



## PCI Modem Installation Guide

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## Introduction

Your new fax modem is a high-speed, reliable tool—whether you are surfing the Internet; keeping in touch with colleagues, friends, and family through e-mail; managing fax communications; using voice mail; or doing videoconferencing with a video camera.

We designed this manual to make connecting your modem as easy as possible. This Installation Guide provides easy-to-follow instructions for your fax modem. The communications software, included in your modem package, provides menus to use your modem once it is installed.

### **Before you get started...**

Please read the **Regulatory & Warranty Information**.

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## **What You Need**

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

- Fax modem
- Phone cord
- A CD-ROM disc containing installation software, modem drivers, and communications software.

### **You also need the following:**

- IBM PC-compatible Pentium® 133 or faster (or equivalent), with at least 16 megabytes of RAM, an available PCI slot, and a tool for removing and replacing the computer cover
- Windows® 95, 98, or NT 4.0 operating system
- A telephone jack to plug the modem into, so the modem can dial out and receive calls
- A sound card if you want to use the modem as a telephone answering device (voice mail option), plus an earphone or speakers (for listening to incoming messages) and a microphone (if you want to record your own outgoing message).

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## Installing Your Modem

### **Windows 95 and Windows 98**

We have enhanced Windows' plug-and-play capability by providing a software program that you *must* run *before* you install your fax modem. This InstallShield® program installs "driver" files and sets up your computer to recognize the new fax modem. When you restart your computer, your hard drive will already contain the files Windows needs to complete the installation. Continue below with ***Installing the Drivers***.

### **Windows NT 4.0**

In computers with Windows NT 4.0, the installation is just as easy, but the sequence is the opposite. First install your new fax modem in your computer; then run the InstallShield® program. To begin installing your new PCI fax modem with Windows NT 4.0, please go to ***Installing the Fax Modem Card*** on page 8.

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## Installing the Drivers

**For Windows 95 and 98:** Put the fax modem aside for now. Continue with step 1 below.

**For Windows NT 4.0:** Install the modem first according to the instructions beginning on page 8.

Then follow these steps:

- 1** Your computer should be turned on. Close any applications you have running.  
  
Find the CD that came with your fax modem and insert it in your computer. It will auto-run after a few seconds and display an installation screen. If it does not auto-run, click on **My Computer** and then on the icon for your CD-ROM drive.
- 2** When the installation interface appears, click on the **Install Modem Drivers** button. The installation program will run and automatically copy driver files to your hard drive. Do not install any of the other software at this time.
- 3** When the installation program has finished:  
  
**Under Windows 95 or 98:** Shut down your computer. You may leave the CD in its drive. Continue with **Installing the Fax Modem Card** below.  
  
**Under Windows NT 4.0:** Shut down and restart your computer. Then continue with **Completing the Installation** on page 11.

---

## Installing the Fax Modem Card



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

Static electricity can damage components on your fax modem or inside your computer. Before removing the board from its anti-static bag, touch the computer's metal chassis to statically discharge yourself.

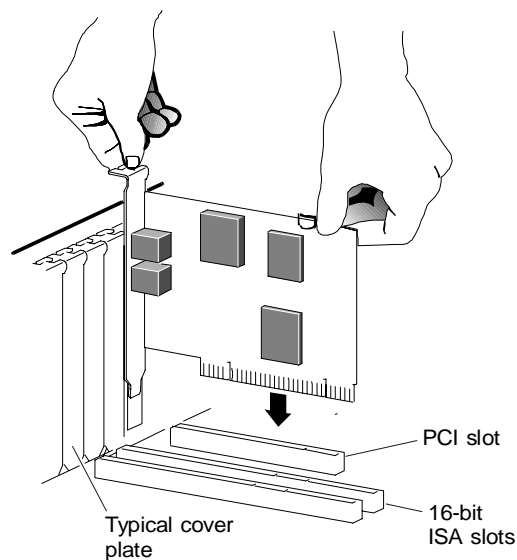
**Note:** *If you are replacing an existing modem, read the **Appendix: Removing an Old Modem** on page 25 to decide whether to keep or remove it.*

- 1** Make a note of the serial number on your new fax modem. Record the number in the table on page 27 of this manual. You will need this number for technical support, and once the modem is installed the number may not be visible.
- 2** 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 fax modem hardware installation.
- 3** Take the cover off your computer. You will probably have to remove several screws on the back of the case. See your computer's owner's manual for instructions on how to do this.

- 4 Unscrew and remove the metal cover plate on the rear of the computer that lines up with an available PCI slot. The PCI slot is shorter than a 16-bit ISA slot. Your fax modem has two sections of gold connecting fingers, and a PCI slot has two sections that match the sections on the fax modem.

**If you are replacing an older modem**, now is a good time to remove it. (It may be in a non-PCI slot, which you cannot use for your new fax modem.) Look for an add-in board with one or more phone jacks on it. To remove the old modem, first unplug any phone cords connected to it. Unscrew the screw on the bracket and lift the old modem board from its slot.

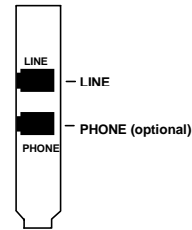
- 5 Now insert your new fax modem firmly into an available PCI slot. See the following illustration.



Be sure that the bracket is lined up properly; then screw the bracket into the computer using the screw you removed with the cover plate.

**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.

**Under Windows 95 or 98:** As the Windows operating system starts up, it will detect your new fax modem. Because the installation program has already provided your computer with the required files, you will see Windows report on its progress, but it will not require any action on your part. Continue below with **Completing the Installation**.

**Under Windows NT 4.0:** Now go to **Installing the Drivers** on page 7 to set up the computer to recognize your new fax modem.

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## Completing the Installation

Complete the installation of your fax modem by verifying your COM port.

### Verifying the COM Port

When your fax modem has been set up, do the following to verify your COM port.

- 1** Open **Control Panel** in Windows and double-click on the **Modems** icon.
- 2** Click on the **Diagnostics** tab. Highlight the port next to the entry for your new fax modem and click on **More info**.

Note the **Port** and **Interrupt** entries under **Port Information** and write the information in the **Important Information** table on page 27.

**Note:** *PCI devices, including your new fax modem, use IRQs differently from the way older ISA devices use them. This may become an issue only for DOS programs. With the PCI fax modem, DOS programs that require a modem must be run in a "DOS box" under Windows.*

*The setup routines for DOS programs running under Windows will occasionally report an IRQ assignment that is different from what is reported by Windows. In nearly all cases, you can accept the default assigned by your DOS software.*

**Once you have determined that your modem is working properly**, refer to the software installation instructions included with your fax modem package to install your communications software. If you plan to use different software with your new fax modem, you may want to refer to **Tips for Setting Up Communications Software** on page 13.

If you determine that your fax modem is not working, first try shutting down your computer and restarting it. Sometimes this will help Windows identify and activate the correct drivers. If restarting your computer doesn't work, refer to the **Troubleshooting** section on page 19.

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## Using the Fax Modem

If you have installed the faxing and communications software that came with your fax modem, you probably do not need to read this section. The software that came with your fax modem sets itself up automatically and takes care of sending any necessary commands to the fax modem. If you subscribe to an online service or Internet Service Provider, you will typically be given whatever software you need for connecting to the Internet.

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

This section provides tips for setting up faxing and communications software, sending initialization strings containing **AT** commands to the fax modem, using a video camera, and accessing the Internet.

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## Tips for Setting Up Communications Software

Software programs are designed to provide a simple, user-friendly interface that makes it easy to use the many features your fax modem offers. First, however, the software must identify the modem and its special capabilities. Many software programs identify the product automatically and configure themselves for the correct modem settings. If you run into difficulty with configuration, it may be helpful to read the following section.

### Tips for Selecting Setup Options

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 on the menu, select the most descriptive name such as **V.90 Modem**, **56K modem**, **Generic IS-101 modem**, **LT PCI modem**, or **Hayes-compatible modem** (with or without a specific speed). The more generic the type you choose, the less likely it is that the software will let you use some of the fax modem’s advanced features, but the modem will perform basic communications and fax functions.
- In the dialing directory, set all entries to the highest possible baud rate, if your software and serial port support these speeds. All communications between the computer and the modem take place at this higher speed, independent of the modem-to-modem speed. The modem auto-negotiates the highest speed connection between itself and the other modem.
- If your fax software gives you the option of selecting **Class 1** or **Class 2** fax drivers, select **Class 1**.

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## Initialization Strings

An initialization string is a group of **AT** command settings that are sent to the fax modem as soon as you start up the software. (The “AT” stands for “attention.”) 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 your having to be 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](http://www.modems.com). Click on **Reference** and then on **AT Command Sets**.

Here are two of the more useful commands:

- If your software suggests an initialization string for this modem, you should use it. If this modem is not listed by your software and no initialization string is suggested, use the following: **AT &F**.
- If your telephone service includes Call Waiting, which you can temporarily suspend by pressing **\*70**, include **ATDT\*70**, in the dial prefix option (you must include the comma, which inserts a brief pause to allow the phone company to respond). If your software doesn't have a dial prefix option, you need to insert the code for each phone number in the dialing directory. If you need to dial a special code number, such as **9**, to get an outside line, put the number (followed by a comma) before the phone number.

## Using AT Commands

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 fax modem. You must do so from a data program's terminal mode.

To use **AT** commands in terminal mode:

1. Start your data communications program.
2. Change to terminal mode (also called command, local, direct, or dumb mode).  
The Windows operating system includes a terminal application, **HyperTerminal**, which you may use if you do not have a communications program. (Check your operating system's user's guide for setup instructions for the terminal program.)
3. Type in the **AT** 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.

### **Returning to the Factory Settings**

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

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## **Accessing the Internet**

To access the Internet and the World Wide Web, use an online service such as America Online (AOL) or CompuServe, or an Internet Service Provider (ISP). ISPs typically supply or suggest the browser software needed to access their service, along with complete setup information and any other software you will need.

Your fax modem package also includes a packet of online service and ISP offers, so you can try the Internet and a range of other services.

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## Using Audio Features

In addition to data and faxing capabilities, your fax modem supports a full-featured single or multiple mailbox voice mail system if you have a sound card, microphone, and a speaker or earphones. Through your software you can also set up fax-back, sometimes called fax-on-demand, and record and play back messages. The communications software that comes with your fax modem is capable of these features. Other software that supports these features must be TAPI compatible (TAPI stands for Telephony Application Programming Interface) or support IS-101 commands. An example of a TAPI-compatible software that supports voice mail is Microsoft Phone™.

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## **Making the Most of the Fax and Voice Features**

If you use your faxmodem for receiving faxes and voice mail, keep in mind the following:

- Your computer must be running, and the communications software must be active.
- If you want to connect to your online service or ISP, you must exit the communication software first. While you are on line, you cannot receive calls or faxes.
- Some computers have a power saving option that stops the hard drive from spinning after a period of inactivity. If a call (voice or fax) comes in, it may fail to connect while the hard drive restarts and activates the software. If this happens, you should deactivate the feature of your power saving option that stops the hard drive. See your computer's documentation for details.

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## Using Video

Your fax modem supports video applications through the V.80 standard protocol so that it can be used for high-quality modem-to-modem videoconferencing. The modem is compatible with H.324 point-to-point and H.323 Internet video conferencing standards. To send videos, you need a camera and video software.

To include sound with your videos, you also need a 16-bit sound card (full-duplex recommended) and a compatible microphone and speakers or earphones.

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# Troubleshooting

**Note:** *If your modem is not working, please read this section, the section on installing your modem, and your communications software documentation carefully.*

*Note also that the modem drivers for your fax modem are updated periodically to enhance performance or features. You may want to download the latest drivers from time to time, especially if you are encountering problems. A contact flyer included with your fax modem package includes a Web address for driver updates.*

For installation problems, see **Installing Your Modem**. This section covers general troubleshooting, dial troubleshooting, voice troubleshooting, and on-line troubleshooting.

For help with this problem...	See page...
Your modem seems to install under Windows 95, 98, or NT 4.0, but Windows cannot find it later.	20
The software cannot find the modem.	20
You encounter other communication problems.	20
The modem speaker volume is too high or too low.	21
The modem does not automatically dial a call when you send a Dial command line.	21
Voice features do not work, or they work poorly.	22
Your online service reports a connect speed that doesn't match your modem's speed.	23
The modem disconnects while communicating with a remote system.	23
Your modem does not make a connection.	23
Modem performance seems sluggish.	24

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## General Troubleshooting

### **Your modem seems to install under Windows 95, 98, or NT 4.0, but Windows cannot find it later...**

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.

### **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.)*

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.

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.

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 **AT E1 Q0** and press **Enter**.

### **You encounter communications problems with your modem...**

Check that your communications software has been set up properly. Recheck the initialization string and dial string specified in your software manual. Remember that commands in the initialization string are sent to the modem each time you start your software and override the settings stored in the modem's non-volatile memory.

Memory-resident programs and programs that start automatically can cause a variety of problems for some communications software. Try starting up your computer without them or deactivating them after your computer has started. Possible sources of problems are screen savers and virus scanners.

If you are using Dial-Up Networking for Windows 95 or 98, you may want to download and install the latest version. At the time this manual was printed, the latest version was available from the Microsoft Web site by following these steps:

1. In your browser, type **search.microsoft.com** (*without* the www) in the **Address** or **Location** window and press **Enter**.
2. In **Enter your search words(s) or phrase** type in **dial up networking upgrade**.
3. Click on the drop-down list under **search criteria** and select **All Words**.
4. Click on **Search Now!**.
5. The next page will display a list of networking upgrades, including the latest version of Dial-Up Networking.

#### **The modem speaker volume is too low or too high...**

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  
**M1** to turn the speaker back on

For example, if you want the volume low and the software uses the initialization string **AT &F**, change it to **AT &F L1**.

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## **Dial Troubleshooting**

### **The modem does not automatically dial a call when you send a Dial command...**

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).

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.

---

## Voice Troubleshooting

### **Voice features do not work, or they work poorly...**

The PCI faxmodem 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 faxmodem 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.

Finally, the modem drivers that were installed with your PCI fax modem may have been updated, and the new drivers may work better. A contact flyer included with your fax modem package includes a Web address for driver updates.

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## On-line Troubleshooting

### **Your online service reports a connect speed that doesn't match your modem's speed...**

First make sure the maximum speed setting is as high as your computer system allows: In **Control Panel**, open **Modems** and click on **Properties**. Set the **Maximum speed** setting to the highest setting.

If you have set the maximum speed to its highest setting and are seeing a connect speed that is faster than your modem's published speed, your software is reporting the internal, computer-to-fax modem speed. To get your online service software to report the actual connect speed, add **W2** to the end of the initialization string, or to the dial prefix just before the **D**, as in these examples:

*Initialization string:* **AT&F&C1&D2W2**

*Dial prefix:* **ATW2D**

Consult your online service's documentation for details on initialization strings and dial prefixes. Actual connect speeds depend on your modem's speed, the equipment you're connecting to, and phone line conditions.

### **Your modem disconnects while communicating with a remote system...**

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 a special code, followed by a comma, in the dial string, or by typing it in as a prefix in the software's dialing directory.

You cannot 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.

### **Your modem does not make a connection...**

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

**Modem performance seems sluggish...**

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).

Be aware that many files downloaded from online services have already been compressed. In general, your modem will not be able to further compress such files.

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## Appendix: Removing an Old Modem

### If your computer has a modem, you may choose to keep it or to remove it:

We recommend that you remove your old modem unless you have a good reason to keep it. Removing your old modem ensures that your computer will have enough resources to run your new modem without conflicts with other devices.

You may want to keep your old modem, however, if you have two telephone lines and want to keep your fax program running on one line while you access the Internet on the other line. Another reason for keeping your old modem would be that you anticipate being able to use “teaming” or “bonding” software to use two modems and two phone lines for faster Internet access.

### If you are removing your old modem:

Please refer to your old modem manufacturer’s removal instructions, if any. The following procedure should work in most cases.

<p><b>Note:</b> Do not use this procedure if you ever need to remove or relocate your new PCI fax modem. Instead, run the <b>Itremove</b> program, which is installed on your computer when you install your PCI modem. To run the program, click <b>Start</b> and then <b>Run</b>. Type <b>Itremove.exe</b> and press <b>Enter</b> or click <b>OK</b>.</p> <p><b>Even if you are simply relocating your PCI fax modem to a different PCI slot, you must run Itremove and then remove the modem. Reinstall the modem according to the instructions in this guide.</b></p>
---

Before you remove your old modem, you must inform Windows that you are going to remove it before you physically do so. This helps to prevent internal conflicts in Windows as it allocates its resources to your new fax modem.

Follow these steps:

- 1** Click on **Start** and point to **Settings**. Click on **Control Panel**. When the Control Panel displays, double-click on the **Modems** icon.
- 2** Highlight the entry for your old modem by clicking on it.
- 3** Now click on the **Remove** button. Click **OK** to confirm that you are removing the modem.

Windows has now been informed of your intention to remove the old modem. Now you can return to page 8.

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## Customer Service

If you are experiencing a problem with your modem, try resolving it with the troubleshooting suggestions preceding this section. If necessary, you can contact Customer Service.

**Note:** Before returning any product, please call for a Return Authorization Number (RA#).

Also, remember the following before calling:

- Use a phone located near the computer to which your modem is attached.
- Identify which Hayes modem you have and the communications software you are using.
- Identify your computer or its operating system.
- Write down all factors specific to your problem.

We recommend that you take a few moments to fill in the following information, which you will need in the event you need to call Customer Service.

Fax Modem Part Number \_\_\_\_\_  
*(located on the barcode on the box)*

Serial Number \_\_\_\_\_  
*(located on the bracket or the board)*

COM Port \_\_\_\_\_

Date of Purchase \_\_\_\_\_

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# Regulatory & Warranty Information

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## FCC 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 FCC 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.

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## 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.

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## FCC Part 68 Telecommunications Statement

This equipment complies with Part 68 of the FCC rules. The unit bears a label which contains the FCC registration 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 equipment contains an FCC compliant modular jack. It is designed to be connected to the telephone network or premises wiring using compatible modular plugs and cabling which comply with the requirements of FCC Part 68 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 RENs 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.

### **U.S. REPAIR CENTER INFORMATION:**

Zoom Telephonics, Inc.  
645 Summer Street  
Boston, MA 02210  
USA  
Telephone Number: (617) 423 1072  
Facsimile Number: (617) 542 8276

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.

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## **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.

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## Limited Warranty—North America

(This Limited Warranty applies to Products sold within the borders of the United States of America and Canada.)

Who is Covered by This Warranty? This limited warranty ("Warranty") is extended by Zoom Telephonics, Inc. ("Zoom") only to the original end user purchaser of the accompanying HAYES HARDWARE PRODUCT ("Hardware") and/or HAYES SOFTWARE PRODUCT ("Program") (separately and together, "Product").

What Does This Warranty NOT Cover? Zoom does not warrant or guarantee you uninterrupted service, the correction of any error or elimination of any "bug". You are solely responsible for any failure of the Product which results from accident, abuse, misapplication, alteration of the Product, or use of the Product outside of the borders of the country or countries shown on the Product package. Zoom assumes no liability for any events arising out of the use of any technical information accompanying the Product. THIS WARRANTY APPLIES TO THE PRODUCT ONLY AND DOES NOT COVER ANY OTHER SOFTWARE OR HARDWARE WHICH MAY BE INCLUDED WITH YOUR PURCHASE OF THE PRODUCT. WITHOUT LIMITING THE GENERALITY OF THE FOREGOING, ANY SOFTWARE OTHER THAN THE PROGRAM IS PROVIDED "AS IS" AND WITHOUT WARRANTY OF ANY KIND. INCIDENTAL AND CONSEQUENTIAL DAMAGES CAUSED BY MALFUNCTION, DEFAULT, OR OTHERWISE WITH RESPECT TO BREACH OF THIS WARRANTY OR ANY OTHER EXPRESS OR IMPLIED WARRANTY ARE NOT THE RESPONSIBILITY OF ZOOM AND ARE HEREBY EXCLUDED BOTH FOR PROPERTY AND, TO THE EXTENT NOT UNCONSCIONABLE, FOR PERSONAL INJURY DAMAGE. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above exclusion or limitation may not apply to you. This Warranty gives you specific legal rights and you may also have other legal rights which vary from state to state.

What is the Period of Coverage? The period of coverage for the enclosed Hardware and/or Program is set forth in the Warranty Period section of this Guide. If this section indicates that Zoom offers an Extended Protection Plan ("Plan") for the enclosed Hardware and/or Program and you select the Plan, the period of coverage for the Hardware and/or Program would be the total of the original Warranty Period and the Plan period. ANY AND ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE SHALL TERMINATE AUTOMATICALLY UPON THE EXPIRATION OF THE PERIOD OF COVERAGE. Some states do not allow limitations on how long the implied warranty lasts, so the above limitation may not apply to you.

What Will Zoom Do to Correct Problems? In the event of a malfunction attributable directly to Defects, Zoom will, at its option, repair the Product, to whatever extent Zoom deems necessary to restore the Product to proper working condition, or replace the Product with a new or functionally equivalent product of equal value, or refund an amount equal to the lesser of (1) the purchase price paid for the Product or (2) the then effective Zoom Estimated Retail Price for the Product. THE REMEDY DESCRIBED ABOVE IS THE EXCLUSIVE REMEDY EXTENDED TO YOU BY ZOOM FOR ANY DEFAULT, MALFUNCTION, OR FAILURE OF THE PRODUCT TO CONFORM WITH THIS WARRANTY OR OTHERWISE FOR BREACH OF THIS WARRANTY OR ANY OTHER WARRANTY, WHETHER EXPRESSED OR IMPLIED.

How Do You Obtain Warranty Service? To obtain warranty service, you must either call the appropriate Customer Service number or write to Customer Service at the appropriate address. You must return the Product, along with the return authorization number given to you by Customer Service and proof of date of purchase, or after expiration of the Warranty period, Zoom will, at its option, repair the Product and charge you for parts and labor or replace the Product and charge you the then effective Estimated Retail Price for the Product, unless Zoom has discontinued the manufacture or distribution of such products because of technical obsolescence.

## North America Limited Warranty Period

Your modem includes a two (2) year limited warranty. Free extension to the limited performance warranty is available for a total of five (5) years with product registration within 90 days of purchase.

Hayes software includes a ninety (90) day limited warranty.

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## Statement of Copyright Restriction

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