GETTING STARTED

WELCOME

FCC ID: K3YHNS9200-1

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

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CAUTION

Any changes or modifications to this equipment not expressly approved by the manufacturer could void the user's authority to operate this equipment.

CAUTION

This add-on card model DirecPC ISA or PCI is intended to be installed in a CSA certified equipment in the field by the user in manufacturer's defined operator access area. Check the equipment operating/installation instructions and/or equipment manufacturer to verify/ confirm if your equipment is suitable for user-installed application cards.

ATTENTION

Cette carte d'extension, modele DirecPC ISA ou PCI est destinee a etre instalee par l'utilisateur, sur place et a l'interieur de la zone definie par le fabricant, dans un appareil certifie csa. Consulter le mode d'emploi ou le fabricant de l'appareil pour verifier ou confirmer si l'utilisateur peut y installer lui-meme des cartes peripheriques.

Note: 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 energy 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.*

IMPORTANT SAFETY INSTRUCTIONS PERTAINING TO A RISK OF FIRE, ELECTRIC SHOCK, OR INJURY TO PERSONS

The following information is provided for your own safety and protection. Please read this section carefully and familiarize yourself with all warnings, cautions, and instructions. Then, keep this Guide in a safe, convenient place for your easy reference.

Warnings, cautions, and notes, defined as follows, are used throughout this Guide to help you become familiar with possible safety or equipment hazards.

WARNING

This type of warning must be strictly followed to avoid severe personal injury or death caused by electric shock.

WARNING

This type of warning must be strictly followed to avoid severe personal injury or death.

CAUTION

This type of caution must be strictly followed to avoid property damage caused by electric shock.

CAUTION

This type of caution must be strictly followed to avoid product or property damage.

Note: A note presents additional information or interesting sidelights.

WARNING

Before installing the DirecPC adapter into the personal computer, disconnect the power cord plug from the outlet. Failure to do so could result in severe personal injury caused by electric shock.

WARNING

For continued protection against risk of electric shock and fire, the DirecPC adapter should be installed only in products equipped with a three-wire grounding plug, a plug having a third (grounding) pin. This plug will only fit into a grounding-type power outlet. This is a safety feature. If you are unable to insert the plug into the outlet, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the grounding-type plug.

WARNING

Heed Warnings. To avoid personal injury, all warnings on the product and the operating instructions should be adhered to.

TABLE OF CONTENTS

INTRODUCTION

Thank you for purchasing the Hughes Network Systems (HNS™) DirecPC™ Access Kit (also called the DAK). This *Getting Started* guide, along with the installation guide that came with your DirecPC antenna mount, detail the tasks you need to do to install and operate the DirecPC system. The tasks include:

- Verifying that the computer you will be using is working properly *before* you install the DirecPC adapter by connecting to your Internet service provider (ISP) through the modem installed in the computer. Make sure you can access the World-Wide Web (WWW).
- Installing the DirecPC adapter (see chapter 2 in this guide)
- Installing the DirecPC Navigator (see chapter 3 in this guide)
- Configuring the DirecPC Navigator software and adapter (see chapter 4 in this guide)

- Installing and aiming the antenna (described in the antenna mount installation guide)
- Using the DirecPC system (see chapter 5 in this guide)

In addition, appendix A provides information to help you electrically ground the DirecPC hardware, appendix B describes how to use the DirecPC documentation included on the CD-ROM, appendix C describes how to manually set the ISA adapter's I/O range, appendix D tells you how to replace a faulty adapter, and appendix F is the software license and warranty information.

For best results, read the contents of this guide before you install the DirecPC system.

1.1 A FEW WORDS BEFORE YOU INSTALL DIRECPC

The DirecPC hardware—especially the antenna—should only be installed by someone who is experienced with such similar tasks as installing an 18-inch digital satellite system antenna, or standard TV antenna. Depending on how you intend to install the DirecPC antenna you may be required to:

- Climb a ladder and work on your roof.
- Use a power drill to drill holes into your house.
- Determine whether there are water pipes, electrical wiring, or gas lines hidden in the walls near where you will be drilling.
- Route coaxial cable through the foundation wall, under floors, and through interior walls.
- Work near power lines.
- Ground the antenna and coaxial cable as recommended in National Electrical Code (published by the National Fire Protection Association, Batterymarch Park, Quincy, MA 02269).

If you do not feel comfortable about doing these tasks or complying with installation requirements (or, if you have never installed an antenna before), contact **1-800-DIRECPC** for information on having your DirecPC system installed by an authorized professional installer.

CAUTION

Before installing the antenna, check local zoning codes, covenants, and other restrictions. Some communities prohibit installing satellite antennas or place limits on the mounting height of the antenna.

1.2 ABOUT DIRECPC SERVICES

There are three DirecPC services available through the DirecPC Navigator: Turbo Internet, Package Delivery, and Multimedia.

Turbo Internet

The Turbo Internet service provides the high speed (up to 400-Kbps) Internet connection. Turbo Internet supports all Internet capabilities that your ISP offers, including Gopher, file-transfer protocol (FTP), e-mail, Usenet, and so on. Turbo Internet lets you use your favorite browser to surf the Web, too.

Package Delivery

The Package Delivery service provides high speed (up to 3-Mbps) delivery of digital information such as software applications, computer-based training, multimedia, and electronic documents. The selections are then broadcast to your computer via satellite.

Multimedia

The Multimedia service supports such streaming applications as a stock ticker, news feed, or real-time video feed to selected addressees. This service also supports special applications for our corporate network customers

1.3 DIRECPC OVERVIEW

DirecPC is a high speed satellite information service. The DAK is the equipment which, when installed in a PC, enables the PC to access a wide range of information from DirecPC's 12-million-bit-per-second (Mbps) satellite link (see figure 1-1).

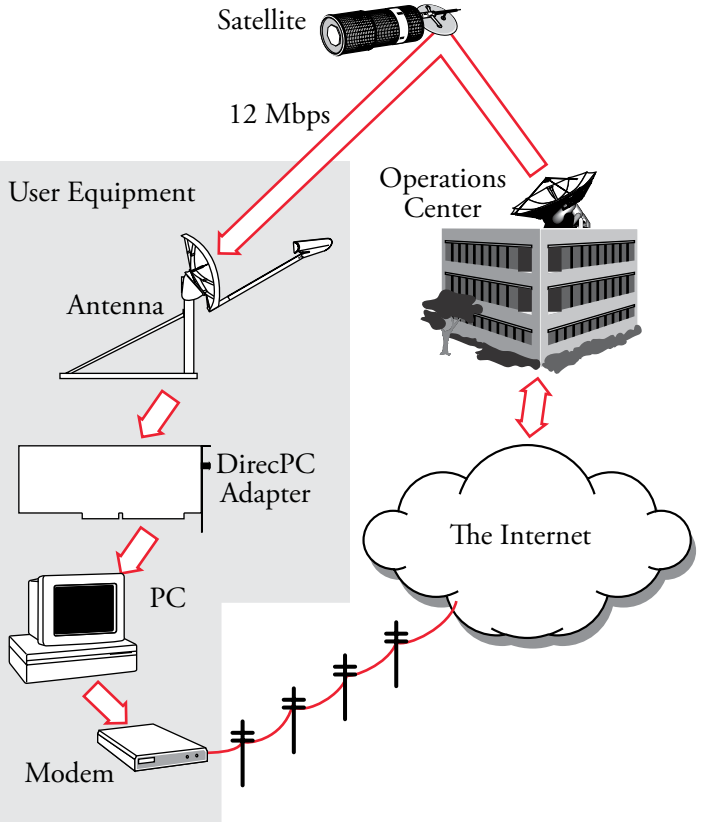


Figure 1-1. DirecPC system

DirecPC enables you to access graphics-rich WWW pages, multimedia, sound and video clips, and news and information with breathtaking speed. With DirecPC you can download large files at speeds of up to 400 Kbps—nearly 28 times faster than a typical 14.4-Kbps modem connection. For example, a 2-Mbyte movie clip would take 18 minutes to download at 14.4 Kbps. DirecPC can do the job in about 40 *seconds*.

The way DirecPC achieves such speeds is as follows.

Let's say you are going to download a 5-Mbyte file from a remote server. You first start the DirecPC Navigator application, which uses the Turbo Internet service to connect via modem to your ISP. Once the connection to the Internet has been made, you request the file you want from the remote site's server. When your request is sent, a return address header that contains your computer's address is automatically attached. This address tells the remote server where to send the file you've requested.

It is at this point that the DirecPC software jumps in. The software intercepts the request for the file before it leaves your computer and adds another address header to the request. This new address is actually the address of the DirecPC Operations Center. When the DirecPC Operations Center receives the request, it forwards the request to the remote site's server. When the remote server sends your file, it will send it to the operations center, instead of to your computer.

When the operations center receives your file, it transmits the file to the DirecPC satellite in space. A satellite transponder receives the signal and in turn beams it back to earth, where it is received by your satellite antenna. The signal goes from the antenna to the DirecPC adapter installed in your computer.

DirecPC Access Kit components

The DAK comes equipped with the following:

- A 20 x 36-inch elliptical satellite antenna; universal antenna mount with installation guide; and mounting hardware.
- An ISA or PCI DirecPC adapter card and software that are to be installed in the user's PC.

1.4 GETTING STARTED

After unpacking the components of the DirecPC Access Kit and inspecting them for damage:

1. Verify that the computer you will be using is working properly *before* you install the DirecPC adapter by connecting to your ISP through the modem installed in the computer. Make sure you can access the WWW.
2. Install the DirecPC adapter according to the instructions in chapter 2, "Installing the DirecPC adapter."
3. Install the DirecPC software according to procedures in chapter 3, "Installing the DirecPC Navigator."
4. Configure the DirecPC software and adapter according to procedures in chapter 4, "Configuring the DirecPC software and DirecPC adapter."
5. Install and aim the antenna toward the satellite according to the instructions in the antenna installation guide that came packaged with your antenna mount.
6. Start the DirecPC Navigator™ according to procedures in chapter 6, "Using the DirecPC Navigator" and start having fun!

2

INSTALLING THE DIRECPC ADAPTER

This chapter provides instructions for configuring and installing the DirecPC adapter.

If you have the PCI version of the DirecPC adapter, refer to section 2.1, “Installing the PCI adapter.” Otherwise, refer to section 2.2, “Installing the ISA adapter.”

WARNING

Before installing the DirecPC adapter into the personal computer, disconnect the power cord plug from the outlet. Failure to do so could result in severe injury caused by electric shock.

CAUTION

The DirecPC adapter is for use only with IBM compatible UL-Listed personal computers that have installation instructions detailing user installation of card cage accessories.

2.1 INSTALLING THE PCI ADAPTER

Note: Verify that you are able to contact your ISP and access the WWW over the modem connected to your computer ***before*** *you install the DirecPC adapter. Doing so ensures that the computer is working properly and that there are no problems that might interfere with DirecPC system operation.*

1. Switch off your personal computer (PC) and all peripheral devices, and unplug the power cord from the outlet.
2. Touch a metal surface on your computer to ground yourself to discharge any static electricity.
3. Remove the cover from your computer. (Refer to the documentation that came with your computer for the procedure.)

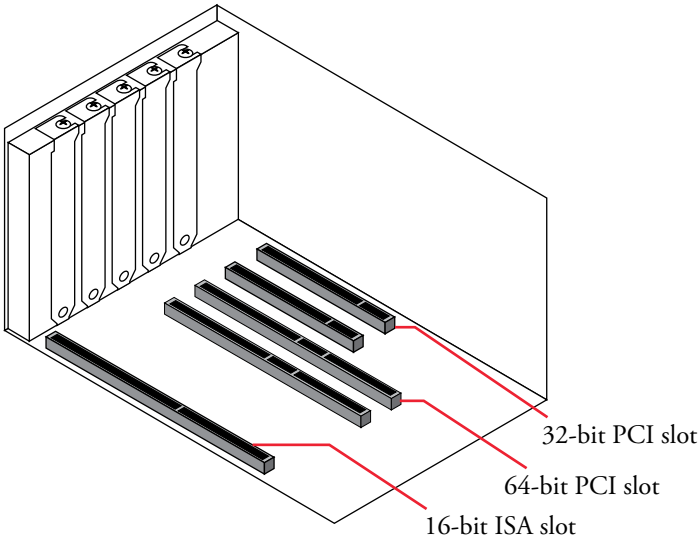


Figure 2-1. Locating a 32-bit or 64-bit PCI expansion slot

4. The DirecPC adapter should be installed in a 32-bit Peripheral Component Interconnect (PCI) expansion slot, but it can also be installed in a 64-bit PCI slot if there are no 32-bit slots available inside your computer. Figure 2-1 shows 32-bit and 64-bit PCI slot connectors, and a 16-bit Industry Standard Architecture (ISA) slot that may also be near the PCI slots. Observe that the 32-bit PCI slot is much shorter than an ISA

expansion slot and that there are three sockets in the 64-bit PCI slot, whereas the ISA slot has only two.

5. Remove the screw from the metal plate covering the slot you have chosen. Save the screw; you will be using it again later in this procedure.
6. Remove the cover plate from the slot.
7. Install the DirecPC adapter into the slot as follows: while being careful not to damage the cable connector, align your adapter's slot connector with the PCI expansion slot and firmly press on the adapter until it is fully seated into the slot (see figure 2-2).

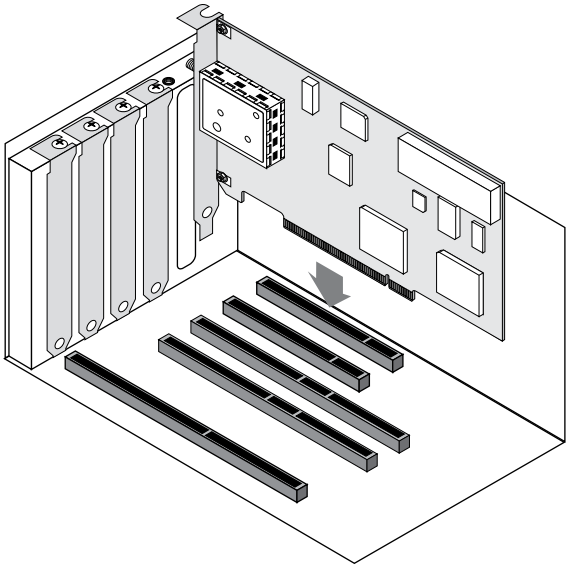


Figure 2-2. Installing the PCI DirecPC adapter into the slot

8. Secure the adapter to the expansion slot with the screw you removed from the cover plate.

CAUTION

The cover plate screw that secures the DirecPC adapter to the PC chassis must be completely tightened to provide continuous bonding between the DirecPC adapter and the PC chassis.

9. Install the computer cover and plug the AC power cord into the power outlet.
10. Save the DirecPC adapter shipping box and packing material. If you ever need to return the adapter for servicing, you should mail it in the original container.

    Note: *All the safety and operating instructions should be read before the DirecPC product is operated. These instructions should be retained for future reference.*

11. Turn the PC on and launch Windows 95. While it is starting up, Windows 95 will detect that you have installed the DirecPC adapter. Depending on the version of Windows 95 you have, one of the following will be displayed:
    - If your system has Microsoft Windows 95 version 4.00.950.B (also called the OEM Release 2) installed, the message *Windows has found new hardware and is locating the software for it* will be displayed. This will be quickly followed by the *Update Device Driver Wizard* dialog box. Go to step 12.
    - If your system has Microsoft Windows 95 version 4.00.950.A, the *New Hardware Found* screen will be displayed. Go to step 13.
12. Insert the DirecPC CD-ROM into the drive, then click on the *Next* button. A message will appear saying that Windows 95 has located the DirecPC PCI Adapter. When that happens, click on the *Finish* button. (A dialog box may appear asking you to insert the Windows 95 CD-ROM. If so, remove the DirecPC CD-ROM and insert the Windows 95 CD-ROM,

then click on the *OK* button.) A dialog box asking you to locate the file *bicndis.sys* will then appear. Make sure the DirecPC CD-ROM is inserted in the drive, then select the CD-ROM drive from the pop-up menu on the dialog box, then click on the *OK* button. Windows 95 will load the required files from the CD-ROM and finish the startup process.

13. Select the *Driver provided by hardware manufacturer* button. The *Install from disk* screen appears. Click inside the *Copy manufacturer's files from* box and type [**drive**]:\, where [drive] is the name of the drive into which you inserted the DirecPC CD-ROM (for example, D:\), then click *OK*. Windows 95 will copy the required files from the CD and then finish the startup process.

2.2 INSTALLING THE ISA ADAPTER

*Note: Verify that you are able to contact your ISP and access the WWW over the modem connected to your computer **before** you install the DirecPC adapter. Doing so ensures that the computer is working properly and that there are no problems that might interfere with DirecPC system operation.*

1. Switch off your personal computer (PC) and all peripheral devices, and unplug the power cord from the outlet.
2. Touch a metal surface on your computer to ground yourself to discharge any static electricity.
3. Remove the cover from your computer. (Refer to the documentation that came with your computer for the procedure.)

4. Locate a free 16-bit Industry Standard Architecture (ISA) expansion slot inside your computer. A 16-bit slot has two connectors, one slightly shorter than the other (see figure 2-3), as opposed to the 8-bit slot, which has only one connector.
5. Remove the screw from the metal plate covering the slot you have chosen. Save the screw; you will be using it again later in this procedure.
6. Remove the cover plate from the slot.

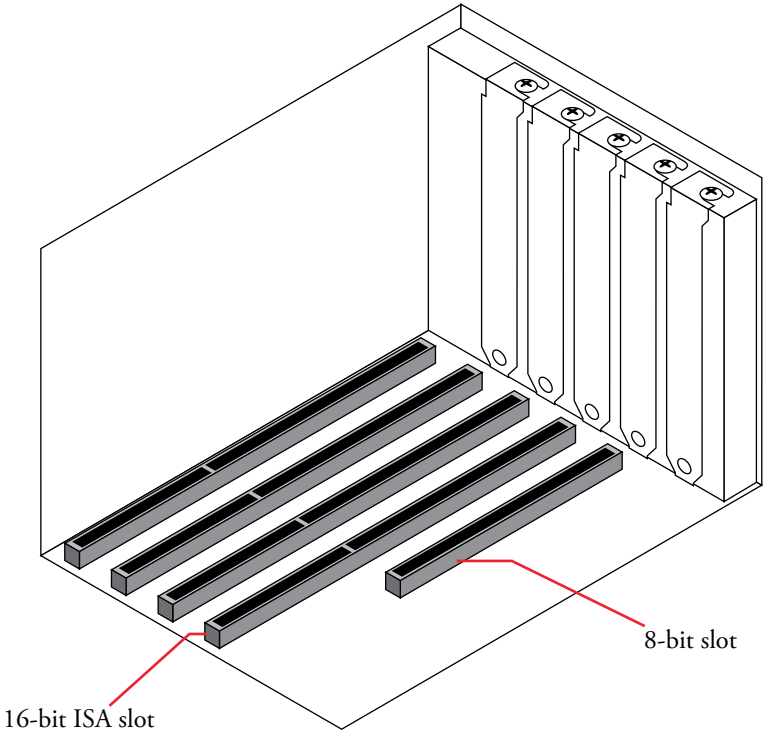


Figure 2-3. Locating an ISA expansion slot

7. Verify that all of the S1 switches on the DirecPC adapter (see figure 2-4 for location) are set to *OFF*.

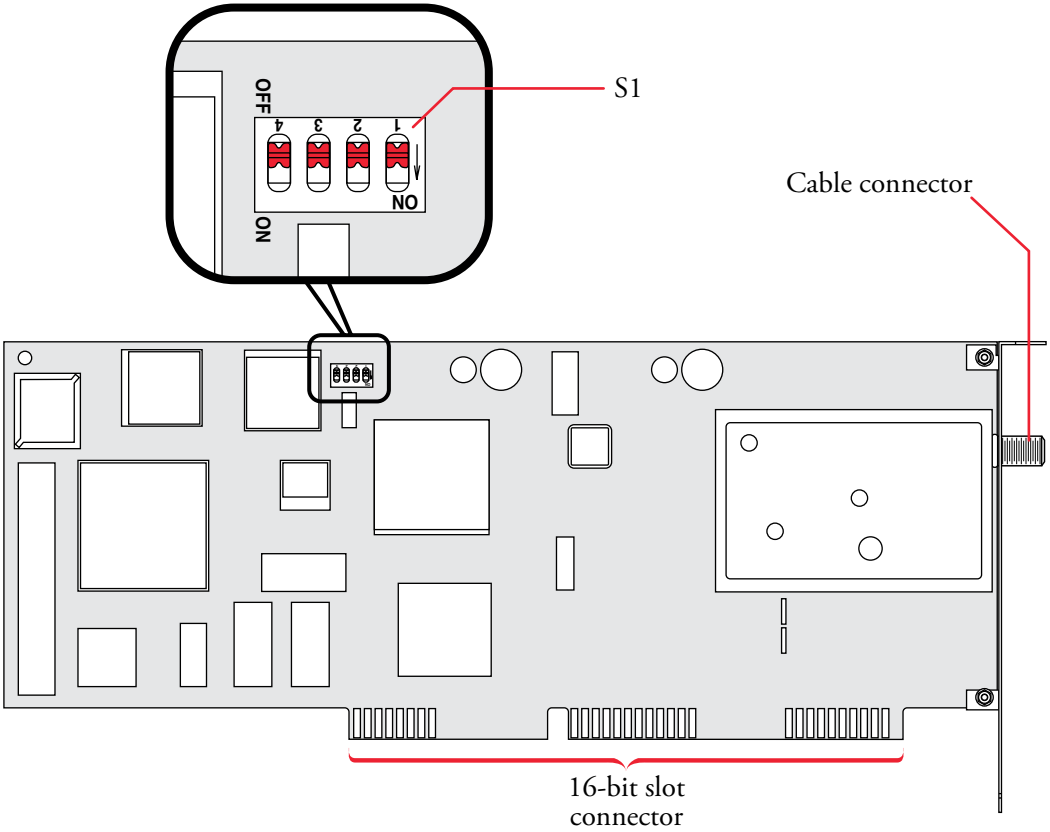


Figure 2-4. Locating S1 and the cable connector

Note: S1 controls how the input/output (I/O) base address for the DirecPC adapter is programmed. If all S1 are set to OFF, the DirecPC adapter's I/O base address is automatically set by software.

If you need to change a switch setting, use the tip of a pen to slide the switch to its new position—either ON or OFF—as shown in figure 2-5.

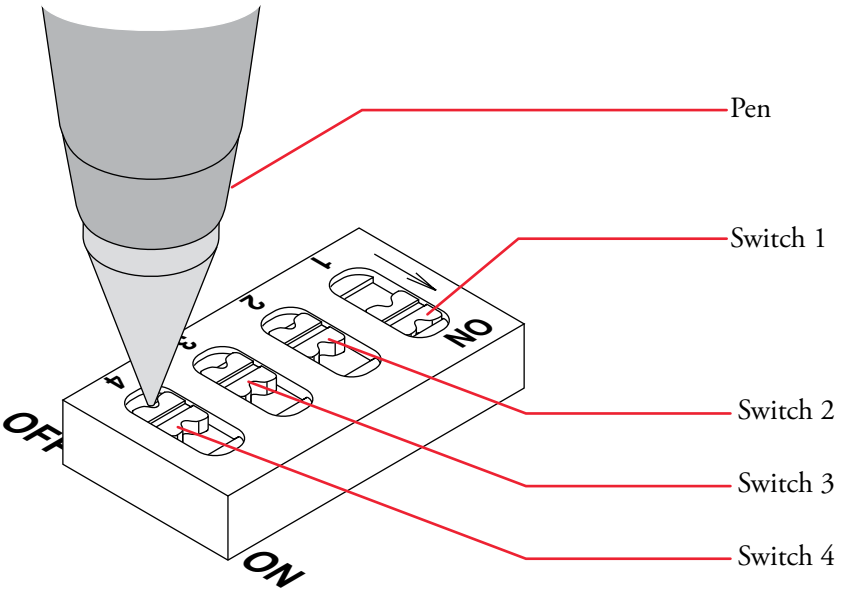


Figure 2-5. Changing a switch setting

8. Install the DirecPC adapter into the slot as follows: while being careful not to damage the cable connector (see figure 2-3 for location), align your adapter's slot connector with the ISA expansion slot and firmly press on the adapter until it is fully seated into the slot (see figure 2-6).

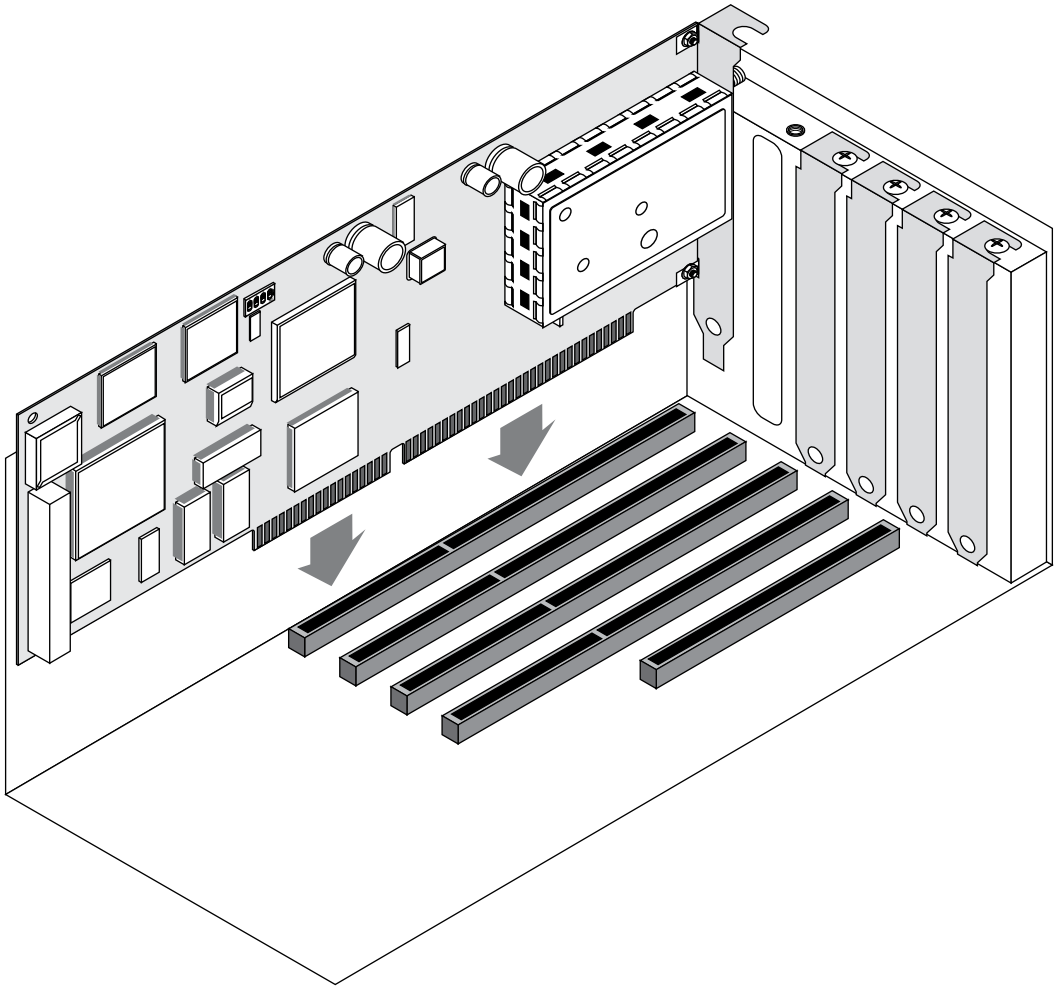


Figure 2-6. Installing the DirecPC adapter into the slot

9. Secure the adapter to the expansion slot with the screw you removed from the cover plate.

CAUTION

The cover plate screw that secures the DirecPC adapter to the PC chassis must be completely tightened to provide continuous bonding between the DirecPC adapter and the PC chassis.

10. Install the computer cover and plug the AC power cord into the power outlet.
11. Save the DirecPC adapter shipping box and packing material. If you ever need to return the adapter for servicing, you should mail it in the original container.

    Note: All the safety and operating instructions should be read before the DirecPC product is operated. These instructions should be retained for future reference.

12. Turn the PC on and verify that it functions normally. If so, go to chapter 3. If there is a problem that prevents the system from booting up properly, refer to appendix C, "Manually assigning an I/O base address (ISA version only)."

INSTALLING THE DIRECPC NAVIGATOR

This chapter provides instructions for installing the DirecPC Navigator software. As part of the setup process, your system will be registered automatically with the DirecPC operations center.

3.1 USER EQUIPMENT REQUIREMENTS

Your equipment and system software must meet the following requirements:

Table 3-1. DirecPC user equipment requirements

Component	Recommended	Minimum
System software	Microsoft Windows 95	Microsoft Windows 95
Computer	Pentium 90-MHz or faster	Any Pentium processor
Random-access memory (RAM)	16 Mbytes or more	16 Mbytes
Monitor	VGA (or better) with 1 Mbyte or VRAM for 256 colors	VGA with 512 Kbytes of VRAM
Mouse	Windows-compatible mouse	Windows-compatible mouse, graphics tablet, or other pointing device
CD-ROM drive	Any speed	Any speed
Hard disk drive	20 Mbytes for application, additional storage space is required to hold downloaded packages	20 Mbytes for application
Modem (for transmitting data)	Hayes-compatible 28.8-kbps (or faster) modem	Hayes-compatible 9600-baud (V.32) modem
Internet service provider (ISP)		The computer you will be installing the DirecPC card into must able to access the Internet and the WWW *before* you install the DirecPC adapter.

3.2 PREPARING TO INSTALL THE DIRECPC SOFTWARE

As part of the software installation process you will be asked which ISP you will be using. DirecPC Turbo Internet is compatible with most dial-up Internet service providers that:

- Use the PPP protocol and support either standard PAP or CHAP options for password login protection.
- Do not require certain types of scripting prior to starting the PPP protocol.

Before you install the DirecPC software, you must gather the following information about your existing ISP account:

- PPP login name and password (password is optional)
- ISP phone number
- E-Mail name (for example, jsmith from jsmith@direcpc.com) (optional)
- DNS Server IP address
- Domain name

> *Note: If your ISP requires a special script before starting the PPP protocol, or if you have problems making your ISP connection work properly with the DirecPC software, do the following:*
>
> *Refer to chapter 4, "Using the DirecPC Navigator" to start the Navigator, then consult the troubleshooting guide found in the Navigator help files by clicking on the* Start *button, then selecting* Programs > DirecPC > DirecPC Help.
>
> *If you need further assistance, contact* ***1-800-DIRECPC****.*

3.3 INSTALLING THE SOFTWARE

Installing the DirecPC Navigator takes about 10 minutes. Perform the following procedure to install the software:

> *Note: Some virus detection programs can interfere with the DirecPC software installation. If you are using a virus detection program, temporarily disable it before you install the DirecPC software.*

1. Run Microsoft Windows 95 on your computer.
2. Insert the DirecPC CD-ROM into the drive.
3. Click on the *Start* button.
4. Select the *Run* command.

5. In the Run dialog box, type [**drive**]**:\SETUP**, where [drive] is the name of the drive into which you inserted the CD-ROM (for example, D:\SETUP).
6. Click on the *OK* button. After a short delay, the DirecPC Setup Program Screen displays. Follow the instructions on the screen to finish installing the software. When the installation is complete, take a few minutes to review the README file, then refer to chapter 4, "Configuring the DirecPC software and DirecPC adapter."

CONFIGURING THE DIRECPC SOFTWARE AND DIRECPC ADAPTER

Note: If you have a problem or question during the following procedure, help is two mouse clicks away. First, click on the **?** *button to start the Help tool; the cursor will change to a question mark (?). Then click on the item you need help with.*

1. If you decided not to review the README file, click on the *Finish* button to start the Auto Setup program.

   Another way to start the Auto Setup program is to click on the *Start* button to open the Start menu, select the *Programs* menu, select the *DirecPC* menu, then select *Auto Setup*.

2. Follow the instructions on the screen to register and configure your DirecPC adapter and software. When you reach the Antenna Pointing section of the Auto Setup program, record the azimuth, elevation, and polarization values below, then go to step 3.

   Elevation _____ **Polarization** _____

   Azimuth _____

3. If your DirecPC antenna is already installed, refer to chapter 5, "Aligning the antenna." Otherwise, use the Antenna Installation Guide that came with your universal mount, pole mount, or non-penetrating mount to install the antenna; then refer to chapter 5.

5

ALIGNING THE ANTENNA

This chapter describes how to accurately point the antenna reflector at the satellite. Alignment is critical to the operation of the DirecPC system. When the reflector is pointed directly at the satellite, the adapter receives a strong signal. If the reflector is not positioned properly, the signal may be weak with errors resulting during data transfers. This signal quality would become worse on cloudy, windy, or rainy days.

5.1 TOOLS AND MATERIALS NEEDED TO ALIGN THE ANTENNA

A variety of tools are always handy but the only essential tools for alignment are a 13-mm wrench and a torque wrench (up to 18 ft-lbs).

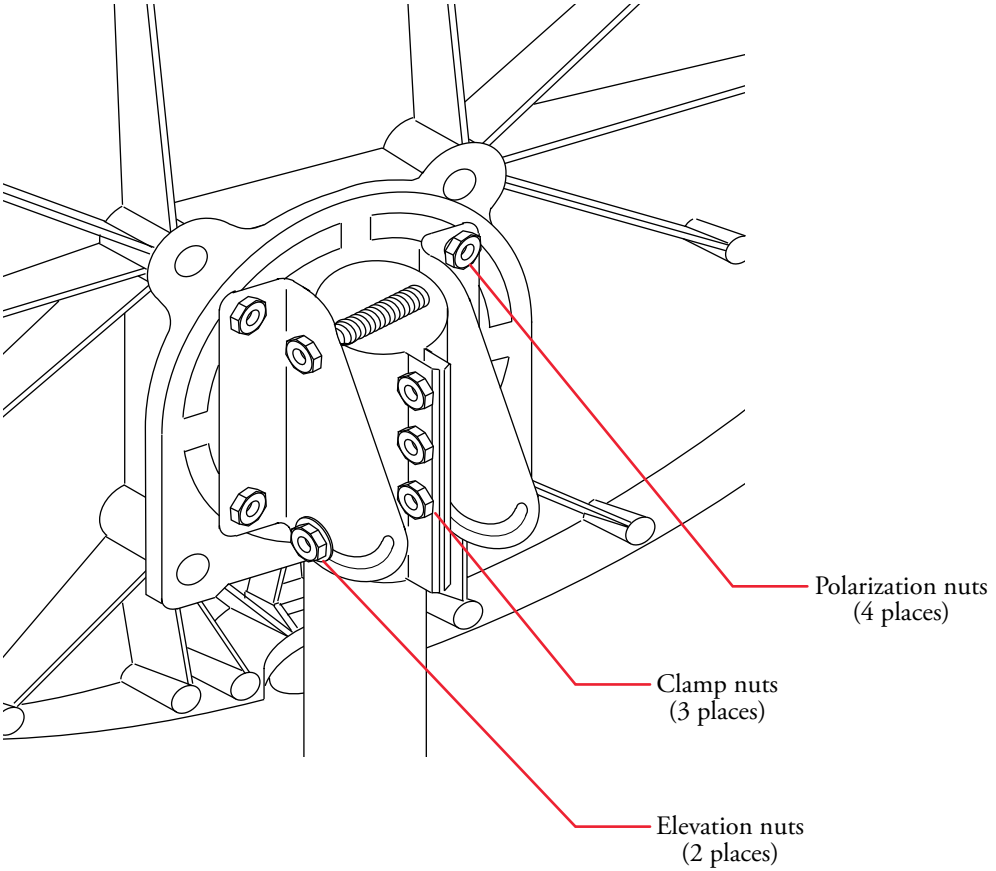


Figure 5-1. Reflector alignment hardware

5.2 PREPARING THE ANTENNA FOR ALIGNMENT

1. Loosen the four polarization nuts (see figure 5-1) so the antenna can be turned with slight pressure. (A loose, wobbly reflector affects proper pointing of the antenna.)

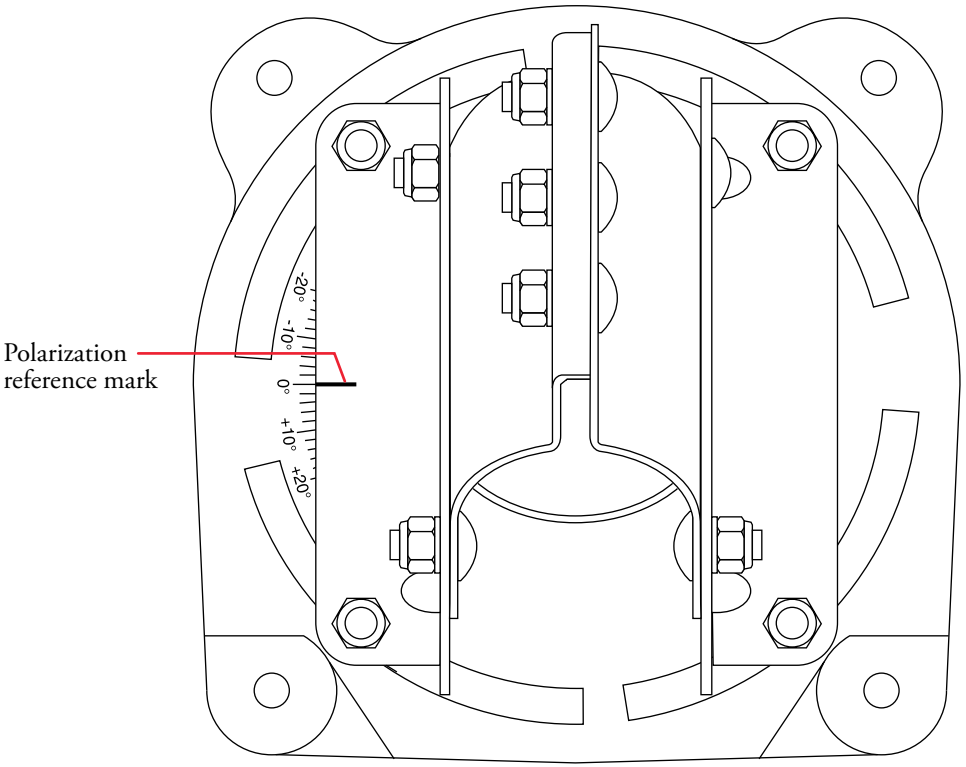


Figure 5-2. Polarization adjustment

2. Using the polarization value you recorded on page 18, rotate the antenna reflector until that polarization value on the polarization scale is aligned with the polarization reference mark (see figure 5-2). Tighten the polarization nuts.

3. Loosen the clamp bolts on the AZ/EL cap mount assembly that secure it to the mast tube (see figure 5-1). Loosen these bolts just enough to allow the antenna to move smoothly on the mast.

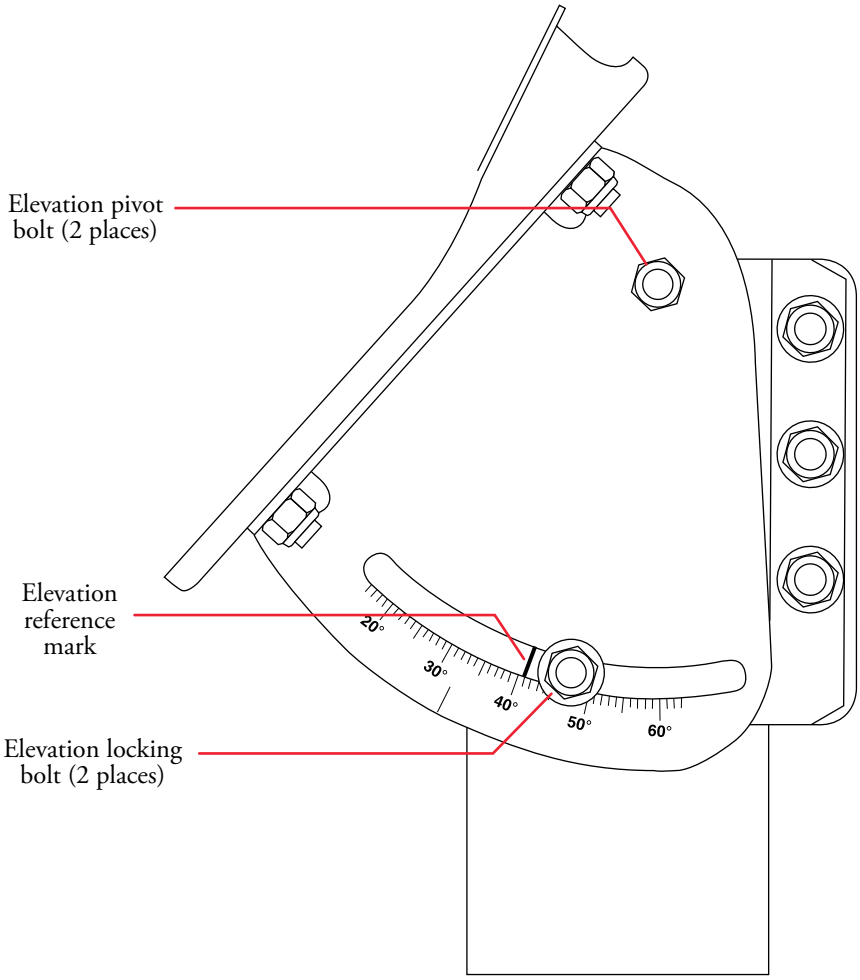


Figure 5-3. Elevation adjustment

4. Loosen the two elevation pivot bolts and the two elevation locking bolts on either side of the AZ/EL cap mount assembly. Loosen these bolts enough to allow smooth movement of the mount assembly during the elevation adjustment.

5.3 ESTABLISHING THE ANTENNA ELEVATION TARGET

The azimuth and elevation values calculated by the Antenna Pointing software are accurate enough to allow you to acquire the satellite on the first try if your alignment tools are precise enough.

Unfortunately, a variety of factors (such as compass errors caused by nearby metal, the antenna mast not being completely plumb, etc.) reduce the likelihood that you will find the satellite when you set the antenna to the calculated values. To take this into account, the following procedure describes using the elevation scale stamped in the AZ/EL cap mount to establish an elevation window 10 degrees wide, within which you will find the satellite.

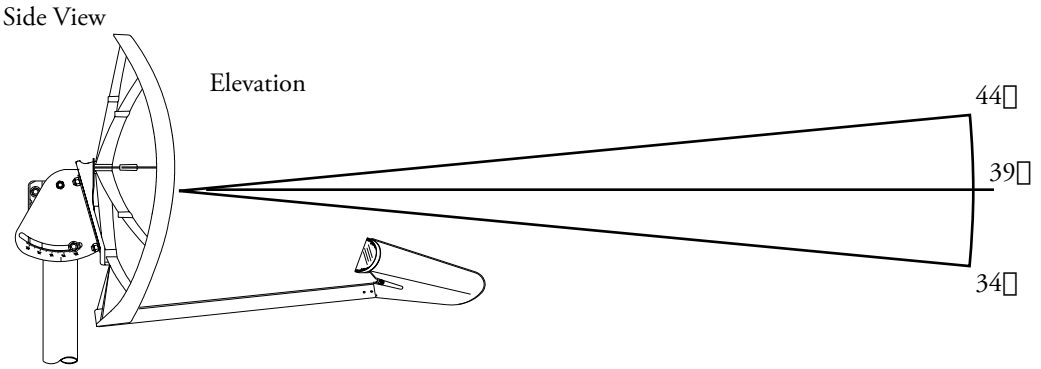


Figure 5-4. Elevation and azimuth pointing windows

1. Determine the azimuth and elevation window ranges. In our example, magnetic azimuth is 220 degrees and elevation is 39 degrees. The azimuth window is within 215 to 225 (220 ± 5) degrees and the elevation window is within 34 to 44 (39 ± 5) degrees (see figure 5-4).
2. Rotate the antenna in elevation until the elevation scale pointer reaches 5 degrees below the calculated elevation that the software provided. In our example (see figure 5-4), this value is 34 degrees (5 degrees below the calculated value of 39 degrees). Tighten the elevation nuts.

3. Rotate the antenna in azimuth until the antenna is pointed at the calculated magnetic azimuth bearing (in our example, this value would be 220 degrees). Use a pencil to mark the location of alignment mark (see figure 5-5) onto the mast. This mark will be referred to as the *center mark* (see figure 5-6).

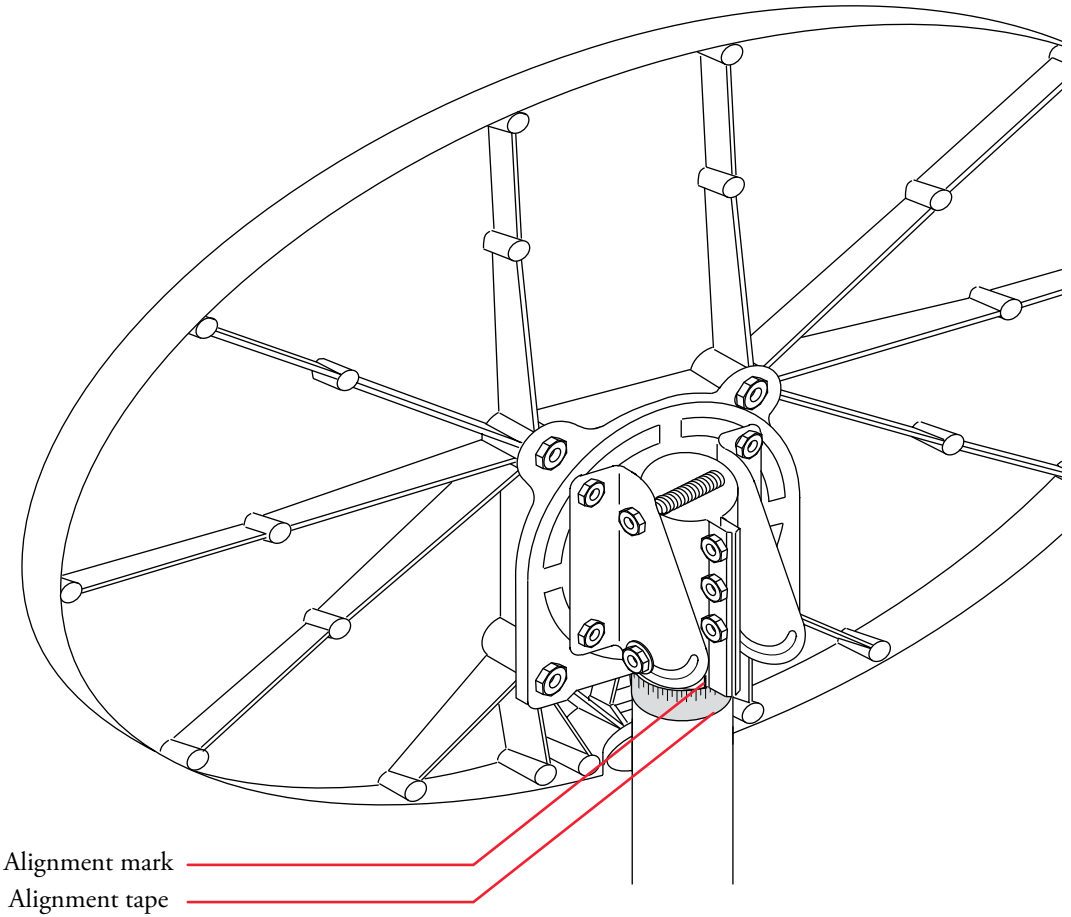


Figure 5-5. Alignment mark and alignment tape locations

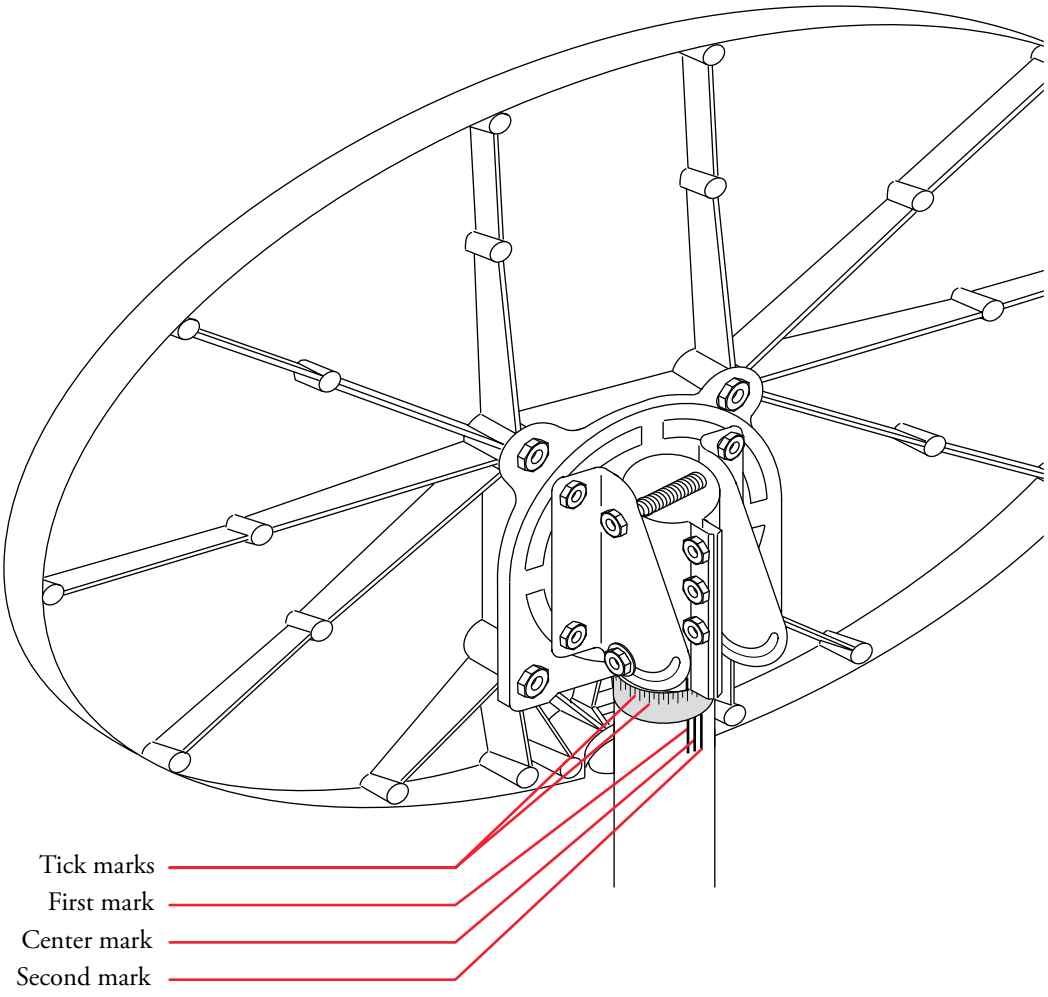


Figure 5-6. Marking the azimuth locations on the mast

5.4 BEGINNING THE ALIGNMENT PROCEDURE

Performing the fine-alignment procedure can be a one- or a two-person task depending on how far the PC is from the antenna. If the antenna is close enough for the person aiming the antenna to hear the computer speaker (or if you can connect a remote speaker to the PC and place the speaker next to the antenna), you can use the tones generated by the PC as a reference. Otherwise, it is

probably best to have a second person watch the computer monitor as it displays the signal strength meter information.

If two people are performing the procedure, one person can view the computer monitor and provide feedback to the person aiming the antenna as to how well the signal is being received.

> *Note: If you exited from the Auto Setup program after completing Chapter 4, "Configuring the DirecPC software and DirecPC adapter," you will need to run the DirecPC Antenna Pointing program. Run Microsoft Windows 95 on your computer, click on the* Start *button, then select Programs > DirecPC > Antenna Pointing. After a short delay, the Antenna Pointing Screen displays.*

1. To begin the antenna alignment procedure, place a mark on the mast that is two tick marks to the left of the center mark. That mark is the *first mark* (see figure 5-6). Then place another mark that is two tick marks to the right of the center mark. That mark is the *second mark*.
2. If you are receiving a signal, go to step 6. If no signal is present, stand behind the antenna reflector, grasp the outer edges of the reflector (do not lean on the reflector as that would affect alignment), and adjust the azimuth by *slowly* turning the antenna from the first mark to the second mark while you or a helper watches the signal strength screen for indications that you are receiving the signal. If you acquire the satellite signal, go to step 6; otherwise, go to step 3.

   > *Note:* ***You need to take at least 45 seconds to sweep the reflector from the first mark to the second mark. Count out loud as you rotate the reflector; if you reach the second mark in less than 45 seconds, you are not providing the DirecPC adapter enough time to track and register the signal strength, and you must repeat the sweep.***

3. Loosen the elevation nuts and increase the elevation 1 degree. (In our example the setting was 34 degrees; the new setting would now be 35 degrees.) Tighten the elevation nuts.

4. Return to the first mark and slowly rotate the antenna to the second mark in the same way as you did in step 2. If you acquire the satellite signal, go to step 6; otherwise, go to step 5.

5. Repeat steps 3 and 4 until you receive the signal. If you acquire the satellite signal, go to step 6.

   Note: If you are still unable to acquire the satellite signal after sweeping through the full 10° elevation window, perform the following quick checks:

   - *verify that there are no obstructions blocking the signal (for example, trees)*
   - *verify that you have the cables connected properly to the satellite receiver*
   - *verify that you copied the azimuth and elevation values correctly*

6. Continue turning the antenna reflector a small amount in the same direction you were turning it when you began receiving the satellite signal. Pause for a few seconds each time after moving the antenna. Turn the antenna in this fashion until the signal quality numbers reach the highest numbers possible for your site (at least 110, but a signal strength of 120 or higher is best) and then begin to fall. When that happens, slowly turn the antenna in the opposite direction until you regain the highest number that was previously achieved.

7. To obtain maximum signal strength after a strong signal has been detected, rotate the antenna reflector through the strong signal range slowly (left and right as necessary) and position the reflector direction in the center of the strong range.

8. While observing the signal quality display to ensure that it stays the same, tighten the three clamp bolts that secure the AZ/EL cap mount assembly to the tube in the following sequence:

   a) Snug the top nut but do not completely tighten it.

   b) Snug the bottom nut but do not completely tighten it.

   c) Snug the middle nut but do not completely tighten it.

   d) Fully tighten the top nut (torque to 12 ft. pounds).

   e) Fully tighten the bottom nut (torque to 12 ft. pounds).

   f) Fully tighten the middle nut (torque to 12 ft. pounds).

9. Fine-tune the signal strength by adjusting (raising or lowering) the elevation adjusting screw to point the antenna reflector to the middle of the signal strength range.
10. While watching the signal quality display to ensure that it stays at maximum, tighten the elevation pivot bolts on either side of the AZ/EL cap mount in the following sequence:
    a) Snug one nut but do not completely tighten it.
    b) Snug the other nut but do not completely tighten it.
    c) Fully tighten the first nut (torque to 12 ft. pounds).
    d) Fully tighten the second nut (torque to 12 ft. pounds).
11. While watching the signal quality display to ensure that it stays at maximum, tighten the elevation pointer/elevation locking bolt on either side of the AZ/EL cap mount in the following sequence:
    a) Snug one nut but do not completely tighten it.
    b) Snug the other nut but do not completely tighten it.
    c) Fully tighten the first nut (torque to 12 ft. pounds).
    d) Fully tighten the second nut (torque to 18 ft. pounds).
12. While watching the signal quality display to ensure that it stays at maximum, crouch near and to the side of the feed horn in such a way that you are not putting pressure on the feed horn and are not blocking the signals coming to the antenna reflector.

    Fine-tune the polarization setting by loosening the polarization nuts and rotating the reflector a few degrees slowly in each direction. Select a setting in the middle of the maximum signal strength range.
13. While watching the signal strength display to ensure that it stays at maximum, tighten the polarization nuts.

Congratulations! Installation is complete. Refer to chapter 6, "Using the DirecPC Navigator."

6

USING THE DIRECPC NAVIGATOR

This chapter describes how to use the DirecPC Navigator. The Navigator enables you to do the following:

- Navigate and manage the Turbo Internet and Package Delivery services.
- Navigate and manage applications such as your Internet browser.
- Display information broadcast from the DirecPC satellite.

You can add any application—for example, an E-mail client—to the Navigator, and once you have added it, you can launch it by clicking on a single button.

> *Note: For more information about the Navigator, refer to the* Help *menu and select* Contents.

6.1 STARTING THE DIRECPC NAVIGATOR

1. Run Microsoft Windows 95 on your computer.
2. You can double-click on the short-cut icon on the desktop to launch the DirecPC Navigator, or you can click on the *Start*

button to open the Start menu, then select the *Programs* menu, then select *DirecPC Navigator*.

After the DirecPC Navigator is running, you can use Turbo Internet to access the Internet through your browser or you can use the Package Delivery service.

Note: You cannot use the Turbo Internet and Package Delivery services at the same time. If you are using any Internet applications (that is, any application that requires an ISP connection) and want to use the Package Delivery service, you must first close all Internet applications to free up access to the modem.

6.2 USING TURBO INTERNET AND AN INTERNET BROWSER TO ACCESS THE INTERNET

1. Run the DirecPC Navigator.
2. Click on the browser icon on the tool bar to launch the browser. For instructions on how to use the browser, refer to the browser's online Help topics.

   Note: You must start the browser (or any other Internet application) from the DirecPC Navigator tool bar, otherwise the application will not work properly.

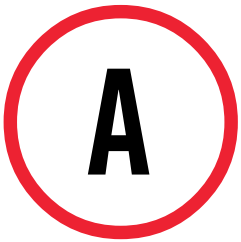
   Note: A browser icon appears on the tool bar only if the browser was installed before the DirecPC Auto Setup program was run. If you did not have a browser installed at that time or have since installed a different browser, refer to the Help *menu and select the "Managing Applications with the DirecPC Navigator" topic in* Contents *for instructions on adding the browser's icon to the tool bar.*

   When you start the browser, the DirecPC Navigator first makes a connection to your ISP, then it launches the browser.

   After you exit from the browser (or any other Internet application) the DirecPC Navigator will automatically disconnect the telephone connection to the ISP.

6.3 USING THE PACKAGE DELIVERY SERVICE

1. Run the DirecPC Navigator.
2. You can click on the Package Explorer icon on the tool bar to launch the Package Delivery service, or you can click on the Start menu and select *PKGEXPLR*. For instructions on how to use the Package Delivery service, refer to the online Help.



ELECTRICAL GROUNDING

This appendix provides information on grounding the DirecPC system.

A.1 GROUNDING THE DIRECPC SYSTEM

Two components of the DirecPC installation must be grounded: 1) the antenna structure and 2) the coaxial cable connecting the LNB feed assembly to the DirecPC adapter. You need to tailor your grounding procedures to satisfy both local codes and the National Electrical Code which is published by the National Fire Protection Association in Batterymarch Park, Quincy, MA 02269.

For your reference, the following information relating to the DirecPC installation can be found in the National Electrical Code 1993 reference manual. Article 810—*Radio and Television Equipment,* covers most of the grounding and bonding information, but it also refers to other parts (articles) of the Code where needed.

- Article 810-2 refers coaxial cable requirements to article 820; grounding the outer conductive shield of a coaxial cable is found in article 820-33.
- Article 810-21 *Grounding Conductors—Receiving Stations* contains topics (a) through (j) as follows:

  (a) **material**, copper, aluminum, etc.

  (b) **insulation**, not required (see article 250-118 *Clean Surfaces*)

  (c) **supports**

  (d) **mechanical protection**

  (e) **run in straight line**

  (f) **electrode**, grounding conductor shall be connected as follows:

  1) to nearest accessible location on:

  - building or structure as described in article 250-81
  - grounded interior water pipe as described in article 250-80(a)
  - external to enclosures as described in article 250-71(b)
  - metallic power service raceway
  - service equipment enclosure
  - grounding electrode conductor or grounding electrode conductor metal enclosure, or

  2) if the building or structure has no grounding means, as described in (f) 1), attach to individual electrodes as described in article 250-81, or

  3) if the building or structure has no grounding means, as described in (f) 1) or (f) 2), attach to an effectively grounded metal structure, or to individual electrodes as described in article 250-83.

  (g) **inside or outside building**, the ground conductor is permitted to be run inside or outside.

  (h) **size**, the grounding conductor shall not be smaller than no. 10 copper or no. 8 aluminum, or no. 17 copper-clad steel or bronze.

(i) **common ground** is a single grounding conductor that shall be permitted for both protective and operating purposes.

(j) **bonding of electrodes** is a bonding jumper not smaller than no. 6 copper or equivalent, and shall be connected between the radio and television equipment grounding electrode and the power grounding electrode system at the building or structure served where separate electrodes are used.

- Article 250-115 describes using a ground clamp, lug, and other methods of connecting to the electrode.

Refer to chapter 5 of the Code manual to see if any special occupancies (environments) apply, and to chapter 1 for a list of definitions.

Note: Copper wire should be used for underground installation as aluminum wire is unsuitable for underground installation.

B

OBTAINING THE DIRECPC DOCUMENTATION FROM THE CD-ROM

The CD-ROM contains the following DirecPC documentation:

- *Getting Started* (document 1022921-0002) located in \doc\g_start.pdf

  This document is the online version of the guide in your hands now.

- *DirecPC Distribution System Information and Accessories Guide* (document 1022922-0002) located in \doc\access.pdf

  This document describes how to install the DirecPC system in uncommon configurations and includes detailed information about accessories recommended for use with the DirecPC system.

- *DirecPC Antenna Installation Guide* (document 1022925-0002) located in \doc\ant_univ.pdf

  This document describes how to install and align the DirecPC antenna on the universal mount.

- *DirecPC Antenna Installation Guide (for Non-Penetrating Mount)* (document 1022923-0002) located in \doc\ant_npm.pdf

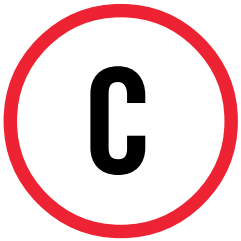
  This document describes how to install the DirecPC antenna on the optional non-penetrating (NPM) mount.

- *DirecPC Antenna Installation Guide (for Pole Mount)* (document 1022924-0002) located in \doc\ant_pole.pdf

  This document describes how to install the DirecPC antenna on an optional pole mount.

To read the documentation you must first install the Adobe Acrobat reader onto your hard disk drive, and then access the desired document using the reader. To install the Acrobat reader:

1. Copy the file ACROREAD.EXE. from \doc into a temporary directory on your hard disk drive.
2. Click on the *Start* button.
3. Select the *Run* command.
4. In the Run dialog box, type **[drive]:[temp]\ACROREAD**, where [drive] is the name of the hard disk drive where the ACROREAD.EXE file is stored and [temp] is the temporary directory where it is located (for example, C:\TEMP\ACROREAD).
5. Click on the *OK* button. This will install the Adobe Acrobat application and create an icon.
6. Run Adobe Acrobat and open the desired document.



MANUALLY ASSIGNING AN I/O BASE ADDRESS (ISA VERSION ONLY)

Note: This appendix does not apply to the PCI version of the DirecPC adapter.

If your PC is not booting up properly after you installed the DirecPC adapter, you will have to configure DIP switches on the adapter to set the I/O range and manually reserve the address range for the adapter using the Windows 95 device manager.

Do the following:

Note: Read all steps in this procedure before shutting down your PC.

4. Double-click on the *DirecPC Satellite Receiver Adapter* to open the adapter properties sheet and select the *Custom Properties* tab.
5. Verify that the *Use Hard Set I/O Base Address* checkbox is checked.
6. Select the *Resource* tab and observe the value of the *Input/ Output Range* that is currently configured. Also, verify that the *Use automatic settings* check box is not checked. Click on *OK* to close the DirecPC Satellite Receiver Adapter Properties dialog, then click on *OK* to close the Systems Properties applet.
7. Double-click on the I/O Range. Change the option to one that does not conflict with other devices installed in the PC (see table C-1 for the list of available DirecPC I/O base addresses). Click on *OK*.
8. Exit from Windows 95.
9. Power off your PC and all peripheral devices, and unplug the power cord from the outlet.
10. Touch a metal surface on your computer to ground yourself, thereby discharging any static electricity.
11. Remove the cover from your computer. (Refer to the documentation that came with your computer for the procedure.)
12. The DirecPC ISA adapter's DIP switches are located near the top of the adapter (see figure C-1) and can often be accessed without removing the adapter from the PC. If you need to remove the adapter to reach the switches, go to step 13. Otherwise, go to step 15.

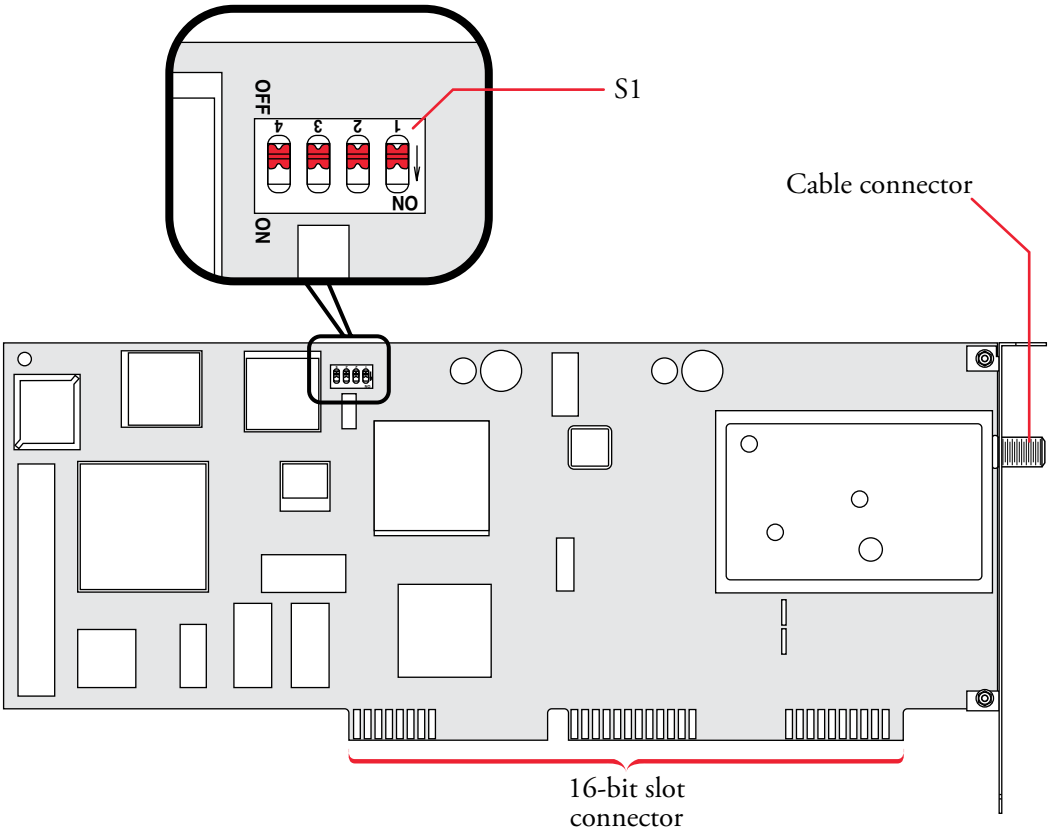
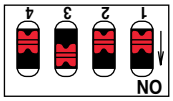
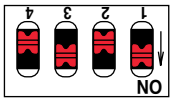
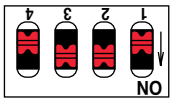
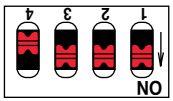
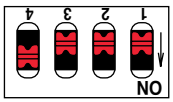
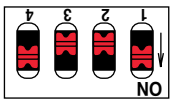
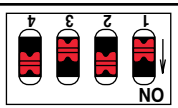
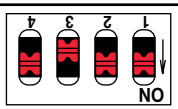
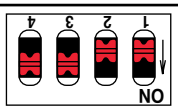
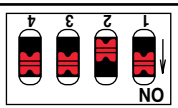
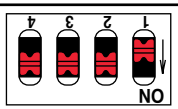
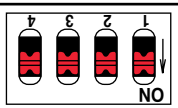


Figure C-1. Locating S1

13. Remove the cover plate screw from the adapter.
14. Remove the adapter from the ISA expansion slot.
15. Refer to table C-1 and select the DIP switch configuration that matches the I/O base address you chose in step 7.

Table C-1. Configuring S1 to set the base I/O address

Switch settings 4	3	2	1	Settings diagram	Base I/O address
OFF	ON	OFF	OFF		0100 - 012F
OFF	ON	OFF	ON		0140 - 016F
OFF	ON	ON	OFF		0180 - 01AF
OFF	ON	ON	ON		01C0 - 01EF
ON	OFF	OFF	OFF		0200 - 022F
ON	OFF	OFF	ON		0240 - 026F
ON	OFF	ON	OFF		0280 - 02AF
ON	OFF	ON	ON		02C0 - 02EF
ON	ON	OFF	OFF		0300 - 032F
ON	ON	OFF	ON		0340 - 036F
ON	ON	ON	OFF		0380 - 03AF
ON	ON	ON	ON		03C0 - 03EF

Note: To change a switch setting, use the tip of a pen to slide the switch to its new position—either ON or OFF—as shown in figure C-2.

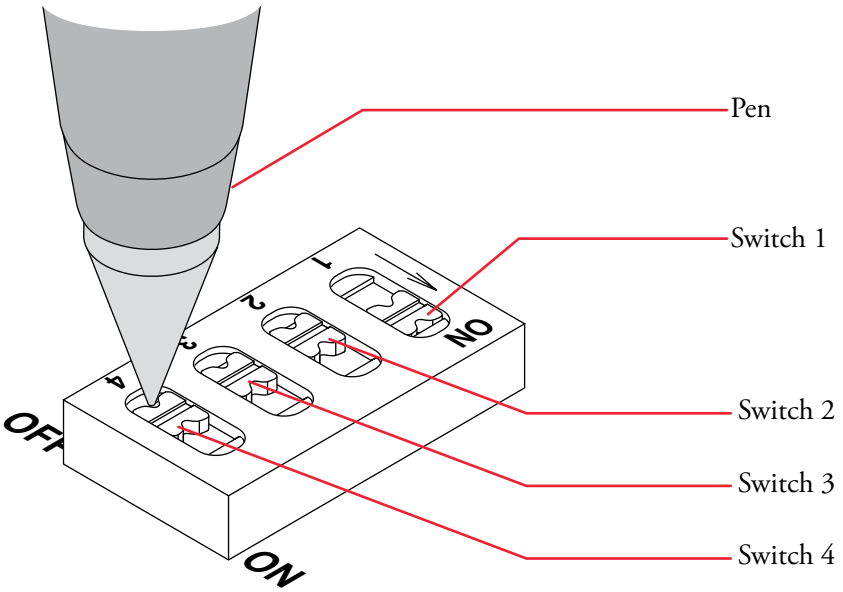


Figure C-2. Changing a switch setting

16. If you did not remove the adapter from the PC, go to step 17. Otherwise, install the DirecPC adapter into the same ISA slot that it was removed from earlier as follows: while being careful not to damage the cable connector, align your adapter's 16-bit ISA slot connector with the expansion slot and firmly press on the adapter until it is fully seated into the slot.
17. Secure the adapter to the expansion slot with the screw you removed in step 13.
18. Install the computer cover, plug the power cord into the outlet, and switch the system on.

Verify that the computer boots up properly. If it does, refer to chapter 3, "Installing the DirecPC software." Otherwise, contact **1-800-DIRECPC** for further assistance.

D

MAINTENANCE

This appendix describes replacing a failed DirecPC adapter.

WARNING

Before removing the DirecPC adapter from the personal computer, disconnect the power cord plug from the outlet. Failure to do so could result in severe personal injury.

Note: Before you remove the DirecPC adapter, consult the troubleshooting guide to see if there may be a simpler solution. The troubleshooting guide can be found in the Navigator help files by clicking on the Start *button, then selecting* Programs > DirecPC > DirecPC Help.

If you still need assistance, contact ***1-800-DIRECPC****.*

1. Switch off your PC and all peripheral devices, and unplug the power cord from the outlet.

2. Touch a metal surface on your computer to ground yourself, thereby discharging any static electricity.
3. Remove the cover from your computer. (Refer to the documentation that came with your computer for the procedure.)
4. Disconnect the LNB cable from the DirecPC adapter cable connector.
5. Remove the cover plate screw from the adapter.
6. Remove the adapter from the PCI or ISA expansion slot. If you have a PCI adapter, go to step 8. Otherwise, go to step 7.
7. Compare the S1 settings on the failed ISA adapter with the replacement adapter. If they are different, set S1 on the replacement adapter to be the same as the failed adapter.

   Note: If you need to change an S1 switch setting, use the tip of a pen to slide the switch to its new position—either ON or OFF.

8. Place the defective adapter in its original shipping container and return it for repair.
9. Install the DirecPC adapter into the slot that the defective adapter was removed from as follows: while being careful not to damage the cable connector, align your adapter's slot connector with the expansion slot and firmly press on the adapter until it is fully seated into the slot.
10. Secure the adapter to the expansion slot with the screw you removed in step 5.
11. Reconnect the LNB cable to the DirecPC adapter cable connector.
12. Install the computer cover and switch the system on.

Adapter replacement is complete. Refer to chapter 4, "Configuring the DirecPC software and DirecPC adapter" to run the Auto Setup program.

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