one of the **AT** commands listed below to the initialization string:

L1 for low volume

L2 for medium volume

L3 for highest volume

M0 to turn the speaker off entirely

For example, if you want the volume low and the software uses the initialization string

AT &F, change it to **AT &F L1**.

Problem: The modem does not automatically dial a call when you send a Dial command.

Solution: Make sure the modem speaker is turned on in your software so that you can hear dialing sounds. Also, make sure that the phone line is plugged in.

Make sure that you are dialing a valid phone number, including any required dial prefixes.

If you are using tone dialing on a line that requires pulse dialing, the line may not be able to accept tone-dialed calls. Select Pulse dialing in your software, or make sure software dialing prefix is **ATDP** (for pulse dialing):

Double-click **My Computer**, click the **Dial-Up Networking** folder, double-click the icon for your ISP, click **Dial Properties**, select **Pulse dial**, click **Apply** | **OK**.

Make sure your communications software and modem are configured for the same COM port.

Make sure your modem has hung up from the previous call. Select **Hang Up** in your software; or type **ATH** in terminal mode.

Problem: Telephony voice features do not work, or they work poorly.

Solution: The PCI Modem is designed to work with voice software that is compatible with Windows TAPI (Telephony Application Programming Interface) or with software that uses IS-101 commands (IS-101 commands are sometimes called +V commands). Consult your voice software's documentation to determine whether it supports TAPI and/or IS-101. Also, be sure you are using the latest 32-bit version of the software.

Another possible problem is that your computer does not have the latest version of **Unimodem V**, a set of drivers required for TAPI applications. The software that installs your modem automatically installs the latest version of **Unimodem V** if it is needed. You may have subsequently installed a communications package that automatically installs an older version of **Unimodem V**. If that is the case, you can reinstall

the newer version of **Unimodem V** from the CD: Simply insert the CD-ROM disc and rerun the PCI installation from the installation interface.

The modem drivers that were installed with your PCI modem may have been updated, and the new drivers may work better. Visit www.modems.com for driver updates.

Most telephony voice software has features that require your computer to have a soundcard and speakers, plus a microphone for recording.

Problem: **The modem can connect to some modems, but not to others.**

Solution: A remote modem does not respond because of the extended negotiation process by which modems determine the best common connection between them. If this is the case, you may have to disable part or all of the negotiation process. In the following table, “protocol” means error correction and data compression.

To force different communication speeds	Type these AT commands and press Enter
Negotiate speed and protocol (default setting)	AT &F
To force protocol	AT \N3
Dualmode (V.90 or V.92)—56000 bps	AT+MS=V92,1
V92 only (disable V.90)—56000 bps	AT+MS=V92,0
V.90 only (disable V.92)—56000 bps	AT+MS=V90,0
Disable both 56K and autorate on V.34—33600 bps	AT+MS=V34,1
V.34—33600 bps	AT+MS=V34,0
V.32bis—14400 bps	AT+MS=V32B,0
V.32—9600 bps	AT+MS=V32,0
2400 bps	AT+MS=V22B,0
1200 bps	AT+MS=V22,0

Notes: Some software allows these commands to be added to the list of dial prefixes or the initialization string.

When the protocol is forced, the modem will not attempt to connect at other protocols if it cannot connect at the forced protocol. It will try to connect at the fastest speed available within the forced protocol.

There are other configurations that can be forced as well. If you need to select a particular configuration, use the AT command strings shown below. You can always return to the modem's default configuration by typing **AT &F** and pressing the **Enter** key.

Remember that if you do this, the modem will not have received the commands in your software's initialization string as it normally would. Using the **ATZ** command overcomes this problem if you have saved all of your setup parameters in nonvolatile memory. (To save setup parameters in nonvolatile memory in **AT** terminal mode: Type **AT**, followed by the parameter settings you desire, followed by **&W**, and press **Enter**. For example, if you type **AT &C1 &D2 &W** and press **Enter**, the **&C1** and **&D2** parameter settings are stored.)

To force	Type command & hit Enter
MNP 5/MNP 4 operation	AT \N5
LAPM only (V.42)	AT \N4
MNP 4 only	AT \N5%C0
V.42bis data compression	AT+DCS=1,0
V.44 data compression only	AT+DCS=0,1
Auto-answer	AT S0=1

Problem: Your V.92 modem does not connect reliably at V.92.

Solution: First be sure that you have the latest modem firmware downloaded from our Web site, as discussed on page 9. Also make sure that your ISP offers V.92 at the number you are calling.

If you still have a V.92 problem, you may want to modify your Internet Connection string in Windows 95/98/Me/2000/XP: Double-click the **My Computer** icon on your Desktop, and then double-click **Dial-up**

Networking. Right-click the existing Internet Connection that you wish to modify and select **Properties**. Click **General | Configure | Connection | Advanced**.

You can add initialization (init) strings on the line labeled **Extra Settings**. Enter *one* of the init strings listed below. Try these commands one at a time until you find the one that gives you the highest possible connection rate for your telephone line conditions.

Init String	Definition
ATW2S7=150+MS=V90 OR AT&F+MS=V92	S7 Sets wait time for remote carrier, wait time can be 1-255 seconds
AT&FS7=150	&F Sets factory defaults
AT&F&C1&D2\N5\A2=1S7=100	&C1 DCD (Data Carrier Detect) follows the remote carrier signal
	&D2 DTR (Data Terminal Ready) reacts with a disconnect, sends "OK" response and disables auto-answer while DTR signal is OFF
	\N5 MNP Error Correction Only
	\A2 Maximum block size: 192 characters

Problem: Your modem disconnects while communicating with a remote system.

Solution: The remote system has hung up, and you need to reconnect. The other most common sources of interruptions are Call Waiting or someone picking up an extension phone.

If you have Call Waiting, you can usually temporarily disable it by including ***70**, (including the comma), or by selecting it as a prefix, in the software's dialing directory.

Depending on your service, you may not be able to disable Call Waiting for incoming calls. If your incoming data calls are frequently disrupted by Call Waiting, you should consider dropping the service or installing a separate phone line without Call Waiting.

Problem: **Your modem does not make a connection.**

Solution: If your modem places calls but never connects, make sure you are dialing the right number and that the remote modem is turned on.

Problem: **You receive bursts of errors occasionally, but otherwise data quality is good.**

Solution: The connection may have been established on poor-quality or noisy telephone lines. Hang up and place the call again to try to obtain a better connection.

Someone may be picking up an extension connected to the line that your modem is using. If your modem is sharing a telephone line with other telephones, inform the other users when you will be making a data call, or install a separate line dedicated to data calls.

Your telephone line may have a Call Waiting feature and a call is being received. See the Call Waiting discussion above.

Problem: **Random errors occur or data is missing in transmitted data.**

Solution: Use the MNP or V.42 protocol if the remote modem supports one of these protocols. See the table on page 21 for more information.

Select a lower baud rate in your communications software and place the call again.

If both modems are using the MNP or V.42 protocol, the only way this can occur is if your modem and communications software are not using the appropriate flow control. Configure your communications software for **RTS/CTS** (hardware) flow control. Your computer will now pause for the transmission to be stored.

Problem: Modem performance seems sluggish.

Solution: If you are connected to the Internet, there may be a lot of “traffic” at the Web sites you are visiting. Other possible causes are lack of sufficient memory in your computer (16 megabytes of RAM required) or a slow processor (you need a Pentium® 133 or faster, or equivalent).

Problem: Data appears garbled on the screen.

Solution: Your communications software character set-up (start bit, data bits, stop bits, and parity bit) does not match that of the remote system. Check your settings against those used by the remote system and make sure they match. Pay particular attention to the parity setting, as this is the most common difference among systems. You should normally use 8 data bits, NO parity, and 1 stop bit (**8, NONE, 1** or **8N1**). Another common setting is 7 data bits, EVEN parity, and 1 stop bit (**7, EVEN, 1** or **7E1**).

Problem: You encounter communications problems with your modem.

Solution: Check that your communications software has been set up properly. Recheck the initialization string and dial string specified in your software manual.

Memory-resident programs can cause a variety of problems. Try starting up your computer without them. Programs that can cause problems include antivirus programs and screen savers.

Appendix A: How to Uninstall Modem Drivers

The following instructions should work for your new PCI modem as well as older PCI modems. If not, please refer to your original modem manufacturer's documentation for removal instructions.

If your computer has a modem, you may choose to keep it or to remove it. We recommend that you remove it. Removing your old modem ensures that your computer will have enough resources to run your new modem without conflicts with other devices.

Follow these steps to uninstall your modem drivers:

- 1** From the desktop, open the **Control Panel**, and then click **Add or Remove Programs**. In the dialog box that opens, select the modem that you want to uninstall and click **Remove**.
(Depending on your operating system, some of these buttons may have slightly different labels.)
- 2** Follow the on-screen instructions and click **Finish**.
- 3** In one of the following dialog boxes (depending on your operating system): **Modems, Phone and Modem Options**, or **Modems Properties**, select the modem you want to uninstall and click **Remove**.
- 4** Turn to page 3 for instructions on how to physically remove your modem hardware.

Appendix B: Regulatory Information

U.S. FCC 47 CFR Part 15 Emissions Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

U.S. FCC 47 CFR Part 68 Statement

This equipment complies with 47 CFR Part 68 of the rules. The unit bears a label which contains, among other information pertinent to the compliance certification process: such as certification number and Ringer Equivalence Number (REN). If requested, this information must be provided to the telephone company.

This equipment uses the following standard jack types for network connection: RJ11C

This modular jack is designed to be connected to the telephone network or premises wiring using compatible modular plugs and cabling which comply with the requirements of 47 CFR Part 68 of the rules.

The Ringer Equivalence Number, or REN, is used to determine the number of devices which may be connected to the telephone line. An excessive REN may cause the equipment to not ring in response to an incoming call. In most areas, the sum of the REN of all equipment on a line should not exceed five (5.0).

In the unlikely event that this equipment causes harm to the telephone network, the telephone company can temporarily disconnect your service. The telephone company will try to warn you in advance of any such disconnection, but if advance notice isn't practical, it may disconnect the service first and notify you as soon as possible afterwards. In the

event such a disconnection is deemed necessary, you will be advised of your right to file a complaint with the FCC.

From time to time, the telephone company may make changes in its facilities, equipment, or operations which could affect the operation of this equipment. If this occurs, the telephone company is required to provide you with advance notice so you can make the modifications necessary to obtain uninterrupted service.

There are no user serviceable components within this equipment.

It shall be unlawful for any person within the United States to use a computer or other electronic device to send any message via a telephone facsimile unless such message clearly contains, in a margin at the top or bottom of each transmitted page or on the first page of the transmission, the date and time it is sent and an identification of the business, other entity, or individual sending the message and the telephone number of the sending machine or of such business, other entity, or individual. The telephone number provided may not be a 900 number or any other number for which charges exceed local or long distance transmission charges. Telephone facsimile machines manufactured on and after December 20, 1992, must clearly mark such identifying information on each transmitted message. Facsimile modem boards manufactured on and after December 13, 1995, must comply with the requirements of this section.

This equipment cannot be used on public coin phone service provided by the telephone company. Connection to Party Line Service is subject to state tariffs. Contact your state public utility commission, public service commission, or corporation commission for more information.

Industry Canada Emissions Statement

This Class B digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numérique de la classe B respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

Industry Canada CS03 Statement

Notice: The Industry Canada label identifies certified equipment. This certification means that the equipment meets telecommunications network protective, operational and safety requirements as prescribed in the appropriate Terminal Equipment Technical Requirements document(s). The Department does not guarantee the equipment will operate to the user's satisfaction.

Before installing the equipment, users should ensure that it is permissible to be connected to the facilities of the local telecommunications company. The equipment must also be installed using an acceptable method of concern. The customer should be aware that compliance

with the above conditions may not prevent degradation of service in some situations.

Repairs to certified equipment should be coordinated by a representative designated by the supplier. Any repairs or alterations made by the user to this equipment, or equipment malfunctions, may give the telecommunications company cause to request the user to disconnect the equipment.

Users should ensure for their own protection that the electrical ground connections of the power utility, telephone lines and internal metallic water pipe system, if present, are connected together. This precaution may be particularly important in rural areas. **Caution:** Users should not attempt to make such connections themselves, but should contact the appropriate electric inspection authority, or electrician, as appropriate.

Notice: The Ringer Equivalence Number (REN) assigned to each terminal device provides an indication of the maximum number of terminals allowed to be connected to a telephone interface. The termination on an interface may consist of any combination of devices subject only to the requirement that the sum of the Ringer Equivalence Numbers of all the devices does not exceed 5.

Europe – Declaration of Conformity

The manufacturer declares under sole responsibility that this equipment is compliant to Directive 1999/5/EC (R&TTE Directive) via the following:

<u>Directive</u>	<u>Standard</u>	<u>Issue date</u>
73/23/EEC	EN60950	1992 A1 +A2 +A3 +A4 +A11
89/336/EEC	EN55022	1998
	EN55024	1998
	EN61000-3-2	1995
	EN61000-3-3	1995

This product is CE marked.

CTR 21 pan-European Certification

This equipment has been approved in accordance with Council Decision 98/482/EC for pan-European single terminal connection to the public switched telephone network (PSTN). However, due to differences between the individual PSTNs provided in different countries, the approval does not, of itself, give an unconditional assurance of successful operation on every PSTN network termination point. In the event of problems, you should contact your equipment supplier in the first instance.

This device is designed to work with the notified networks in all EC member states. Nevertheless, some of the network services in individual countries might not be supported, but they will not affect the normal data and fax applications. For example, the metering charge service in Germany. Besides you may encounter difficulty of using PULSE dialing

function in some of the countries, such as Nordic countries. This kind of network compatibility is dependent on the physical and software settings of this device. If the users are desired to use this device on those networks, they should contact the vendor or supplier first.

Electrostatic Discharge Statement

The unit may require resetting after a severe electrostatic discharge event.

Appendix C: Reference Information

We recommend that you take a few moments to fill in the following information for your future reference. In the event you need to call Technical Support or Customer Service, you will need the information below.

Modem Model

(located on the box)

Serial Number

(located on the bracket or on the board)

COM Port

Date of Purchase

Store or Dealer
