

HomeLink® Series

# Phoneline 10M Network



Use this guide to install these Linksys products:

**HPN200**

*HomeLink® Phoneline 10M Network Card*

**HPN200SK**

*HomeLink® Phoneline 10M Network In a Box*

**User Guide**



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#### LIMITED WARRANTY

Linksys guarantees that every HomeLink® Phoneline 10M Network Card will be free from physical defects in material and workmanship for one year from the date of purchase, when used within the limits set forth in the Specification section of this User Guide. If the product proves defective during this warranty period, call Linksys Customer Support in order to obtain a Return Authorization number. **BE SURE TO HAVE YOUR PROOF OF PURCHASE ON HAND WHEN CALLING.** When returning a product, mark the Return Authorization number clearly on the outside of the package and include your original proof of purchase. **RETURN REQUESTS CANNOT BE PROCESSED WITHOUT PROOF OF PURCHASE.** All customers located outside of the United States of America and Canada shall be held responsible for shipping and handling charges.

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#### FCC STATEMENT

The HomeLink® Phoneline 10M Network Card has been tested and complies with the specifications 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 according to 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 is found 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 or device
- Connect the equipment to an outlet other than the receiver's
- Consult a dealer or an experienced radio/TV technician for assistance

**UG HPN200 10607A AC**

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## Introduction

### The Linksys HomeLink® Phoneline Network Card

Congratulations on your purchase of the Linksys HomeLink® Phoneline Network Card (or Network in a Box)—the second generation Network Card of the Linksys HomeLink® series! Now able to transfer data at the same speed as a standard Ethernet network, the HomeLink® Phoneline 10M Network Card is the simplest way to build a network in your home or small office. Connect directly to your first-generation HomeLink® or home phoneline network, print from any PC to any printer, and play multi-player games at top speeds without installing a switch, a hub, or even network cables.

By allocating certain frequencies for certain types of data transfer, the Linksys HomeLink® Network 10M Card allows your phone line to simultaneously carry computer data along with your voice. You can talk on the telephone, download files from the Internet, and share data between PCs all at the same time (assuming that you are using a cable or DSL modem). Every standard telephone jack in the home is capable of hosting a PC. You can transform your telephone wiring into an easily expandable network.

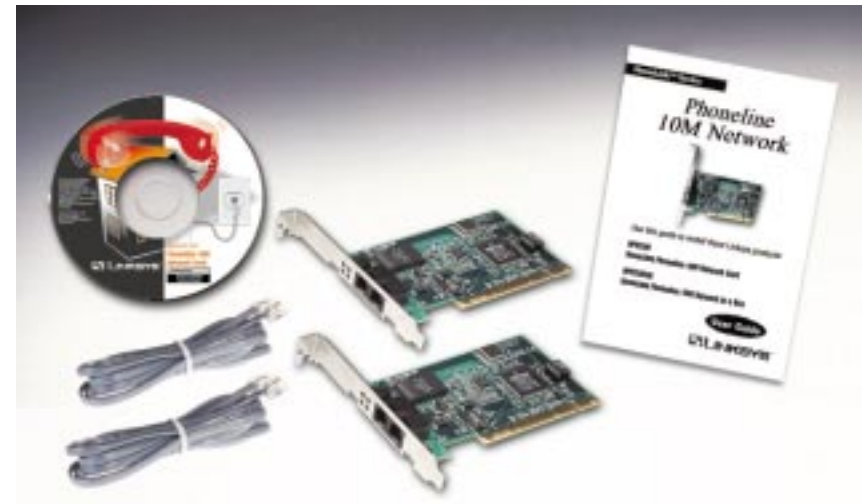
### Features

- Build a network using your existing telephone line
- Up to 10Mbps transfer rate
- Play multi-player games at top speeds
- Enable file, data and printer sharing between your PCs
- Connect up to 30 PCs with up to 1000 feet of telephone cabling
- Data transfer rate is over 30 times faster than a 56K modem
- Compatible with Windows 95, 98, ME, NT 4.0, and 2000
- Frequency division multiplexing for uninterrupted simultaneous voice service and network data transmissions
- Free technical—24 hours a day, 7 days a week for North America only



### Network Card Package Contents

- One HomeLink® Phoneline 10M Network Card
- One Standard Modular Telephone Cable
- One User Guide and Registration Card
- One Installation CD-ROM



### Network in a Box Package Contents

- Two HomeLink® Phoneline 10M Network Cards
- Two Standard Modular Telephone Cables
- One User Guide and Registration Card
- One Installation CD-ROM

### System Requirements

- PCI 2.2 compliant PC
- Windows 95, 98, ME, NT, or 2000
- CD-ROM drive

# Hardware Setup

## Installing the 10M Phoneline Network Card

1. Turn off your PC and any peripheral equipment attached to it.
2. Remove your PC's outside cover.
3. Open up your computer and locate the PCI expansion slot(s). Next, determine which of your PC's PCI slots is the **master slot** (In newer PCs, the PCI slots are usually all master slots. Older PCs may have both master and slave slots. The HomeLink card must be inserted into a master slot). Your PC vendor can help you determine which slots are designed for 32-bit cards.
4. Carefully slide the HomeLink® card into the PCI slot. Make sure that all of its pins are touching the slot's contacts. After the card is firmly in place, secure its fastening tab to your PC's chassis with a mounting screw.
5. Replace your PC's cover and turn on your PC. If your computer has a plug-and-play BIOS and a Plug-and-Play operating system such as **Windows 95, 98, ME, or 2000**, it will automatically recognize the card and assign a unique IRQ ("interrupt") and I/O address to it. If not, refer to the appropriate installation section.

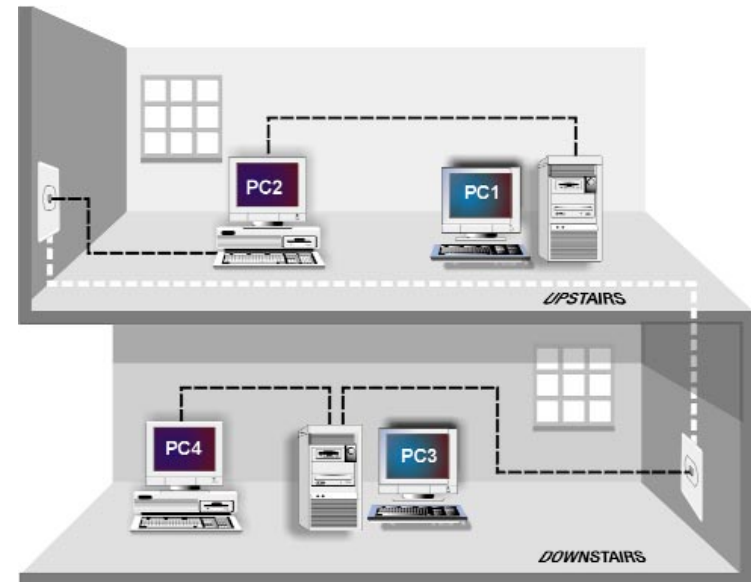
## Installing the RJ-11 (Telephone) Cabling

Attach one end of the telephone wire to the HomeLink® card's RJ-11 telephone port. There are two RJ-11 ports. Connect the other end of the cable into a telephone jack in your wall.

If you are using an analog telephone, you can either connect the device to a second phone jack (recommended), or you can connect your telephone directly to the second port on your HomeLink card.

If you have only one phone jack in your room and you want to use your modem or fax, it is recommended that you purchase a **two-way adapter** that can turn your single phone jack into a double phone jack. Plug your telephone or fax into one phone jack, and your HomeLink® card into the other.

If you have two or three PCs in one room with only one telephone jack, you can connect several of the PC together using the **Daisy Chain** method. To daisy chain your PCs, plug your first PC with a Phoneline card into the phone jack



A Typical HomeLink Network

in the wall, then plug the other phone cable port on the card to your second PC with a standard phone cable. You can connect up to thirty PCs on one chain. If you want to use your telephone or fax machine, add a two-way splitter on your wall's phone jack or connect the device to the open telephone port on the last card in your daisy chain. If you are daisy chaining **more than 2 PCs**, you should connect your modem to a different wall phone jack, or obtain a 2-way splitter.

## Software Pre-install

Setting up the HomeLink® card's software involves installing a **network driver** onto your PC, which will allow your card to communicate with Windows. Windows 95, 98, ME, NT, or 2000 must be installed on all of your PCs in order to install the software. The HomeLink® Phoneline 10M Network Card driver setup program will not work properly under any other operating systems.

You will need a CD-ROM drive installed on each PC you wish to network. Because there are several important questions about your PC that you must answer during the installation, we recommend that you read through the User Guide.

# Windows 95 Installation and Setup

## Overview

After installing the HomeLink® hardware in your computer, follow these instructions for installing the network driver in Windows 95 version B, the more common version of Windows 95. If you have Windows 95 version A, go to the version A installation section in the Appendix now. The installation procedure for the network driver will vary slightly depending on the version of Windows 95 you are using and your current system configuration.

### 1. With the Card installed, start up your PC.

After Windows 95 is loaded, Windows will display an "Update Device Driver" window. Click the **Next** button.

**Note:** If the window that pops up says "New Hardware Found," and it asks for "Driver from disk provided by manufacturer," then you are using Version A of Windows 95. Go to the Appendix for version A installation instructions.



### 2. Windows will try to find the software driver for your HomeLink® card. If Windows locates the driver, click the **Finish** button. If Windows fails to find the driver, insert your CD-ROM and click on **Other Locations**. Direct the setup to your CD-ROM drive. If the correct file is found, click the **Finish** button when you return to the **Update Device Driver Wizard**. If your PC fails to find the correct file, go to the Troubleshooting section.

**Note:** If you receive any "Version Conflict" or similar messages during the driver installation, and you are given a choice of over-writing any of your existing files, it is recommended that you keep the existing files. You may receive these messages many times, or you may not receive them at all depending on your system configuration and software.

### 3. Windows may now prompt you to insert your Phoneline 10M Network Card Installation CD-ROM. Make sure the CD is in the drive if you haven't already inserted it. Click the **OK** button. Windows will begin copying files onto your PC.

### 4. Windows 95 will copy the appropriate network drivers onto your computer. If Windows 95 asks you to supply your original Windows 95 installation CD-ROM or setup files, enter the appropriate path for those files (i.e., a:\, d:\win95, c:\windows\options\cabs, etc.). Linksys only provides two types of files on the Installation: CD-ROM—PCM200HA.inf and bcm\*\*.\* (or mfc\*\*.\* , in certain circumstances). All other files are provided by Microsoft.

### 5. Next, you will be asked to restart your PC. Click on the **Yes** button. If you do not restart your PC, the installation will be incomplete.

## Preparing Windows 95 For Use on a Network

Make sure that the following network components are installed by clicking on your Windows taskbar's **Start** button, click on **Settings**, and then **Control Panel**. When the **Control Panel** appears, click the **Network** icon. The Network window will appear. Click on the **Configuration** tab. The following components must be listed.

- Client for Microsoft Networks
- Linksys Phoneline 10M Network Card
- TCP/IP





There may be other components listed in addition to the ones shown above, which is fine. If any of the components shown above are missing, however, you'll need to manually install them. For instructions on how to do this, skip to the section titled **Manually Installing Network Components**.

When you're finished, restart your computer. The instructions on the next page explain how to enable file and printer sharing in Windows 95 so that your computer can be accessed by others and vice-versa.

## Setting Up File and Printer Sharing

1. Start up Windows 95. If you are asked to log in, be sure to give your correct username and password.
2. To set up sharing for the first time on a computer, click on **Start** and select **Settings** and **Control Panel**. Then, double-click on **Network**.
3. Select the **Configuration** tab, followed by the **File and Printer Sharing** button. The File and Printer Sharing window will appear.
4. Decide what types of resources you'd like to make available on the network.
  - If you'd like others to be able to access the files on your PC's hard drive, select **I want to be able to give others access to my files**.
  - If you'd like to share your printer with other users on the network, select **I want to be able to allow others to print to my printer**.
5. Click on the **OK** button. File and Printer Sharing for Microsoft Networks should now appear in the list of installed components. Click on the **OK** button. When asked to restart your PC, click on the **Yes** button.

## Enabling File Sharing

After following the steps on the previous page, double-click on your **My Computer** icon. A window of available disk drives will appear. Using your right mouse button, click once on the drive that you want to make available to other users. Click on **Sharing**, followed by the **Sharing** tab. Click on **Share As**.

In the Share Name box, give your computer a name (you can call it whatever you want as long as there are no spaces—MaryComputer, Tardis, etc.). Next, decide on the type of access that you want to give other users.

- **Read-Only access** lets other users view the files on your PC.
- **Full access** lets users create, change, or delete files on your PC.
- **Depends on Password** lets users have Read-Only and/or Full access, depending on the password that you decide to give them.

Select the type of file sharing access that you want other users to have. If you want to assign access password(s), type them into the Password box(es). When you're done, click on the **Apply** button, followed by the **OK** button. Your drive(s) can now be accessed from other users whenever they click on their Windows Network Neighborhood icons. If a user tries to access one of your drives that's password-protected, he or she will be asked for the appropriate Read-Only or Full Access password.

# Windows 98 & ME Installation and Setup

## Overview

After physically installing the HomeLink® card in your notebook computer, follow these instructions to install the device driver. The installation procedure for the device driver will vary slightly depending on which version of Windows 98 or ME you are using, and on your current system configuration. Please have your Windows 98 or ME Installation CD or diskettes available during installation. If at any time during the installation you encounter problems, consult the Troubleshooting section.

## Installing the Driver in Windows 98 & ME

1. If you haven't already, start up your computer.
2. Windows 98 or ME will automatically detect the presence of the Phoneline 10M Network Card in your computer.
3. When the **Add New Hardware Wizard** window appears, insert the **Phoneline 10M Network Card Driver** CD into your CD-ROM drive. Click the **Next** button.





4. Select **Search for the best driver for your device (Recommended)**. Click the **Next** button.



5. Select **CD-ROM** drive and click the **Next** button to continue.



6. A window will open saying that Windows is now ready to install the **Linksys Phoneline 10M Network Card** driver. Click the **Next** button.



7. Windows will begin copying the HomeLink® card's driver files to your PC. Refer to the chart below to help guide you through the process.

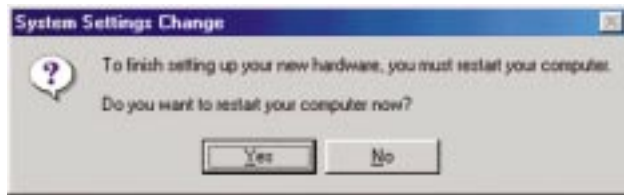
***If you press Skip or Cancel, the drivers will not be installed!***

- |   |   |
|---|---|
| <ul style="list-style-type: none"> <li>• If your PC asks for the Linksys Setup or Driver Disk</li> <li>• If you are asked to supply your Windows 98 Installation Files or Disks</li> <li>• If you are asked for a file that includes "HPN200" in its name</li> <li>• If you receive a Version Conflict error</li> </ul> | <ul style="list-style-type: none"> <li>▶ 1. Click <b>OK</b>.</li> <li>▶ 2. Ensure that the <b>Driver Disk</b> is in your PC's floppy drive.</li> <li>▶ 3. Type "a:\\" in the "Copy files from:" box.</li> <li>▶ 4. Click <b>OK</b>.</li> <li>▶ 1. Click <b>OK</b>.</li> <li>▶ 2. If you have a <b>Windows 98 CD-ROM</b>, type "d:\win98" in the "Copy files from:" box, where "d:" is your CD-ROM drive.</li> <li>▶ 3. If you don't have a <b>Windows 98 CD-ROM</b>, type: "c:\windows\options\cabs".</li> <li>▶ 4. Click <b>OK</b>.</li> <li>▶ 1. Insert the <b>Driver Disk</b> into your PC's floppy drive.</li> <li>▶ 2. Type "a:\\" in the "Copy files from:" box.</li> <li>▶ 3. Click <b>OK</b></li> <li>▶ 1. Choose to keep the newest version of the file by clicking <b>Yes</b>.</li> </ul> |
|---|---|

8. Windows will finish installing the software onto your PC. Click the **Finish** button.



9. When asked if you want to restart your PC, remove the Driver CD and click the **Yes** button.



10. If Windows does not ask you to restart your PC, click the **Start** button, choose **Shut Down, Restart**, then click the **Yes** button.

**The Windows 98/ME driver installation is complete.**

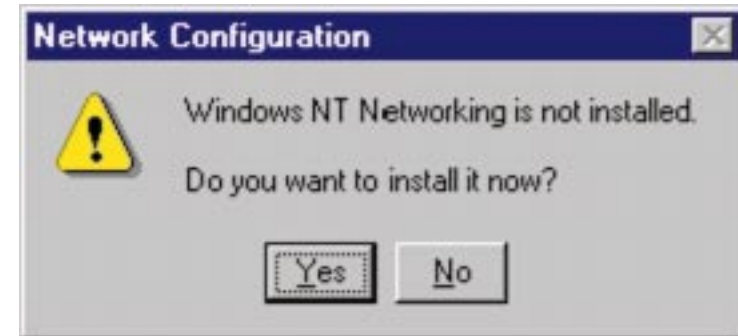
**Consult your network administrator for your network configuration information if necessary.**

## Windows NT 4.0 Installation and Setup

### Overview

After installing the HomeLink® hardware in your computer, follow these instructions for installing the network driver in Windows NT 4.0. The installation procedure for the network driver may vary slightly depending on the version of Windows NT you are using, the service packs you have installed, and your current system configuration.

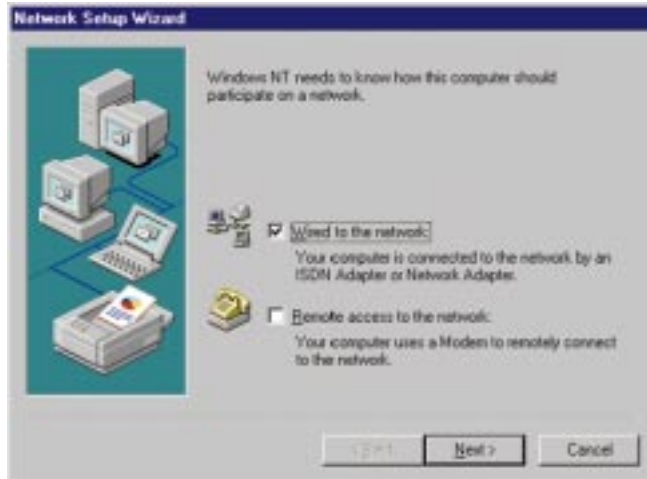
1. From the Windows NT desktop, click on **Start**, and select **Settings** and **Control Panel**. Double-click on the **Network** icon.
2. If you have not installed Windows NT networking on your computer, a message appears that reads, *Windows NT Networking is not installed. Do you want to install it now?*



- If you see this message, click the **Yes** button to install NT networking along with the HomeLink® card's network driver, and continue with step 1 on the next page.
- If you don't see this message, NT networking is already installed. Continue on with Step 1 in this section's **Installing the Network Driver**.

## Installing Windows NT Networking and the HomeLink® Card's Driver

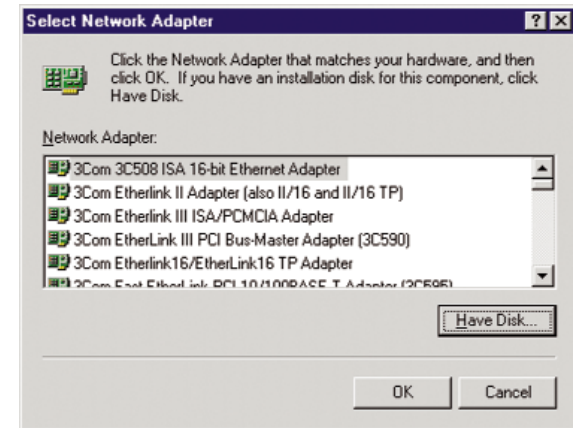
1. A message will appear that says, "Windows NT networking is not installed. Install now?" Click the **Yes** button.
2. The Network Setup Wizard will appear. In the choices box, select *Wired to the Network* and click the **Next** button.



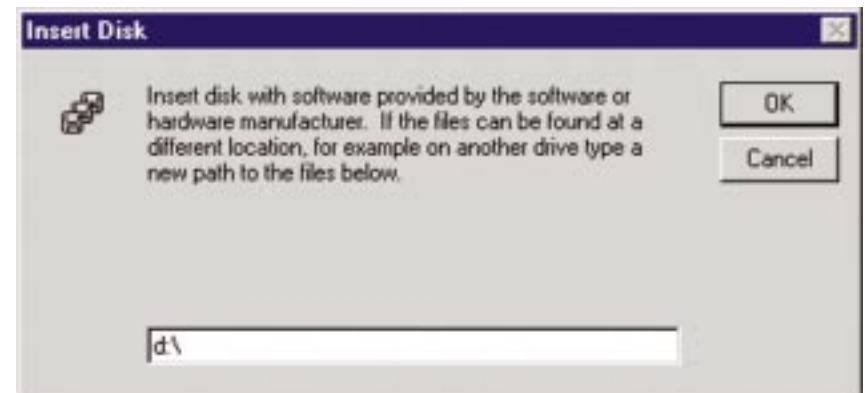
3. Windows NT will now ask you to pick a network adapter. Choose the **Select From List** option.



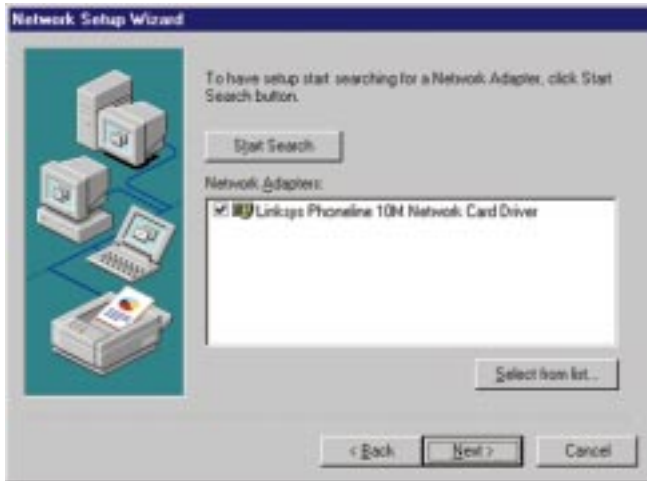
4. A new window will appear that shows a long list of adapters from different manufacturers. Since the HomeLink® card is a new product, it is not listed here. Select **Have Disk**.



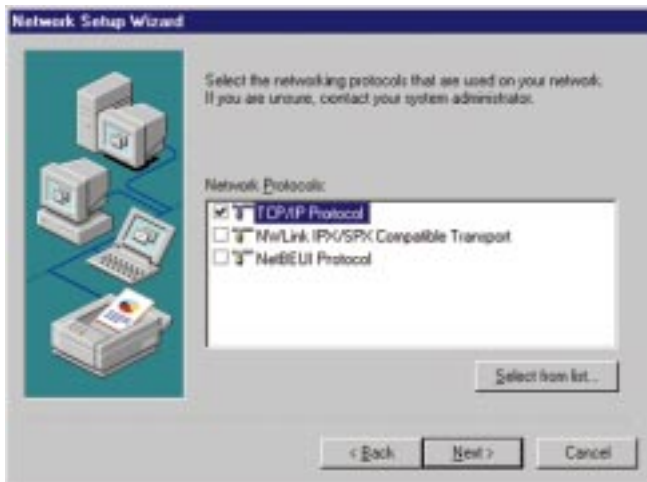
5. A message that says "Insert Disk" will appear. Put the HomeLink® CD-ROM in the CD-ROM drive and type **D:\** (or your CD-ROM Drive letter). Click the **OK** button.



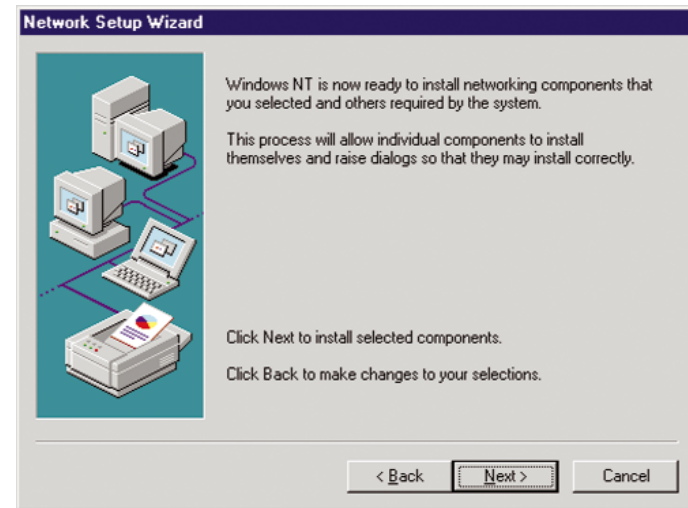
6. A window will appear verifying that the Linksys HomeLink® Phoneline Network Adapter has been detected. Click the **OK** button.
7. Now you will be back at the setup wizard. You will see the HomeLink® card listed in the Network Adapters window. Click the **Next** button.



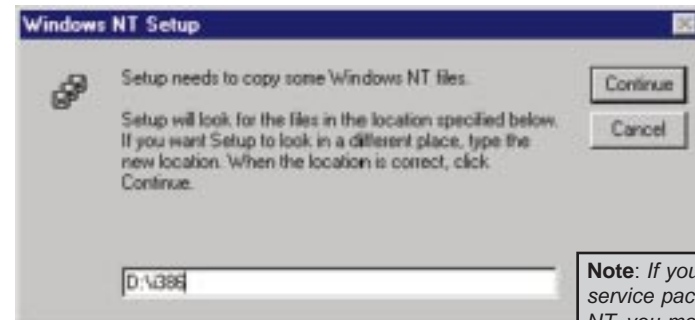
8. Select your protocols for the card.



9. Verify that your network services are correct. If you are unsure as to how your services should be set up, consult your NT documentation. Click the **Next** button.
10. The setup wizard will tell you that it's ready to install your networking components. Click the **Next** button.

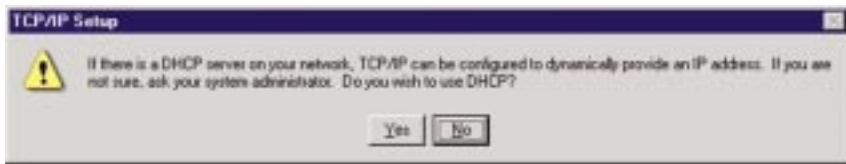


11. Windows NT may tell you that it needs to copy some NT system files onto your hard drive. If this is the case, remove the Linksys HomeLink® CD-ROM from your CD-ROM drive and insert your Windows NT CD-ROM. Type **D:\i386** (where D is the letter of your CD-ROM) and click the **Continue** button.

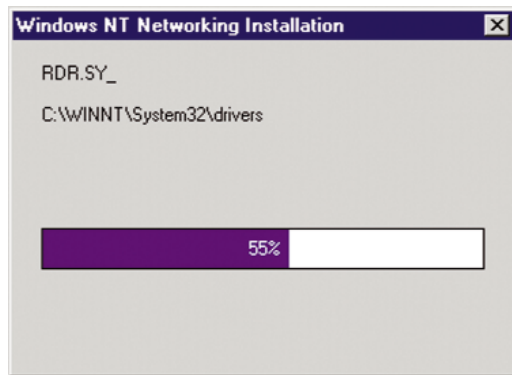


**Note:** If you are using a service pack in Windows NT, you may be required to re-install it after installing the HomeLink® Card and driver.

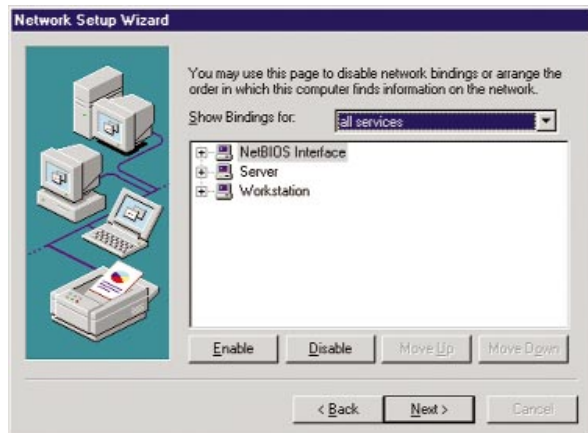
12. If you use TCP/IP, a window will ask you if you would like to use DHCP. If you are unsure as to whether or not DHCP should be set up, consult your Windows NT documentation. Choose **Yes** or **No** to continue.



13. NT will copy files onto your computer. This may take a minute. If you receive an error that says your PC is unable to open a file, put the Linksys HomeLink CD back in the CD-ROM drive. Wait a few seconds and click the **Retry** button.



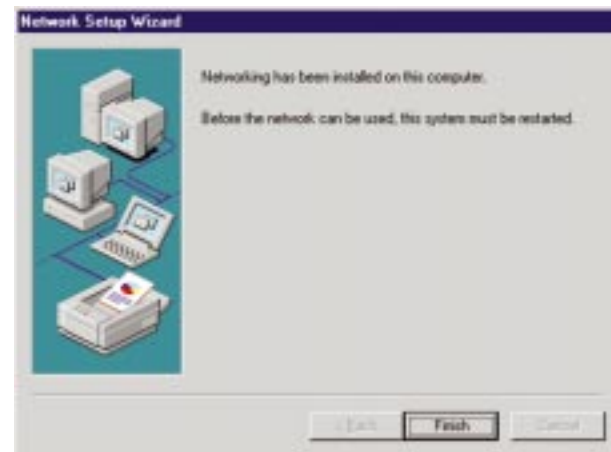
14. The Bindings window will appear. If you are unsure as to how your bindings should be setup, consult your NT documentation. If your bindings look correct, click **Next**, then **Next** again.



15. NT will ask you to enter a *Workgroup* or *Domain* name. If you are unsure as to what your Workgroup or Domain name should be, consult your network administrator or your Windows NT documentation. Enter the correct information and click the **Next** button.



16. Click the **Finish** button, and when you are asked to restart your computer, click the **Yes** button.



17. Your PC will reboot. Login to NT when the login window appears. The installation is complete

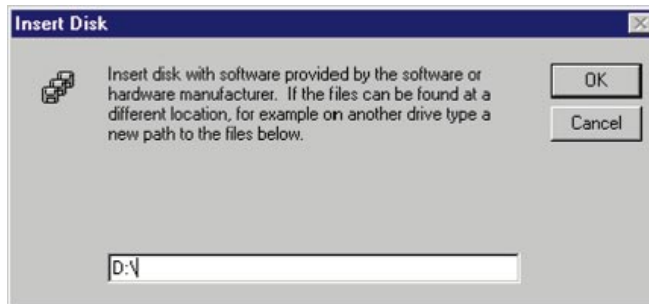
To make sure that your network is functioning, click on the **Network Neighborhood** icon on the Windows desktop of any networked PC. You should see the names of all of the PCs on the network. If any of the names are missing, refer to the Troubleshooting section in the back of this guide.



## Installing the HomeLink® Network Driver if Networking is Already Installed

Since NT Networking is already installed, you'll only need to install the HomeLink® Card driver and configure your network settings to get NT networking up and running. To do this:

1. Click on the **Start** button, select **Settings, Control Panel**, and then double-click on the **Network** icon.
2. When the networking window appears, click on the **Adapters** tab. Click on the **Add** button.
3. When the list of available network adapters appears, click the **Have Disk** button.
4. Put the HomeLink® Installation CD into your CD-ROM drive. Type **D:\** into the box on your screen and click the **OK** button. NT will copy the necessary network drivers to your computer.



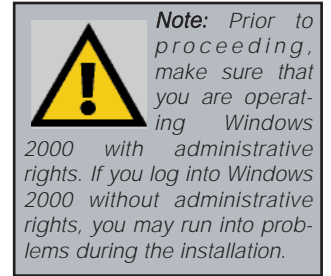
5. When *Linksys Phoneline 10M Network Card Driver* appears in the adapter box, click the **OK** button.
6. NT will probably ask you to supply your original Windows NT CD-ROM or setup disks. Supply them as needed.
7. NT may ask you to choose a media type or type of cabling for the HomeLink card. If so, choose the **AutoDetect** option and click on the **Continue** button.
8. When the Network window reappears, click on the **Bindings** tab. Choose your bindings. Click on the **Protocols** tab and select your settings. Do the same for the **Services** tab. After your bindings, settings, and services are set, click the **Close** button. Choose to restart your PC.

After your computer restarts, the network setup is complete. To see the rest of the network, double-click on the **Network Neighborhood** icon that resides on your NT desktop.

# Windows 2000 Installation and Setup

## Overview

After physically installing the Phoneline 10M Network Card in your computer, follow these instructions to install the network driver. The installation procedure for the network driver will vary slightly depending on which version of Windows 2000 you are using, and on your current system configuration. If at any time during the installation you encounter problems, consult the Troubleshooting section.



## Installing the Driver in Windows 2000

1. **Start your computer** and Windows 2000. Log in if you are asked to with administrator's rights.
2. Windows will display the Found New Hardware Wizard box. Click the **Next** button. Insert the **HomeLink® Card CD** into your CD-ROM drive.

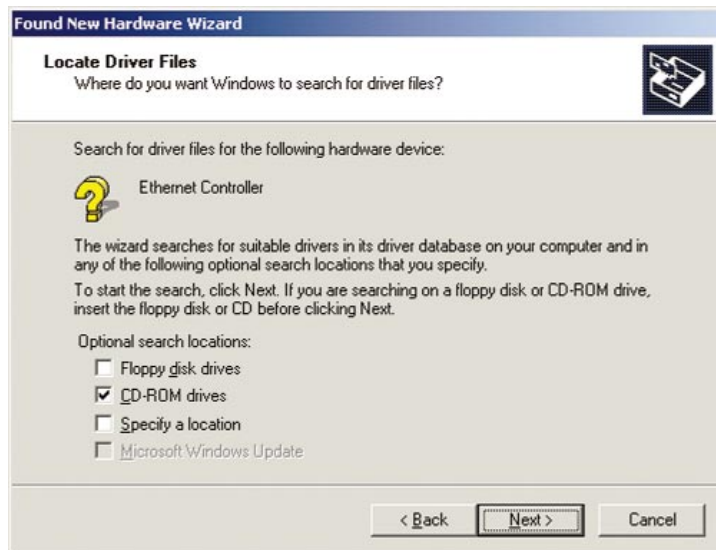




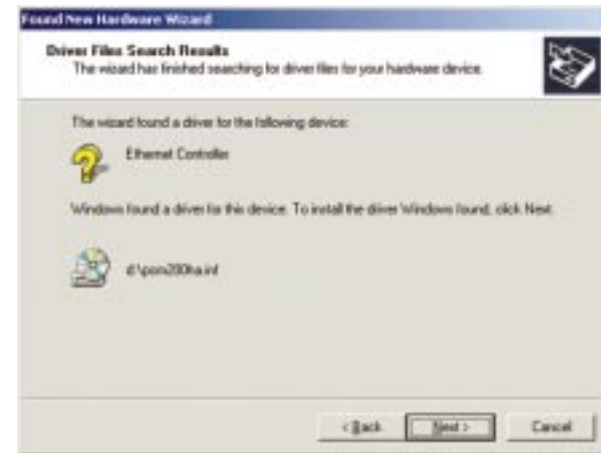
3. The **Install Hardware Device Drivers** dialog box will appear. When **Ethernet Controller** is displayed, select **Search for a suitable driver for my device (Recommended)**. Click the **Next** button.



4. The **Locate Driver Files** dialog box will appear. Select the **CD-ROM drive** option. Click the **Next** button.



5. The **Driver File Search Results** dialog box will appear. Click the **Next** button.



6. The **Completing the Found New Hardware Wizard** dialog box will appear. Click the **Finish** button.



7. Remove the CD from the CD-ROM drive. *NOTE: Windows 2000 will not ask you to restart your computer but it is recommended that you do so.*

**The Windows 2000 driver installation is complete.**

**If you want to share files or printers,  
refer to your Windows 2000 documentation.**

# Troubleshooting

## General Troubleshooting Tips

Use only the telephone wires included in the package.

Use the Diagnostics tool in the Driver Interface (**iLine10** icon in the Control Panel).

## Common Questions and Answers

- Windows doesn't detect new hardware with the HomeLink Card hardware installed, or it continues to detect the card each time I restart the PC.
  - You might not have inserted the PCI card correctly or securely into the appropriate slot of your computer. Check that the card is securely inserted into the appropriate slot.
  - The motherboard in your system might not be Plug-and-Play compatible, your PC's Plug-and-Play settings may not be enabled, or the motherboard may have Plug-and-Play options not supported by Windows. If you are not sure, contact your PC's manufacturer.
- Windows can't locate the driver for the HomeLink® Card device.
  - You may have inserted the wrong CD-ROM into your PC's drive.
  - The CD-ROM may be defective or files may be missing, or you may be pointing Windows to the wrong directory or drive. Check your PC's user guide.
  - The path in the "Copy File From..." bar may be incorrect. Try the Find File function in your Start Menu to find the file on your CD.
- The Windows Logon screen doesn't appear after I restart my computer.
  - Click on **Start, Shut Down**, then **Close All Programs and Logon as a Different User**. If this doesn't solve the problem, your PC's manufacturer may have disabled Windows' networking. Contact your computer's manufacturer for help.
  - You may have your Primary Network Logon set to your Windows Logon.

- In Network Neighborhood I can only see myself and no other computers on the network.
  - Make sure that the cables are connected correctly. Make sure you are getting Link or Activity lights on both the HomeLink® Card. Try changing to a new cable that you know is working.
  - Verify that the HomeLink® Card's Phonenumber configuration is set to Auto Configuration.
  - Try connecting your PCs using **only** the phone wire provided with the HomeLink card. Disconnect your PCs from any phone jacks and remove any telephone, modem, or other device that you have connected to the HomeLink cards.
  - If the PCs are far away from each other, bring them close to each other and try connecting them directly together. This test will determine whether your phone line or your HomeLink hardware is causing your network to malfunction.
- I've decided that I don't want to share a drive or printer anymore, or I have decided to physically remove a drive or printer from my network.
  - You're going to have to reconfigure your File and Printer Sharing settings manually. To do so, double-click on your **My Computer** icon. Click on the **Printers** folder. A window of available printers will appear. Using your right mouse button, click once on the printer that you want to disable on the network. Click on **Sharing**, followed by the **Sharing** tab. Click on **Not Shared**. When you're done, click on the **Apply** button, followed by **OK**.
  - You can disable drives in the same way. Right-click on the drive you want to stop sharing. Click on **Sharing**, followed by the **Sharing** tab. Click on **Not Shared**. When you're done, click on the **Apply** button, followed by **OK**.
- In Network Neighborhood, you can only see computers running the same operating system as you. For example, if you are running Windows 95, you can only see other Windows 95 computers and not any computer running Windows 98.
  - Click **Start, Find**, then **Computer** and type the name of any other computer in the window that comes up. Click **Find Now**.
  - Make sure that you are using the same protocols and workgroup names on the 95 and 98 computers. To do this, click on **Start, Settings, Control Panel**, then double-click on the **Network** icon. Click on the **Configuration** tab, then click on the **Identification** tab for Workgroup settings. If any protocols are missing, add any needed protocol(s) using

the **Add** button in the Network window.

- If all computers are using the same protocol(s) and Workgroup name, and Windows 95 computers can't see Windows 98 computers, enable NetBIOS on all the computers using Windows 95 and 98. IPX/SPX-compatible Protocol should be installed on all computers.
  - Bring up the properties of the IPX/SPX-compatible Protocol. To do this, click on **Start, Settings, Control Panel**, then open **Network** and click on the **Configuration** tab. Highlight *IPX/SPX-compatible Protocol* (only one of them) and click on **Properties**.
  - Click on the **NetBIOS** tab. Put a check next to *I want to enable NetBIOS over IPX/SPX* and click **OK**. Click **OK** again.
  - After Windows finishes copying the appropriate files, restart your computer. When you've returned to the desktop, open **Network Neighborhood** and look for the other PCs on your network.
7. The workgroup, protocols, cabling and driver are all working properly, but the PC uses an AMD processor and it can only see itself in Network Neighborhood.
- In some instances with PCs using AMD processors, the IRQ assigned to the card by the BIOS (as it gets listed on the bootup screens of most PCs) doesn't correspond to the IRQ assigned by Windows. This can be fixed by disabling the IRQ holder for PCI Steering in the Windows Device Manager. Refer to your PC's documentation for instructions or you can follow the suggested instructions below. Keep in mind that this procedure will vary depending on your computer's configuration.
  - Click on **Start, Settings, Control Panel**, and open **System**. Click on the **Device Manager** tab. Open **System Devices**, then double-click **PCI Bus**.
  - Click on the **IRQ Steering** tab. Remove the check from *Use IRQ Holder for PCI Steering* and click **OK**. Windows will ask you to restart the PC (if it doesn't ask you, reboot the PC at this time).
  - After the computer boots up, Windows will try to redetect the PCI Steering. Continue rebooting the PC until Windows stops detecting new hardware and settings for PCI Steering. This normally takes a total of four reboots.

# Appendix

## Manually Installing the Network Components in Windows

There may be times when you might need to manually install missing Windows networking components.

1. Click on the **Start** button, select **Settings, Control Panel**, and then double-click on the **Network** icon.
2. Click on the **Configuration** tab. Make sure that the following network components are installed.
  - *Client for Microsoft Networks*
  - *Linksys Phoneline 10M Network Card*

There may be other components listed in addition to the ones shown above. If any of the above components are missing, add them as follows.

### Client for Microsoft Networks

If you plan on connecting to an NT file server or peer-to-peer network, click on the **Add** button. Highlight *Client* and click on the **Add** button. Choose Microsoft as the manufacturer in the Network Client box. Highlight *Client for Microsoft Networks* and click the **OK** button.

### Client for NetWare Networks

If you plan on connecting to a Novell NetWare server, click on the **Add** button. Highlight *Client* and click on the **Add** button. In the Network Client window, select *Manufacturer* and choose **Microsoft**. Highlight *Client for Microsoft Networks*. Click the **OK** button.

### IPX/SPX-compatible Protocol

Click on the **Add** button. Choose *Protocol* and click on the **Add** button. Select *Manufacturer* and choose **Microsoft**. Under the Network Protocol box, highlight *IPX/SPX-compatible protocol*. Click the **OK** button.

### TCP/IP Protocol

Click on the **Add** button. Select *Protocol*, then click the **Add** button again. Under *Manufacturer*, highlight **Microsoft**. Under *Network Protocol*, highlight *TCP/IP*. Click the **OK** button.

## Windows 95 Version A Setup

1. Windows 95 will detect the HomeLink® Phoneline Network card and display a New Hardware Found window.
2. Make sure the HomeLink CD is in your CD-ROM drive. Using your mouse, select the *Driver from disk provided by hardware manufacturer* option on the screen, then click the **OK** button. When asked for the location of the files, type **D:\** (where D is your CD-ROM drive) and click the **OK** button.
3. Windows 95 will copy the appropriate network drivers to your computer. If 95 asks you to supply your original Windows 95 installation CD-ROM or setup files, enter the appropriate path for those files (e.g.: A:\, D:\WIN95, c:\WINDOWS\OPTIONS\CABS, where D is your CD-ROM drive). Linksys only provides two types of files, `PCM200HA.inf` and `bcm*.*`. All other files are provided by Microsoft.

After Windows 95 is finished copying the necessary files to your computer, it may ask you to restart your computer. Choose to do so. After your system restarts, Click on the **Start** button, select **Settings, Control Panel**, and then double-click on the **Network** icon.

Click on the **Identification** tab. Make sure that the workgroup name is Workgroup, and that your computer name is unique.

## Preparing to Use File and Printer Sharing

The instructions below explain how to turn on file and printer sharing in Windows 95 so that your computer can be accessed by others and vice-versa.

Start up Windows 95. If you are asked to log in, be sure to give your correct username and password. To set up sharing for the first time on a computer, click on **Start, Settings, Control Panel**, then double-click on **Network**. Click on the **Configuration** tab, followed by the **File and Printer Sharing** button. The **File and Printer Sharing** window will appear.

If you'd like others to be able to access the files on your PC's hard drive, select **I want to be able to give others access to my files**.

If you'd like to share your printer with other users on the network, select **I want to be able to allow others to print to my printer**.

Click on the **OK** button. *File and Printer Sharing for Microsoft Networks* should now appear in the list of installed components. Click the **OK** button. When asked to restart your PC, choose to do so.

## Enabling File Sharing

After following the preparation instructions, double-click on your **My Computer** icon. A window of available disk drives will appear. Using your right mouse button, click once on the drive or folder that you want to make available to other users. Click on **Sharing**, followed by the **Sharing** tab. Click on **Share As**. In the Share Name box, enter a name for the drive or folder you are sharing. You can create any name, as long as the name doesn't have spaces (e.g.: CDrive, CD-ROM, Leela, etc.).

Next, decide on the type of access that you want to give other users.

- **Read-Only access** lets other users view the files on your PC.
- **Full access** lets users create, change, or delete files on your PC.
- **Depends on Password** lets users have Read-Only and/or Full access, depending on the password that you decide to give them.

Use your mouse to select the type of file sharing access that you want other users to have. If you want to assign access password(s), type them into the Password box(es).

When you're done, click on the **Apply** button, followed by **OK**. Your drive(s) or folder(s) can now be accessed by other users whenever they click on their Windows Network Neighborhood icons. If a user tries to access one of your drives or folders that's password-protected, he or she will be asked for the appropriate Read-Only or Full access password.

## How To Share Printers

After following the steps on the previous pages, double-click on your **My Computer** icon. Click on the previous pages, a window of available printers will appear.

Using your right mouse button, click once on the printer that you want to share with other users. Click on **Sharing**, followed by the **Sharing** tab. Click on **Share As**. In the Share Name box, give a name to the printer you're about to share (Jack's HP4, for example). If you want to assign a password to the printer so only certain users can access it, type a password in the Password box. When you're done, click on the **Apply** button, followed by **OK**. Your printer(s) are now shared.

When you're finished, restart your PC, log into your network, and double-click on **Network Neighborhood**. You should be able to see the other computers on your network. The installation is complete.

**Note:** Not all printers may be shared on the network or you may require special instructions. Refer to your printer's user guide or contact the manufacturer.

## Removing the Installed Components in Windows 95 & 98

There may be cases when you need to remove the network card from the computer and make a fresh start. In order to do this, follow these instructions carefully.

1. Click on the **Start** button, select **Settings, Control Panel**, and then double-click on the **Network** icon.
2. Highlight the **Linksys** driver, and choose to **Remove** it. If asked to reboot your computer, click the **No** button.
3. Click on the **Start** button, select the **Find** option, and click on **Files or Folders**. Search your hard drive for a file named **PCM200HA.INF**. Delete all instances of this file by browsing each subdirectory where the file is located (e.g.: C:\WINDOWS\INF, C:\WINDOWS\INF\OTHER).

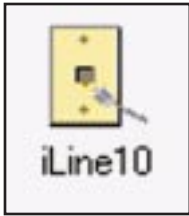
## Sharing Your Resources

The HomeLink® card brings the advantages of inexpensive networking to your home or office. Any device on the network, including CD-ROM drives, hard drives, and printers, can be used by any of the PCs that you hook up to the network. The installation CD-ROM that came with your HomeLink Card will automatically set up your networked PCs so that all of their available resources can be shared. Of course, you have control over the **sharing rights**, so you will be able to isolate devices or drives that you do not want to be accessible from the rest of the network.

It is important to note that if you want to use a networked device on a PC other than the one that the device is attached to, you must configure the PC to handle the device.



## The Driver Interface



The HomeLink® Card Driver comes with a diagnostic user interface. To reach the driver's interface, click on your **Start** button, then **Settings**, then **Control Panel**.

Once the Driver has been installed on your PC, an **iLine10** icon should be visible in your Control Panel menu. Double click on the **iLine10** icon (seen on the left).

The driver's Diagnostic Interface has three separate function screens.

**General** The General screen displays the most basic driver and card information for the user. There is also a check box on the bottom of the General screen. Checking the box will place a shortcut to the Driver Interface directly in the system tray, which occupies the bottom right corner of your desktop, directly beside the time. Placing the iLine10 icon in the system tray makes accessing the Interface a double-click away.

**Diagnostics** The Diagnostics screen provides the user with a simple card-testing utility. Pressing the **Test Chip** button will cause the utility to scan the HomeLink Card's chip. If there are any problems with the chip, the user will be informed in the white text box.

**Statistics** The Statistics screen provides more detailed information to the User. Incidents such as collisions, packets received or transmitted, and errors are tabulated here.

## Glossary

**Daisy Chain** - Connected in series, one after the other. Transmitted signals go to the first device, then to the second and so on.

**DHCP** (Dynamic Host Configuration Protocol) - A protocol that lets network administrators manage centrally and automate the assignment of Internet Protocol (IP) addresses in an organization's network. Using the Internet's set of protocol (TCP/IP), each machine that can connect to the Internet needs a unique IP address. When an organization sets up its computer users with a connection to the Internet, an IP address must be assigned to each machine. Without DHCP, the IP address must be entered manually at each computer and, if computers move to another location in another part of the network, a new IP address must be entered. DHCP lets a network administrator supervise and distribute IP addresses from a central point and automatically sends a new IP address when a computer is plugged into a different place in the network.

DHCP uses the concept of a "lease" or amount of time that a given IP address will be valid for a computer. The lease time can vary depending on how long a user is likely to require the Internet connection at a particular location. It's especially useful in education and other environments where users change frequently. Using very short leases, DHCP can dynamically reconfigure networks in which there are more computers than there are available IP addresses.

DHCP supports static addresses for computers containing Web servers that need a permanent IP address.

**DMZ** - A DMZ (demilitarized zone) is a computer host or small network inserted as a "neutral zone" between a company's private network and the outside public network. It prevents outside users from getting direct access to a server that has company data.

**DNS** - The domain name system (DNS) is the way that Internet domain name are located and translated into Internet Protocol (IP) addresses. A domain name is a meaningful and easy-to-remember "handle" for an Internet address.

**Dynamic IP Address** - An IP address that is automatically assigned to a client station in a TCP/IP network, typically by a DHCP server. Network devices that serve multiple users, such as servers and printers, are usually assigned static IP addresses.



**Dynamic Routing** - The ability for a router to forward data via a different route based on the current conditions of the communications circuits. For example, it can adjust for overloaded traffic or failing lines and is much more flexible than static routing, which uses a fixed forwarding path.

**Firewall** - A firewall is a set of related programs, located at a network gateway server, that protects the resources of a network from users from other networks. (The term also implies the security policy that is used with the programs.) An enterprise with an intranet that allows its workers access to the wider Internet installs a firewall to prevent outsiders from accessing its own private data resources and for controlling what outside resources to which its own users have access.

Basically, a firewall, working closely with a router, examines each network packet to determine whether to forward it toward its destination.

**Firmware** - Programming that is inserted into programmable read-only memory (programmable read-only memory), thus becoming a permanent part of a computing device.

**HPNA** (Home Phoneline Networking Alliance) - An industry standard for interconnecting computers within a home using existing telephone lines. Using HPNA (also known as HomePNA), multiple computer users in a home can share a single Internet connection, open or copy files from different computers, share printers, and play multiuser computer games. The latest version, HPNA 2.0, allows data transmission at a rate of 10 Mbps over a home's standard telephone line wiring system using the Ethernet CSMA/CD framing and transmission protocol. HPNA can be used without interrupting normal voice or fax services. One user can talk on the phone at the same time other users are sharing the same line to access the Web or share other computer resources.

**IP Address** - In the most widely installed level of the Internet Protocol (Internet Protocol) today, an IP address is a 32-binary digit number that identifies each sender or receiver of information that is sent in packet across the Internet. When you request an HTML page or send e-mail, the Internet Protocol part of TCP/IP includes your IP address in the message (actually, in each of the packets if more than one is required) and sends it to the IP address that is obtained by looking up the domain name in the Uniform Resource Locator you requested or in the e-mail address you're sending a note to. At the other end, the recipient can see the IP address of the Web page requestor or the e-mail sender and can respond by sending another message using the IP address it received.

**IPCONFIG** - A utility that provides for querying, defining and managing IP addresses within a network. A commonly used utility for configuring networks with static IP addresses.

**IPSec** - IPSec (Internet Protocol Security) is a developing standard for security at the network or packet processing layer of network communication. A big advantage of IPSec is that security arrangements can be handled without requiring changes to individual user computers.

**ISP** - An ISP (Internet service provider) is a company that provides individuals and companies access to the Internet and other related services such as Web site building and virtual hosting.

**LAN** - A local area network (LAN) is a group of computers and associated devices that share a common communications line and typically share the resources of a single processor or server within a small geographic area (for example, within an office building).

**MAC Address** - The MAC (Media Access Control) address is your computer's unique hardware number.

**mIRC** - mIRC runs under Windows and provides a graphical interface for logging onto IRC servers and listing, joining and leaving channels.

**NAT** - NAT (Network Address Translation) is the translation of an Internet Protocol address (IP address) used within one network to a different IP address known within another network. One network is designated the inside network and the other is the outside.

**Packet Filtering** - Discarding unwanted network traffic based on its originating address or range of addresses or its type (e-mail, file transfer, etc.).

**PCMCIA** - The PCMCIA (Personal Computer Memory Card International Association) is an industry group organized in 1989 to promote standards for a credit card-size memory or I/O device that would fit into a personal computer, usually a notebook or laptop computer.

**Ping** - (Packet INternet Groper) An Internet utility used to determine whether a particular IP address is online. It is used to test and debug a network by sending out a packet and waiting for a response.

**PPPoE** (Point to Point Protocol over Ethernet) - A method used mostly by DSL providers for connecting personal computers to a broadband modem for Internet access. It is similar to how a dial-up connection works but at higher speeds and quicker access.

**PPTP** (Point-to-Point Tunneling Protocol) - A protocol (set of communication rules) that allows corporations to extend their own corporate network through private "tunnels" over the public Internet. Effectively, a corporation uses a wide-area network as a single large local area network. A company no longer needs to lease its own lines for wide-area communication but can securely use the public networks. This kind of interconnection is known as a virtual private network.

**RJ-11** (Registered Jack-11) - A telephone connector that holds up to four wires. The RJ-11 the common connector used to plug the handset into the telephone and the telephone into the wall.

**RJ-45** (Registered Jack-45) - A connector similar to a telephone connector that holds up to eight wires, used for connecting Ethernet devices.

**Static IP Address** - A permanent IP address that is assigned to a node in a TCP/IP network.

**Static Routing** - Forwarding data in a network via a fixed path. Static routing cannot adjust to changing line conditions as can dynamic routing.

**Subnet Mask** - The method used for splitting IP networks into a series of subgroups, or subnets. The mask is a binary pattern that is matched up with the IP address to turn part of the host ID address field into a field for subnets.

**TCP/IP** - Transmission Control Protocol/Internet Protocol (TCP/IP) is the basic communication language or protocol of the Internet. It can also be used as a communications protocol in a private network (either an intranet or an extranet). When you are set up with direct access to the Internet, your computer is provided with a copy of the TCP/IP program just as every other computer that you may send messages to or get information from also has a copy of TCP/IP.

**UTP** - Unshielded twisted pair is the most common kind of copper telephone wiring. Twisted pair is the ordinary copper wire that connects home and many business computers to the telephone company. To reduce crosstalk or electromagnetic induction between pairs of wires, two insulated copper wires are twisted around each other. Each signal on twisted pair requires both wires. Since some telephone sets or desktop locations require multiple connections, twisted pair is sometimes installed in two or more pairs, all within a single cable.

**Virtual Server** - Multiple servers that appear as one server, or one system image, to the operating system or for network administration

**WAN** - A communications network that covers a wide geographic area, such as state or country.

**WINIPCFG** - Configuration utility based on the Win32 API for querying, defining and managing IP addresses within a network. A commonly used utility for configuring networks with static IP addresses.

# Specifications

<b>Model Number:</b>	HPN200
<b>System:</b>	PCI 2.2 compliant PC; Windows 95, Windows 98, Windows ME, Windows NT or Windows 2000
<b>Standards:</b>	HomePNA 1.1 and 2.0 compatible
<b>Protocol:</b>	CSMA/CD
<b>Ports:</b>	Two RJ-11
<b>Speed:</b>	1Mbps, 10 Mbps
<b>Cabling:</b>	Standard Telephone Wire
<b>Topology:</b>	Daisy Chain
<b>LED Status Lights:</b>	Transmit, Link, Receive, Collision

## Environmental

<b>Dimensions:</b>	4.75" x 2.56" x 0.5" (120mm x 65mm x 13mm)
<b>Unit Weight:</b>	3 oz. (85.05 g)
<b>Power:</b>	2W Maximum
<b>Certifications:</b>	FCC Class B, CE Mark Commercial
<b>Operating Temperature:</b>	0°C - 50°C (32°F - 122°F)
<b>Storage Temperature:</b>	-20°C - 70°C (-4°F - 158°F)
<b>Operating Humidity:</b>	10% - 85% Non-Condensing
<b>Storage Humidity:</b>	5% - 90% Non-Condensing

## Warranty Information

BE SURE TO HAVE YOUR PROOF OF PURCHASE AND A BARCODE FROM THE PRODUCT'S PACKAGING ON HAND WHEN CALLING. RETURN REQUESTS CANNOT BE PROCESSED WITHOUT PROOF OF PURCHASE.

IN NO EVENT SHALL LINKSYS' LIABILITY EXCEED THE PRICE PAID FOR THE PRODUCT FROM DIRECT, INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES RESULTING FROM THE USE OF THE PRODUCT, ITS ACCOMPANYING SOFTWARE, OR ITS DOCUMENTATION. LINKSYS DOES NOT OFFER REFUNDS FOR ANY PRODUCT.

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## Contact Information

For help with the installation or operation of this product, contact Linksys Customer Support at one of the phone numbers or Internet addresses below.

<b>Sales Information</b>	800-546-5797 (LINKSYS)
<b>Tech Support</b>	888-793-4632
<b>RMA Issues</b>	949-261-1288
<b>Fax</b>	949-261-8868
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<b>FTP Site</b>	<a href="ftp.linksys.com">ftp.linksys.com</a>



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