EtherFast® Series

# 10/100 Network In a Box

*Model No.:* ***FENSK05 v2***

**User Guide**

LINKSYS®

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LIMITED WARRANTY

Linksys guarantees that every EtherFast 10/100 Network In a Box is free from physical defects in material and workmanship under normal use starting at the date of purchase. If the network cards or cables prove defective during this limited lifetime warranty period or if the hub proves defective during this 5-year limited warranty period, call Linksys Customer Support in order to obtain a Return Authorization number. Warranty is for repair or replacement only. Linksys does not issue any refunds. BE SURE TO HAVE YOUR PROOF OF PURCHASE AND BAR CODE ON HAND WHEN CALLING. RETURN REQUESTS CANNOT BE PROCESSED WITHOUT PROOF OF PURCHASE AND BAR CODE. When returning a product, mark the Return Authorization number clearly on the outside of the package and include your original proof of purchase and bar code.

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 makes no warranty or representation, expressed, implied, or statutory, with respect to its products or the contents or use of this documentation and all accompanying software, and specifically disclaims its quality, performance, merchantability, or fitness for any particular purpose. Linksys reserves the right to revise or update its products, software, or documentation without obligation to notify any individual or entity. Please direct all inquiries to:

Linksys P.O. Box 18558, Irvine, CA 92623.

FCC STATEMENT

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency 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

# Table of Contents





# Introduction

## The Linksys EtherFast 10/100 Network In a Box

The Linksys 10/100 Network In a Box comes with everything you need to get a network up and running in minutes. Plug in the cards, attach the provided network cables, install the software drivers, and go!

Built to run with the fastest video, publishing, graphics, and database applications, the **EtherFast 10/100 LAN Card** is a high performance network adapter for desktop computers with 32-bit **PCI** expansion slots. Boasting a maximum data throughput of 200 megabits per second in full duplex mode (100Mbps in half duplex), the 10/100 LAN Card is ready to run with both 10BaseT and 100BaseTX networks. The card's 10/100 combo port automatically detects your network's maximum speed and adjusts itself accordingly.

The 10/100 LAN Card from Linksys also features **Wake-On-LAN** event management. If your PCI motherboard has built-in WOL support, you'll be able to utilize this unique management feature. You can remotely turn on any computer with a WOL network card to perform after-hours tasks or to access files. If you don't have WOL support on your motherboard or you have no need for it, don't worry—your EtherFast 10/100 LAN Card will operate perfectly without it.

The 10/100 Fast Ethernet Network In a Box also includes an **EtherFast 10/100 5-Port Workgroup Hub**. The hub features five 10BaseT/ 100BaseTX RJ-45 ports that allow you to network up to five computers. Each port automatically detects and negotiates 10Mbps and 100Mbps connections. As your network grows, you can uplink the hub to other EtherFast hubs, switches, routers or Broadband modems.

## Contents for the 10/100 Network in a Box


- Two EtherFast 10/100 LAN Cards (version 4)
- Two Wake-on-LAN wires
- One EtherFast 10/100 5-Port Workgroup Hub (version 2)
- Two Category 5 Network Cables
- One 3.5” Driver Disk
- Internet-Sharing Software
- One AC Adapter
- One User Guide





# Getting to Know the EtherFast 10/100 Network In a Box

## The EtherFast 10/100 LAN Card

You will install one EtherFast 10/100 LAN Card into each computer you wish to network.


### The Card’s LEDs

**Link/Act** The Link LED will illuminate when the card has been successfully connected to a network and flicker when data is being transmitted or received over the network.

**100** The 100 LED will illuminate when the card is operating at 100Mbps. If the 100 LED is not illuminated and the PC is powered on, the card is operating at 10Mbps.

***Note:*** *Some 10/100 LAN Cards may have the 100 LED labeled Speed. The LEDs all operate as shown above, however, regardless of how they’re labeled.*

### The Card’s RJ-45 Port

The RJ-45 Port is where you will connect your network cabling. See page 66 for detailed information on cabling.

## The EtherFast 10/100 5-Port Workgroup Hub

Your network revolves around your hub. You can not connect your computers directly to one another. You *must* connect them through your hub.


### The Hub's LEDs

**PWR** The Power LED will illuminate when the the hub is receiving power.

**100 (per port)** The 100 LED will illuminate if the port is operating at 100Mbps. The LED will be off if the port is running at 10Mbps.

**LINK/ACT (per port)** The LINK/ACT LED will illuminate if the port has an active network connection. The LED will flicker if the port is receiving or sending data.





### The Hub's Ports

**1-5** Ports 1-5 are where you will connect your PCs to the hub. It is through these ports that network information is exchanged.

**Uplink** You can expand your network by connecting your hub to another hub, switch, router or Broadband modem through the Uplink port. If the Uplink port is being used, the port adjacent to it will become inactive, reducing the hub's operable ports from five to four.

# Installing the EtherFast 10/100 LAN Card

## Overview

Each EtherFast 10/100 LAN Card is equipped with an RJ-45 port that automatically adjusts to either 10Mbps or 100Mbps speeds, allowing your PC to attach to either Fast Ethernet (also known as 100BaseTX) or regular 10BaseT Ethernet network segments without additional hardware or software.

The card should **only** be used with twisted-pair cabling. 10BaseT and 100BaseTX cabling is available in a number of different grades. For best results, we recommend using 8-wire, category 5 unshielded twisted-pair for both 10BaseT and 100BaseTX network segments, although category 3 can be used for 10BaseT segments. The cable that runs from your PC's EtherFast card to your network should not exceed **100 meters** (328 feet). Both Category 3 and 5 twisted-pair cabling can be purchased at most computer stores, or if you prefer, you can crimp your own cables. See page 67 for wiring information.

## Installing the Network Card & Cabling

1. **Power off your PC** and any peripheral equipment attached to it. Unplug your PC's power cord.

2. **Remove your computer's outside cover**.

3. **Open your computer** and locate the PCI slot(s) on your motherboard. PCI slots are easily identified by their beige or white color, and by the fact that network cards fit snugly into them. Remove the metal slot cover on the back of the PC, then insert the EtherFast 10/100 LAN Card into a PCI card slot, as shown in the photograph on the next page (top).

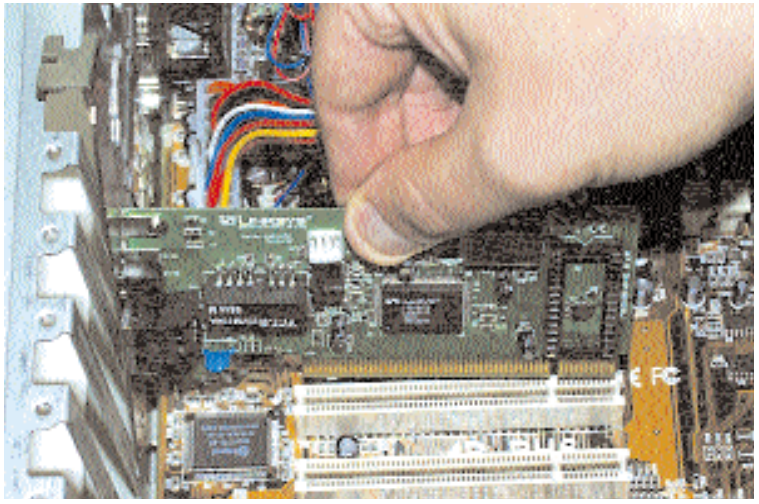
4. **If you are interested in Wake-On-LAN**, you can go to page 61 now. Wake-On-LAN can be installed at any time, so there is no need to do it now. If you don't know what Wake On LAN is, or if you know that you don't want to use WOL, proceed to step 5 on the next page and return to WOL later.

***Note:*** *Some network cards might need a bit of muscle to be installed. Our network cards are built strongly, and are hard to break. Avoid a call to technical support by making sure that your card is inserted all the way into your PC's network slot!*





5. **Once your EtherFast EtherFast 10/100 LAN Card is firmly in place**, secure its fastening tab to your PC's chassis with a mounting screw.



6. **Replace your PC's cover**.

7. **Connect one end of a twisted-pair cable** to your PC at the EtherFast 10/100 LAN Card's RJ-45 port.

8. **Plug the other end of the cable** into your 5-Port Hub.

9. **Reconnect your PC's power**, then power on your computer. Your computer will automatically recognize the card and assign it a unique IRQ ("interrupt") and I/O address.

**The card installation is complete. Next, you must configure your PC's operating system to work with the EtherFast Card.**


- For **Windows 98** configuration instructions, turn to page 9.
- For **Windows 95** configuration instructions, turn to page 18.
- For **Windows 2000** configuration instructions, turn to page 26.
- For **Windows NT** configuration instructions, turn to page 30.
- For **Novell Server** configuration instructions, turn to page 40.


**If you are using an operating system other than Windows 98, Windows 95, or Windows NT, you will find the network driver installation instructions on the Driver Disk's `readme.exe` file.**

***Note:*** *Some screen shots in the following sections will vary depending on which version of the LNE100TX card you are installing.*





# Windows 98 Installation & Setup

## Overview

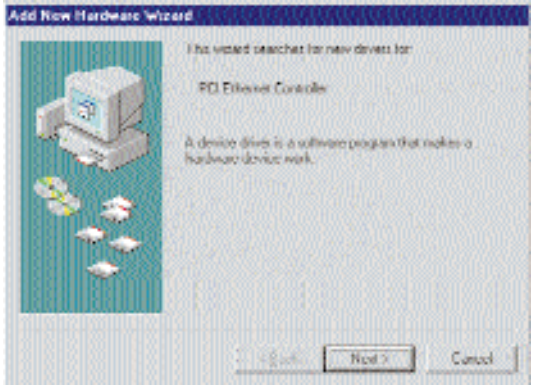
After physically installing the EtherFast 10/100 LAN Card in your computer, follow these instructions to install the network driver. The installation procedure for the network driver will vary slightly depending on which version of Windows 98 you are using, and on your current system configuration. If at any time during the installation you encounter problems, consult the Troubleshooting section on page 44.

## Installing the Network Card's Driver

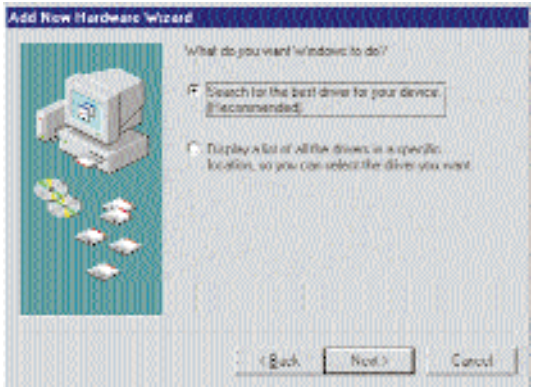
1. If you haven't already, **start up your computer**.

2. **Windows 98 will automatically detect** the presence of the PCI Ethernet Controller hardware in your computer.

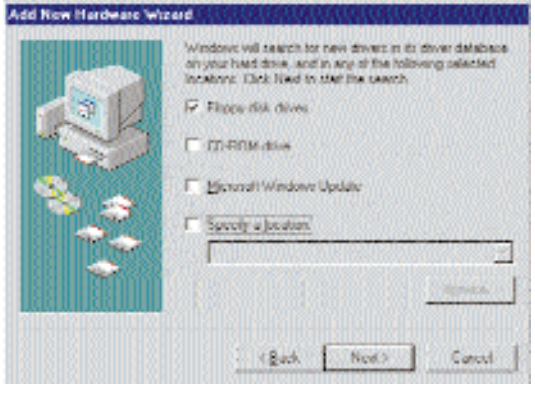
3. Slide the *EtherFast Card Driver Disk* into your floppy drive while the *Add New Hardware Wizard* window is visible. Click **Next**.



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




5. Select "Floppy disk drives". Click **Next** to continue.

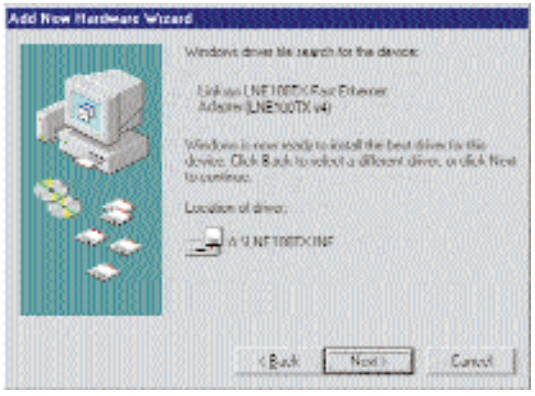



6. A window will open saying that Windows is now ready to install the *Linksys LNE100TX Fast Ethernet Adapter* driver (seen on the next page). Click **Next**.

***Note:*** *Windows 98 may ask you for a* ***computer or workgroup name****. If so, skip ahead to the instructions on page 15. Once you have established your computer and workgroup names, return to where you left off and continue with the installation.*



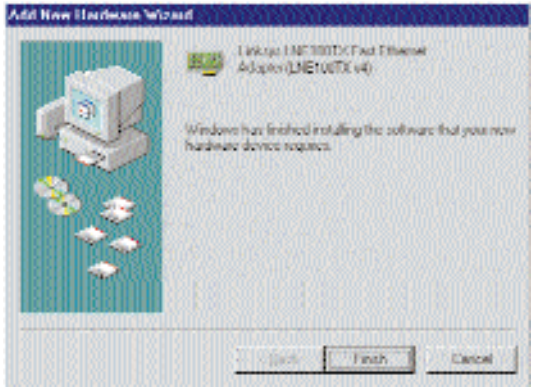




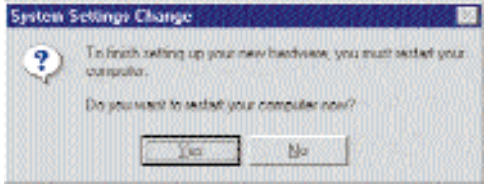

7. Windows will begin copying the EtherFast Card's driver files to your PC. Refer to the chart below to help guide you through the process.

| *Under no circumstance are you to click* ***Cancel*** *or* ***Skip!*** | |
|---|---|
| • If your PC asks for the Linksys Setup or Driver Disk | *1. Click* ***OK****.*<br>*2. Ensure that the* ***Driver Disk*** *is in your PC's floppy drive.*<br>*3. Type "a:\" in the "Copy files from:" box.*<br>*4. Click* ***OK****.* |
| • If you are asked to supply your Windows 98 Installation Files or Disks | *1. Click* ***OK****.*<br>*2. If you have a* ***Windows 98 CD-ROM****, type "d:\win98" in the "Copy files from:" box, where "d:" is your CD-ROM drive.*<br>*3. If you* don't *have a* ***Windows 98 CD-ROM****, type: "c:\windows\options\cabs".*<br>*4. Click* ***OK****.* |
| • If you are asked for a file that includes "LNE100TX" in its name | *1. Insert the* ***Driver Disk*** *into your PC's floppy drive.*<br>*2. Type "a:\" in the "Copy files from:" box.*<br>*3. Click* ***OK*** |
| • If you receive a Version Conflict error | *1. Choose to keep the newest version of the file by clicking* ***Yes****.* |

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




9. When asked if you want to restart your PC, remove the Driver Disk and click **Yes**. If you are using the Windows CD-ROM, leave it in your PC. You may need it later.




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

**The Windows 98 driver installation is complete. Please continue on to the next section, which will provide instructions for configuring Windows 98's network protocol. Consult your network administrator for your network configuration information if necessary.**

***Note:*** *From this point on, you must provide Windows with a User name and Password every time you are prompted to do so. Remember to click* ***OK*** *to properly log into Windows. If you click* ***Cancel*** *or hit the* ***Escape (ESC)*** *key, you will not log into the network.*

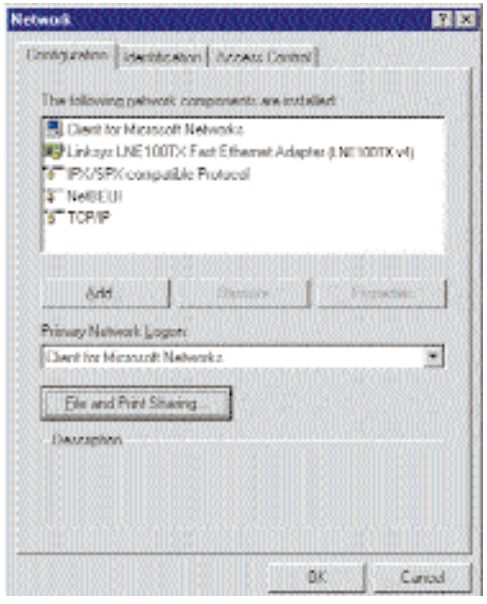




## Network Component Configuration

1. Once you are back at the Windows 98 desktop, click on your taskbar's **Start** button, then **Settings**, then **Control Panel**, and then double-click the **Network** icon.

2. The Network window will appear. Click on the **Configuration** tab. A window similar to the one below will appear. There may be other components listed in addition to the ones shown below (for example, a *Dial-up Adapter*), which is normal. If any of the components shown below are missing, however, you'll need to manually install them. Refer to *Manually Installing the Network Components* on page 59 now.
   - *Client for Microsoft Networks*
   - *Linksys LNE100TX Fast Ethernet Adapter (LNE100TX v4)*
   - *IPX/SPX-compatible Protocol*
   - *NetBEUI*
   - *TCP/IP*



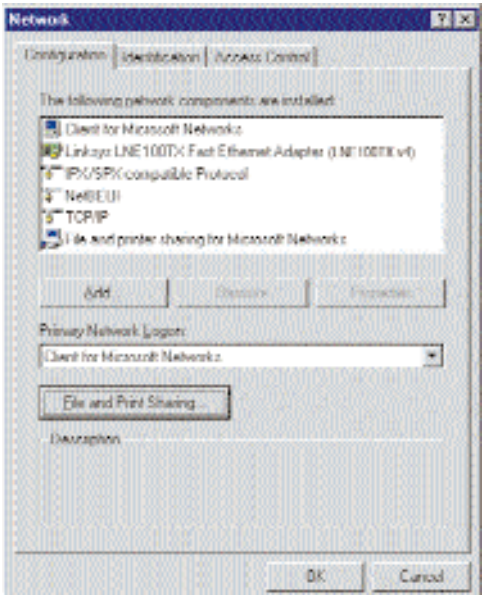

3. Click the **File and Print Sharing** button. The File and Print Sharing window will appear.

4. 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**.

5. 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**.

6. Click the **OK** button. *File and Printer Sharing for Microsoft Networks* should now appear in the list of installed components.

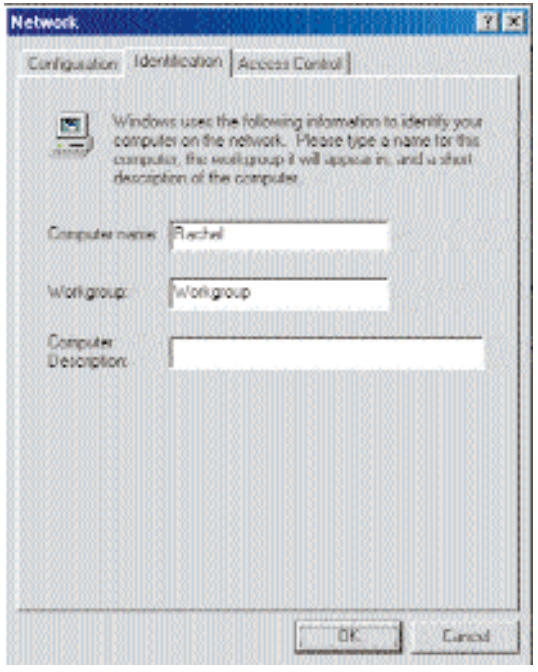
> ***Note:*** *If you do not enable File and Print Sharing, your PC will be invisible on the network and inaccessible to other users.*




7. After ensuring that all of the listed network components are installed on your system, in the *Primary Network Logon* box select **Client for Microsoft Networks** .



8. Click on the **Identification** tab. Type the **name of your computer** in the *Computer Name* box. Choose a name that is unique from the other computer names on the network.

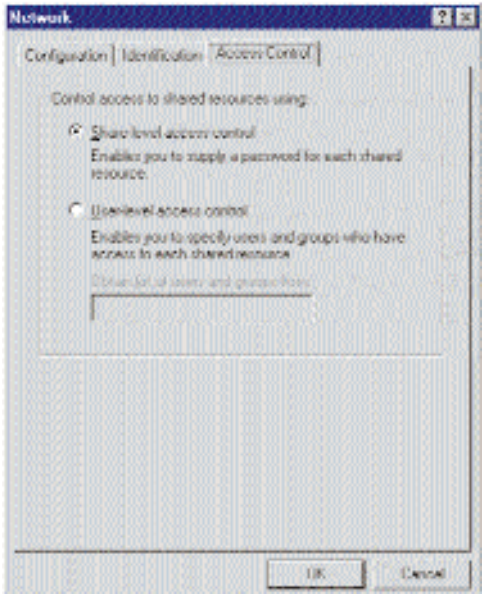



> ***Note:*** *Your Computer and Workgroup Names must both be fewer than 15 characters, and should only consist only of numbers and letters.*

9. Type the **name of your workgroup** in the *Workgroup* box. The Workgroup name should be the same Workgroup Name in use by all of the other PCs on the network. Use the same Workgroup Name that is in use on your other computers for ease of use. Do *NOT* click **OK** when you are done.

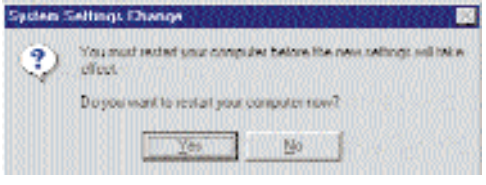
10. Enter a **description of your computer** in the *Computer Description* box. *This box is optional, and can be left blank.*

11. *Optional:* Choose the **Access Control** tab. Ensure that **Shared-level access control** is selected. If the setting is on **User-Level access control** and you can't change it, skip to problem 5 in the Troubleshooting section on page 45.




12. Click the **OK** button. Your system may or may not ask you for your Windows 98 CD-ROM or the location of the Windows 98 installation files. If it does, direct Windows to the appropriate location, (e.g., `D:\win98` if you have the Windows 98 CD-ROM, or `C:\windows\options\cabs`).

13. Once Windows has copied the necessary files, the System Settings Change window appears. Remove all disks from your PC and click **Yes** to restart your PC. If you don't see this window, simply shut down Windows 98 and restart your PC. Remember to remove any installation disks or CD-ROMs prior to rebooting.








14. A Logon window will appear, requiring you to enter a **User name** and **Password**. Make up a user name and password (if you haven't already) and click **OK**. Do not click the **Cancel** button or **Escape** key. Clicking either of these buttons will prevent you from logging into the network. If the logon does not appear or if it does not allow you to log on, refer to problem 3 in the Troubleshooting section on page 44.

15. Once you are at the Windows 98 desktop, double-click on the **Network Neighborhood** icon. You should see one icon for the entire network and the names of the other PCs on the network.

- **If you can see your computer along with all the other computers on the network in Network Neighborhood, then the Windows 98 network configuration is complete. Continue with *Sharing Your Files and Printers* on page 49 if you want your PC's data or printer to be available to others on the network. You may stop here, however, if you wish to configure File and Printer Sharing at a later time.**

- If you don't see anything at all in Network Neighborhood, press the **F5** key on your keyboard a few times to refresh the screen. If that doesn't work, go to Troubleshooting problem 8 on page 45.

- If you only see your own computer in Network Neighborhood, skip to problem 6 of the Troubleshooting section on page 45.

- If you see all computers on the network except yours press the **F5** key a few times. If, after a minute or so, you still can't see your own PC, see problem 7 on page 45 of the Troubleshooting section.

- If you only see computers that are running the same operating system as you and you don't see any others, go to problem 10 on page 46.

# Windows 95 Installation & Setup

## Overview

After installing the EtherFast hardware in your computer, follow these instructions for installing the network driver. 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. For troubleshooting tips during setup, refer to page 44.

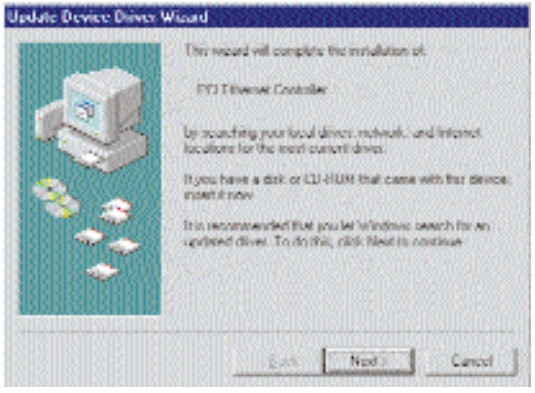
There are different versions of Windows 95:

- **Version A**
- **Version B (also known as OSR2)**

The installation procedure for the network driver will vary slightly depending on which version of Windows 95 you are using. To begin the driver installation, and to determine which version of Windows 95 you are using:

*Note: During the installation, Windows 95 may ask you for a **computer or workgroup name**. If so, skip ahead to the instructions on page 23. Once you have established your computer and workgroup names, go back to where you left off and continue with the installation.*

1. If you already haven't, **start up your PC**.
2. **Windows 95 will automatically detect** the EtherFast Card in your computer. If an Update Device Driver Wizard window (below, or another similar window) appears, you are using Windows 95 version B. If not, you are using version A. Skip to page 51.



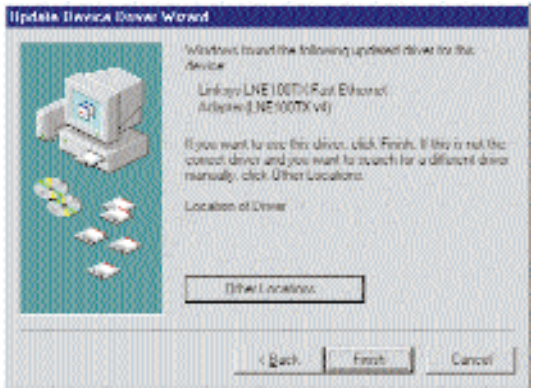





## Installing the Driver in Windows 95 Version B

1. While the *Update Device Driver Wizard* window is visible (previous page), put the **EtherFast Card 10/100 LAN Card Driver Disk** into your floppy drive and click **Next**.

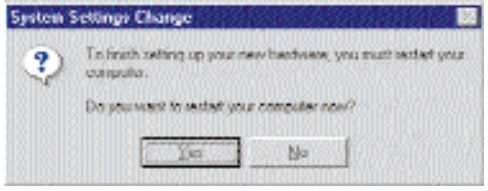
2. Windows 95 will find the *Linksys LNE100TX Fast Ethernet Adapter (LNE100TX v4)* driver on the disk. If Windows fails to find the driver, see problem 2 on page 44. Click **Finish**.




3. Windows will begin copying the EtherFast Card's driver files to your PC. Refer to the chart on the next page to help guide you through the process.

| Under no circumstance are you to click **Cancel** or **Delete**! | |
|---|---|
| • If your PC asks for the Linksys Setup or Driver Disk | 1. Click **OK**.<br>2. Ensure that the **Driver Disk** is in your PC's floppy drive.<br>3. Type "a:\" in the "Copy files from:" box.<br>4. Click **OK**. |
| • If you are asked to supply your Windows 95 Installation Files or Disks | 1. Click **OK**.<br>2. If you have a **Windows 95 CD-ROM**, type "d:\win95" in the "Copy files from:" box, where "d:" is your CD-ROM drive.<br>3. If you don't have a **Windows 95 CD-ROM**, type: "c:\windows\options\cabs".<br>4. Click **OK**. |
| • If you are asked for a file that includes "LNE100TX" in its name | 1. Insert the **Driver Disk** into your PC's floppy drive.<br>2. Type "a:\" in the "Copy files from:" box.<br>3. Click **OK** |
| • If you receive a Version Conflict error | 1. Choose to keep the newest version of the file by clicking **Yes**. |

4. When asked if you want to restart your PC, remove the Driver Disk and click **Yes**. If you are using the Windows CD-ROM, leave it in your PC. You may need it later.




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

**The Windows 95 Version B driver installation is complete. Please continue on to the next section, which will provide instructions for configuring Windows 95's network protocol. Consult your network administrator for network configuration information if necessary.**

***Note:*** *From this point on, you must provide Windows with a User name and Password every time you are prompted to do so. Remember to click* ***OK*** *to properly log into Windows. If you click* ***Cancel*** *or hit the* ***Escape (ESC)*** *key, you will not log into the network.*



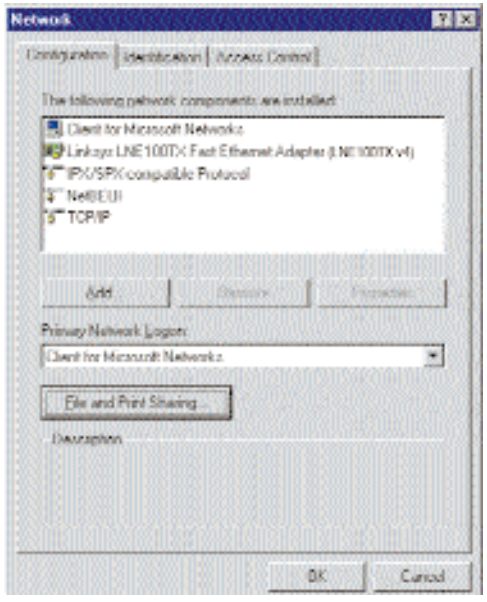


## Network Component Configuration

1. Once you are back at the Windows 95 desktop, click on your taskbar's **Start** button, then **Settings**, then **Control Panel**, and then double-click the **Network** icon.

2. The Network window will appear. Click on the **Configuration** tab. A window similar to the one below will appear. There may be other components listed in addition to the ones shown below (for example, *Client for Microsoft Networks*), which is normal. If any of the components shown below are missing, however, you'll need to manually install them. If that's the case, refer to *Manually Installing the Network Components* on page 59 now.
   - *Client for Microsoft Networks*
   - *Linksys LNE100TX Fast Ethernet Adapter (LNE100TX v4)*
   - *IPX/SPX-compatible Protocol*
   - *NetBEUI*
   - *TCP/IP*

***Note:*** *If you need to install the TCP/IP Protocol, contact your system administrator or ISP, or refer to the Windows 95 documentation. If* ***DHCP*** *error messages appear during boot up, this is a TCP/IP error. Linksys does not provide technical support for the configuration or troubleshooting of the TCP/IP protocol.*



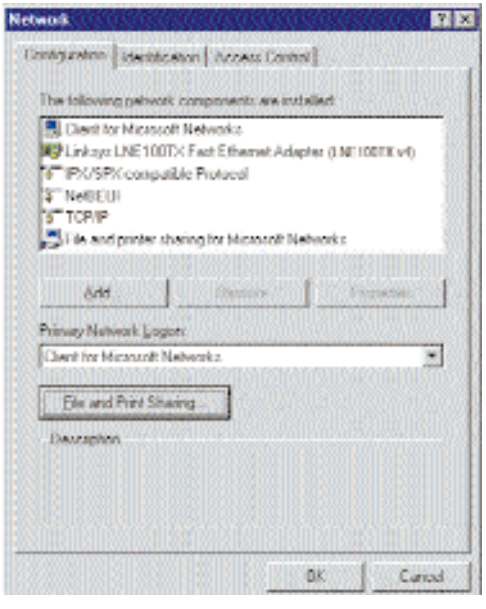
3. Click on the **Configuration** tab, followed by the **File and Print Sharing** button. The *File and Print Sharing* window will appear.

4. 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**.

5. 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**.

> ***Note:*** *If you do not enable File and Printer Sharing, your PC will be invisible on the network, inaccessible by anyone.*

6. Click the **OK** button. File and Printer Sharing for Microsoft Networks should now appear in the list of installed components.

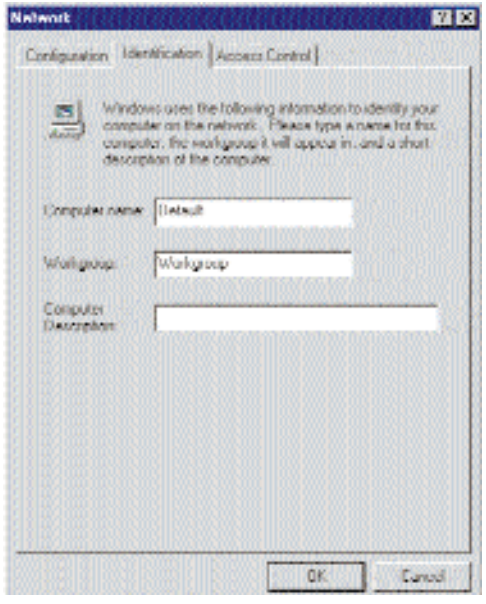



7. After ensuring that all of the listed network components are installed on your system, ensure that **Client for Microsoft Networks** is listed in the *Primary Network Logon* box.





8. Click on the **Identification** tab. Type **the name of your computer** in the *Computer Name* box. Choose a name that is unique from the other computer names on the network.

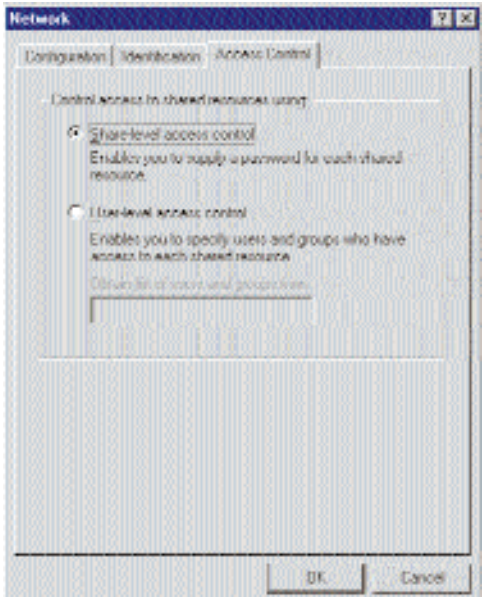



9. Type the **name of your workgroup** in the *Workgroup* box. The Workgroup name should be the same Workgroup Name in use by all of the other PCs on the network. Use the same Workgroup Name that is in use on your other computers. Do not click **OK** when you have completed these fields.

> ***Note:*** *Your* Computer Name *and* Workgroup Name *must both be fewer than 15 characters, and should only consist of numbers and letters.*

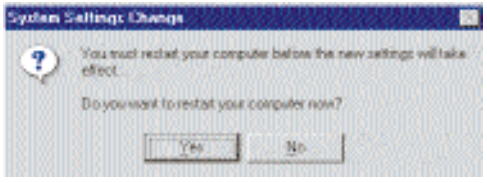
10. Enter a **description of your computer** in the *Computer Description* box. *This box is optional*. Do not click **OK** when you have completed these fields.

11. *Optional*: Choose the **Access Control** tab. Ensure that *Shared-level access control* is selected. If the setting is on User-Level access control and you can't change it, skip to problem 5 in the Troubleshooting section on page 45.




12. Click the **OK** button. Your system may or may not ask you for your Windows 95 CD-ROM or the location of the Windows 95 installation files. If you have your Windows CD-ROM, direct Windows to `D:\win95` (where D: is your CD-ROM Drive) , or to `C:\windows\options\cabs` if you don't.

13. Once Windows has copied the necessary files, the System Settings Change window appears. Remove all disks from your PC and click on **Yes** to restart your PC. If you don't see this window, simply shut down Windows 95 and restart your PC. Remember to remove the installation disk and CD-ROM, if necessary, prior to rebooting.








14. A Logon window will appear, requiring you to enter a username and password. Make up a username and password and click **OK**. Do not click the **ESC** or **Cancel** buttons, or you won't be able to log onto the network. If the a logon does not appear or if it does not allow you to log on, refer to problems 3 and 4 in the Troubleshooting section on page 44.

15. Once you are at the Windows 95 desktop, double-click on the **Network Neighborhood** icon. You should see an icon for the entire network and the names of the other PCs on the network. Open the **Entire Network** icon.

- **If you can see your computer along with all the other computers on the network in Network Neighborhood, then the Windows 95 network configuration is complete. Continue with *Sharing Your Files and Printers* on page 49 if you want data from your PC to be available to others on the network. You may stop here, however, if you wish to configure File and Printer Sharing at a later time.**

- If you don't see anything at all in Network Neighborhood, press the **F5** key on your keyboard a few times to refresh the screen. If that doesn't work, go to problem 8 of the Troubleshooting section on page 45.

- If you only see your own computer in Network Neighborhood, skip to problem 6 of the Troubleshooting section on page 45.

- If you see all computers on the network except yours press the **F5** key a few times. If, after a minute or so, you still can't see your own PC, see problem 7 on page 45 of the Troubleshooting section.

- If you only see computers that are running the same operating system as you and you don't see any others, go to problem 10 on page 46.

# Windows 2000 Installation & Setup

## Overview

After physically installing the EtherFast 10/100 LAN 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.

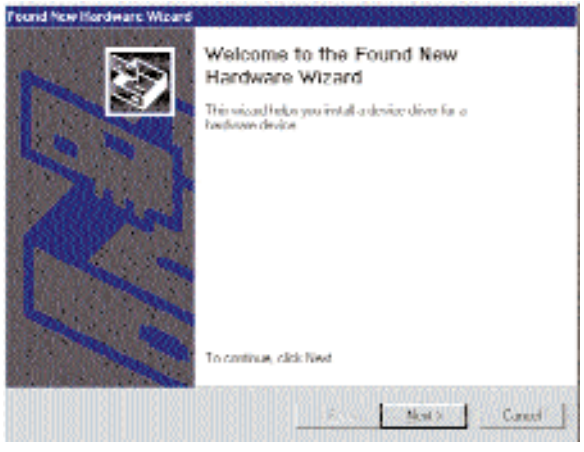
***Note:*** *Prior to proceeding, ensure that you are operating Windows 2000 with administrative rights. If you log into Windows 2000 without administrative rights, you may run into problems during the installation.*

## Installing the Driver in Windows 2000

After physically installing the EtherFast Card in your computer, follow these instructions to install the network driver.

1. **Start your computer if you haven't already done so,** and boot Windows 2000. Log in with administrative rights if you are asked to.

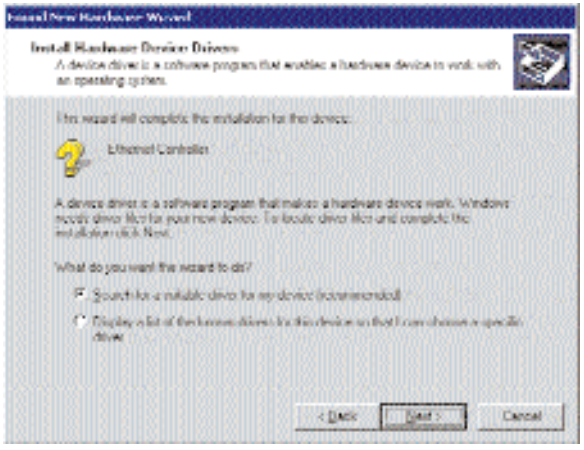
2. **Windows will display** the *Found New Hardware Wizard* box. Click **Next**.



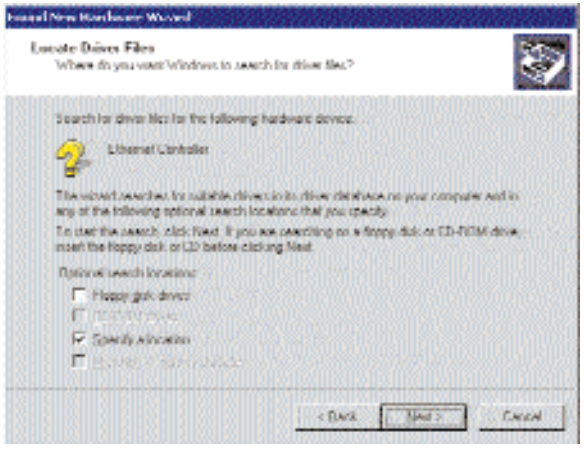





3. **The *Install Hardware Device Drivers* dialog box will appear**. When *Ethernet Controller* is displayed, select *"Search for a suitable driver for your device (Recommended)"*. Click **Next**.

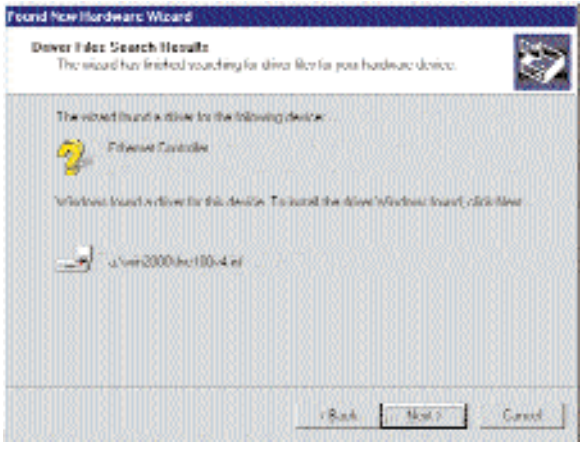



4. **The *Locate Driver Files* dialog box** will appear. Select *"Specify a location"*. Click **Next**.



5. **When the *Found New Hardware Wizard* box appears**, insert the *Linksys EtherFast 10/100 Driver Disk* into your floppy drive. In the "*Copy manufacturer's files from*" field, type "**A:\Win2000**". Click **OK**.

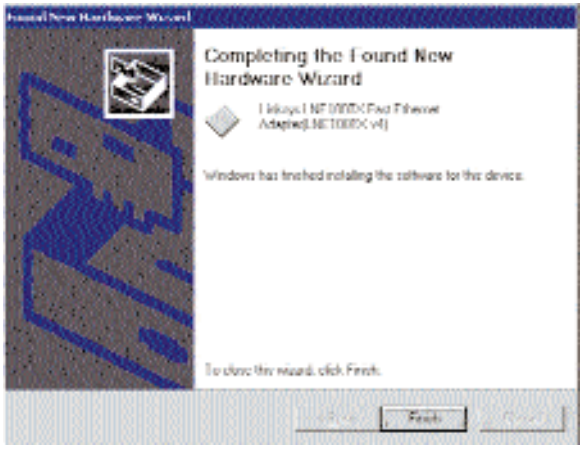

6. **The *Driver File Search Results* dialog box** will appear. Click **Next**.








7. **The *Completing the Found New Hardware Wizard* dialog box** will appear.The following adapter name will be shown: *Linksys LNE100TX Fast Ethernet Adapter (LNE100TX v4).* Click **Finish**.




8. **Remove the driver disk** from the floppy drive.

**The Windows 2000 driver installation is complete. If you want to share files or printers, refer to your Windows 2000 documentation or check with your system administrator.**

# Windows NT 4.0 Installation & Setup

## Overview

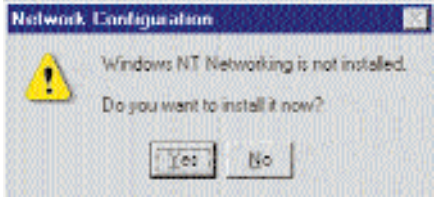
The following instructions will set up the EtherFast 10/100 LAN Card in a computer running NT 4.0 server/workstation. You should have your original Windows NT CD-ROM handy during the installation, as you might be asked to supply it. Always contact your network administrator or consult your NT documentation if you have questions.

### To install the network driver for an NT 4.0 Server or Workstation

1. **Log into Windows NT** as an administrator.

2. Click on **Start**, **Settings**, **Control Panel**, and then double-click on the **Network** icon.

3. If you have not previously installed Windows NT networking on your computer, a message will appear that reads: *Windows NT Networking is not installed. Do you want to install it now?*




- If you see this message, click **Yes** to install NT networking along with the EtherFast Card's network driver, and continue with step 1 below.
- If you don't see this message, NT networking is already installed. Skip to step 1 on page 36.

## Installing NT Networking & the EtherFast Card Driver

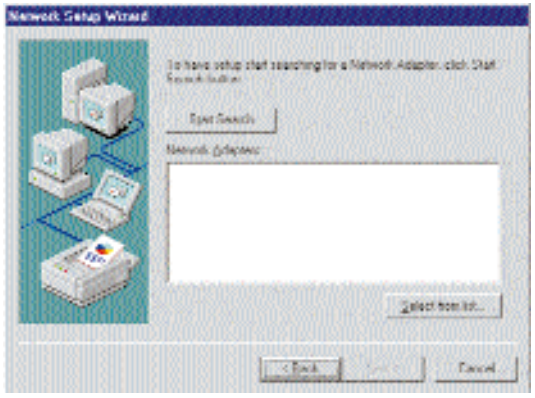
1. After clicking on **Yes**, the *Network Setup Wizard* window will appear.

2. Put a checkmark next to the *Wired to the network* option. Click **Next**.

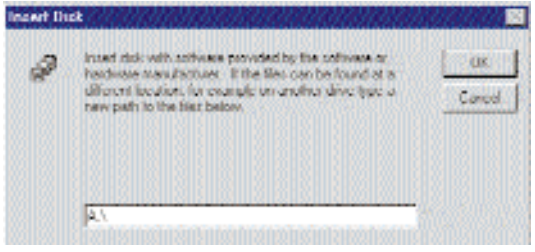




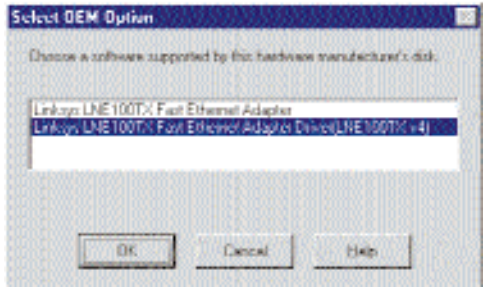
3. Click on the **Select from list...** button to select a network adapter.



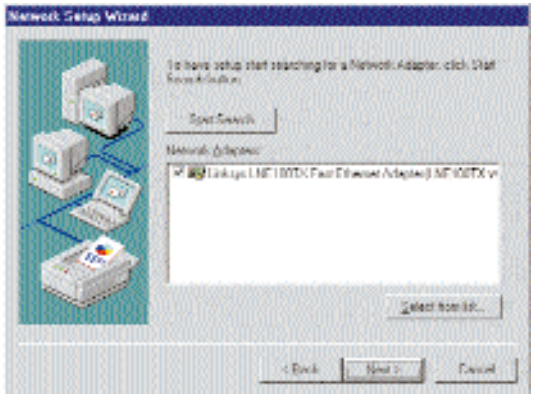

4. Click on the **Have Disk** button. Insert the *EtherFast 10/100 LAN Card Driver Disk* into drive A. Type **a:** into the box on your screen and hit **OK**.




5. Highlight the **Linksys LNE100TX Fast Ethernet Adapter (LNE100TX v4)** entry in the window that appears. Click **OK**.

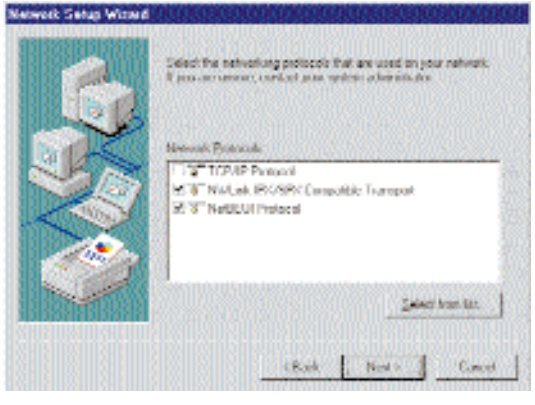


6. The adapter will be added to the list of installed Network Adapters. Click **Next**.



7. Place **check marks** beside each listed network protocol that you wish to install. See your Microsoft Windows NT user guide or talk to your network administrator for more information about network protocols. When you're finished, click **Next**.

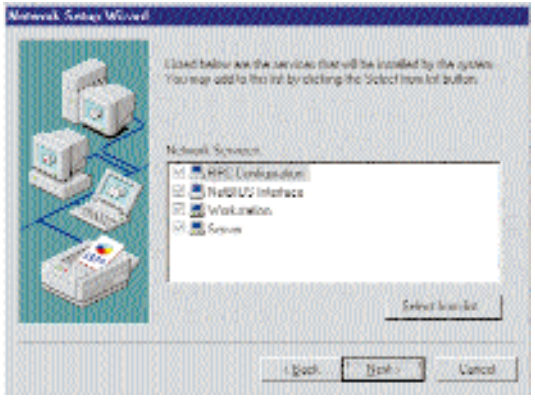
> ***Note:*** *If you install the* ***TCP/IP protocol****, refer to your system administrator or your Windows NT documentation when installation steps that aren't listed in this User Guide appear. Linksys does not provide technical support for the configuration or troubleshooting of the TCP/IP protocol.*







8. A list of services will appear. Click **Next** to approve these services, followed by **Next** again.

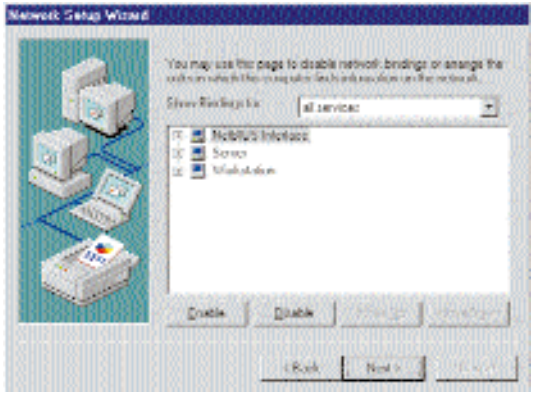


9. NT will probably ask you to supply your original Windows NT CD-ROM or setup disks. If so, place your Windows NT CD-ROM in your CD drive. If the CD-ROM loads a pop-up window, close it. Type `D:\i386` (or the appropriate CD-ROM drive letter) in the box and click **Continue**.

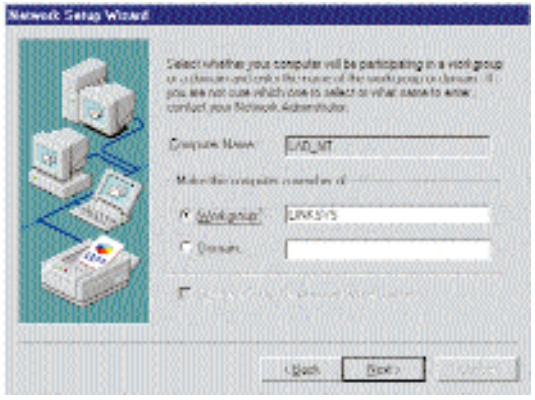
10. NT will ask you to choose a media type for the EtherFast card. Choose **AutoSense**. You can change these settings later if needed. When finished, click **OK**.

11. NT will copy the necessary network drivers to your PC. When the copying is complete, you will see a list of installed bindings. Change the bindings settings if needed and click **Next**. Click **Next** again.

> ***Note:*** *For information and help on choosing your bindings, services and protocols, ask your network administrator, or check your Windows NT documentation.*




12. Choose either **Workgroup** or **Domain**, depending on the type of network you're setting up. (Your Microsoft documentation explains the difference between Workgroups and Domains.) Click **Next**.








13. Click **Finish**. When asked if you want to restart your computer, remove the Driver Disk and click **Yes**.


14. Once your PC has rebooted and you are logged in, double-click the **Network Neighborhood** icon on your desktop. Ensure that you have access to the network. If you do, your card has been properly installed.

- *If you had previously installed any NT service packs, you must go back and re-install those service packs now.*

- *If you need to install the TCP/IP protocol, refer to your system administrator or your Windows NT documentation. Linksys does not provide technical support for the configuration or troubleshooting of the TCP/IP protocol*

**The Windows NT Installation and Setup of the EtherFast 10/100 LAN Card is complete. Do not continue on with the next set of instructions. They are for NT users who already had their networking configured.**

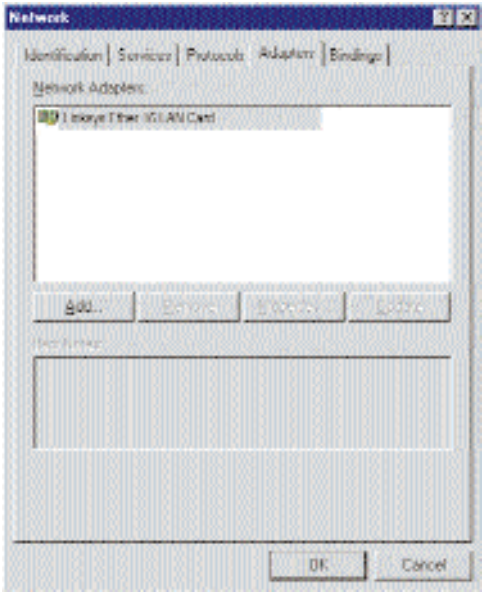
> ***Note****: If you had previously installed any NT service packs, you must re-install them. Otherwise, you may receive Not Enough Service Storage Space errors in the Event Viewer.*

## Installing the EtherFast Network Driver if Networking is Already Installed

The following steps will install the EtherFast Card's driver software on your PC, enabling your PC to properly communicate with the card. Remember that **you must be logged on as a network administrator to continue**.

1. Click on **Start**, **Settings**, **Control Panel**, then double-click on the **Network** icon.

2. When the networking window appears, choose the **Adapters** tab. Click the **Add** button.

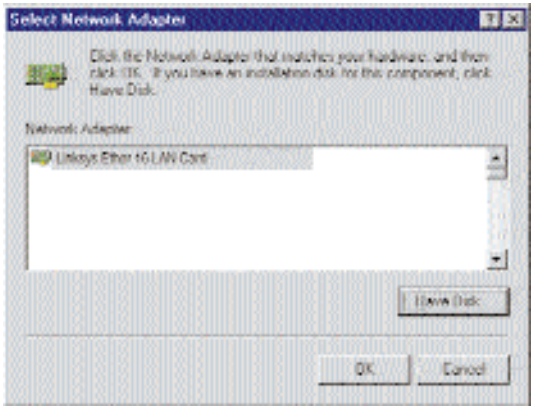



*Note: For information and help on choosing your bindings, services and protocols, ask your network administrator, or check your Windows NT documentation.*

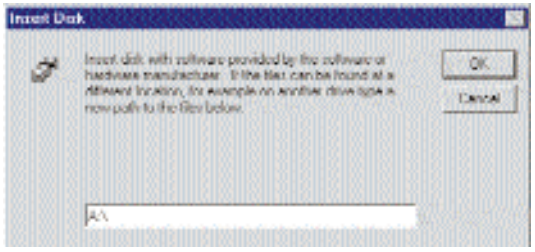




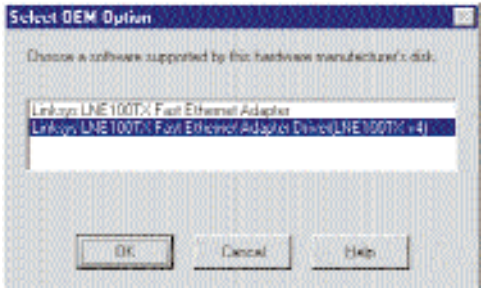
3. When the list of available network adapters appears, click the **Have Disk** button.




4. Put the EtherFast Card disk into drive A. Type **a:** into the box on your screen and click **OK**.




5. Highlight the **Linksys LNE100TX Fast Ethernet Adapter (LNE100TX v4)** entry in the window that appears. Click **OK**.



6. When NT asks you for the media type. Choose the **AutoSense** option. When finished, click on **OK**. Click **Close**.

7. NT will probably ask you to supply your original Windows NT CD-ROM or setup disks. Direct Windows NT to the proper location (most likely `D:\i386`).

***Note:*** *If you install the* ***TCP/IP protocol****, refer to your system administrator or your Windows NT documentation when installation steps that aren't listed in this User Guide appear. Linksys does not provide technical support for the configuration or troubleshooting of the TCP/IP protocol.*

8. Click on the **Protocols** tab. Add any protocols you require by clicking the **Add** button. (Refer to your Microsoft documentation if you have any questions on adding protocols.)

9. After your bindings, settings, and services are set, click the **Close** button.





10. Remove your Driver Disk and CD-ROM and click **Yes** to restart your PC.

11. Once your PC has rebooted, double-click the **Network Neighborhood** icon on your desktop. Ensure that you have access to the network. If you do, your card has been properly installed.

- *If you had previously installed any NT service packs, you must re-install them. Otherwise, you may receive Not Enough Service Storage Space errors in the Event Viewer.*
- *If you need to install the TCP/IP protocol, refer to your system administrator or your Windows NT documentation. Linksys does not provide technical support for the configuration or troubleshooting of the TCP/IP protocol*

**The Windows NT Installation and Setup of the EtherFast 10/100 LAN Card is complete.**

***Note****: If you had previously installed any NT service packs, you must re-install them. Otherwise, you may receive Not Enough Service Storage Space errors in the Event Viewer.*

# Novell NetWare Server Setup

## Overview

The EtherFast Card network driver will be automatically installed during all of the following NetWare installation procedures. During the setup you may want to refer to your NetWare Installation Manual for help.


- To Install the NetWare 5.x Server software on your PC, go to page 42.
- To Install the NetWare 4.x Server software on your PC, go to page 41.
- To Install the NetWare 3.12 Server software on your PC, continue below.


***Note:*** *If, after any of these installations, the operating system asks you for a slot number, NetWare needs to know which PCI slot your card has been installed to. The slot variable can be added to the driver line as shown in the example below:*

```
load c:\lne100\lne100tx.lan  slot = 3
frame = ethernet_802.2 name = nserv
bind ipx to nserv net = 15
```

*In this example, the card is in slot 3, the frame is Ethernet_802.2, the net value is 15 (arbitrary) and the name is nserv (arbitrary name).*

## Installing a 3.12 Server

1. Create a directory in the DOS partition of your file server called LNE100.

2. Copy the following files from the EtherFast Card Driver Disk to your file server's new LNE100 directory:

```
a:\netware\server\nw31x\NBI31X.NLM
a:\netware\server\nw31x\MSM31X.NLM
a:\netware\server\nw31x\ETHERTSM.NLM
a:\netware\server\nw31x\LNE100TX.LAN
```

3. Following the Load LAN Driver Module instructions in your Novell NetWare 386 v3.12 manual, start NetWare and configure the server (if you haven't already).

4. Load the above LAN drivers using the **LOAD** command.





5. If the LAN driver is not located in the default directory, specify the file's path on the command line. The LOAD command prompts you for the configuration parameters if they are not supplied on the command line.

6. At the server command line, type (for example):

```
LOAD c:\LNE100\NBI31X.NLM
LOAD c:\LNE100\MSM31X.NLM
LOAD c:\LNE100\ETHERTSM.NLM
LOAD c:\LNE100\LNE100TX.LAN FRAME = <frame type
 in use>
```

7. Bind a protocol to the driver. For example:

```
BIND IPX TO LNE100TX NET=XX
```

where XX is the logical network address for your network. It can be any logical number.

***Note:*** *You can save the LOAD command line parameters in a file with the name AUTOEXEC.NCF so they execute automatically when the server starts. See the Novell NetWare 386 v3.12 Installation Manual for details on how to create the AUTOEXEC.NCF file.*

**The loading and binding are complete. The server is ready.**

## Installing a 4.x Server

1. At the NetWare prompt (indicated by the server name), run the INSTALL.NLM program by typing **load install**.

2. Select *Maintenance/Selective Install* and press **Enter**.

3. Select *LAN Driver Options* and press **Enter**.

4. Press the **Insert** or **Ins** key on your keyboard to insert a new driver. Put the EtherFast Card Driver Disk into drive A.

5. Press **F3** and specify the driver path. If the EtherFast Card disk is in drive A, for example, type **a:\netware\server\nw411** and press **Enter**. The program will locate the EtherFast Card's LNE100TX.LAN and LNE100TX.LDI files on the disk.

6. The LNE100TX.LAN driver will appear as an option in the *Select a LAN Driver* field. Choose this driver to start the loading and binding procedure.

7. Add the LOAD and BIND statements to your server's AUTOEXEC.NCF file so that the LAN driver loads automatically each time your server is started up.

**The loading and binding is complete. The server is ready.**

## Installing a 5.x Server

1. On the PC in which you installed the EtherFast card, simultaneously press **CTRL** and **ESC**.

2. When the next screen pops up, select the number for **System Console** and press **Enter**.

3. In the System Console prompt, load NWCONFIG by typing `nwconfig` and hitting **Enter**.

4. Highlight **Driver Options**. Press **Enter**.

5. Highlight **Configure network drivers**. Press **Enter**.

6. Highlight **Select a driver**. Press **Enter**.

7. Press **INS** to Install an unlisted driver.

8. Press **F3** to Specify a different path.

9. In the *Specify a directory path* box, type `A:\NETWARE\SERVER\NW50` and press **Enter**.

10. In the next box, ensure that *LNE100TX.LAN | Linksys LNE100TX Fast Ethernet Driver* is highlighted. Press **Enter**.

11. You will be asked *Do you want to copy driver LNE100TX.LAN*. Highlight **Yes**, then press **Enter**.

12. Files will begin copying to your hard drive. Afterwards, a *Protocol and Parameter* screen will pop up. Highlight **Select/Modify driver parameters and protocol**. Press **Enter**.





13. Arrow down the list that appears and choose which protocols you want to install. Press **F10** to save.

14. Highlight **Save Parameters and Load Driver**. Press **Enter**.

15. Your PC will examine the network. This may take a few minutes.

16. You may be prompted several times for a network on which to bind IPX to LNE100TX_1. Accept the default numbers if you are not sure which values to assign.

17. When asked *Do you want to select an additional Network driver?*, highlight **No** and press **Enter**.

18. Press **ESC** a few times to exit the program.

**The loading and binding are complete. The server is ready.**

# Troubleshooting

Troubleshooting hints for Windows can be found below. If you are using Windows NT, NetWare, or another network operating system, skip to the Card Diagnostics instructions on page 48.

## Troubleshooting Hints for Windows 95 and 98

1. Windows doesn't detect new hardware with the EtherFast Card hardware installed, or it continues to detect the card each time you restart your 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.
   - Try inserting your card into an alternate PCI slot.
   - You may have previously aborted a new hardware setup. Follow the directions on page 54.
   - 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 95/98. If you are not sure, contact your PC's manufacturer.

2. Windows can't locate the driver for the EtherFast Card device.
   - You may have inserted the wrong diskette into your PC's drive.
   - The diskette may be defective or files may be missing. Make sure the disk has a few files in a:\ starting with lne100 or a folder called Win95 for Window 95 or Win98 for Windows 98

3. The Windows Logon screen doesn't appear after you restart your computer.
   - Click on Start, Shut Down, then Close All Programs and Logon as a Different User, (in Windows 98, select Log Off). If this doesn't solve the problem, your PC's manufacturer may have disabled Windows' networking. Contact your computer's manufacturer for help.

4. After entering a username and password, a window appears that reads, "No Domain Server could be found to validate your Username and Password."
   - Click on Start, Settings, Control Panel. Double-click on Network. Click on the Configuration tab. Under The Following Network Components are Installed box, highlight Client for Microsoft Networks and click on the Properties button. Once you are in the Client For Microsoft Networks Properties window, make sure that Log on to Windows NT Domain is unchecked. Once you have made sure that it is unchecked click on the OK button and restart your computer.





5. On the Access Control Tab, User Level Access is selected, but Shared Level Access is grayed out and not accessible.
   - You previously had your primary network logon set to *Client for NetWare Networks*. On the **Configuration** tab of the *Network Properties* window, ensure that your primary network logon is set to *Client for Microsoft Networks*.
   - Your personal web server PC or Microsoft Front Page may require you to choose a user level for security reasons.

6. In Network Neighborhood you can only see yourself 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 EtherFast Card and your hub. Try changing to a new cable that you know is working.
   - Your workgroup name may be different from other computers on your network. Make sure each PC on the network is using the same workgroup name and protocol.
   - Try using the Find Computer function (see problem 10).

7. In Network Neighborhood, you can see all other computers on the network but not yourself, and all other computers can see each other and not your computer.
   - You may have not have enabled File and Printer Sharing. To do so, go to p step number 3 on page 49.
   - The network card might not be setup properly. Try reinstalling the card's drivers. To clean your system of the old installation, go to page 54 and then re-install.

8. Network Neighborhood is Empty.
   - Verify that your Microsoft Client is installed. See the Windows 95 or 98 setup instructions in this guide for directions. Verify that you have logged in correctly. Refresh the screen by pressing **F5** several times.

9. You receive DHCP Errors in Windows.
   - If you are connecting to a DHCP server, check your cabling and connection. If you require TCP/IP to be configured, check with your network administrator or your Windows documentation for proper settings.
   - If you don't have a DHCP server on your network and your network setup doesn't require TCP/IP, you may remove the TCP/IP component from Windows' networking. To do this, click on **Start**, **Settings**, **Control Panel**, then double-click on **Network**. Click once on the **component entry** with the words TCP/IP and Linksys or TCP/IP on its own, then click on the Remove button. Click **OK** when finished and restart your PC. If the problem persists, try running the diagnostics on page 48.

10. In Network Neighborhood you can only see computers running the same operating system as your computer (i.e., your PC is running Windows 95 and it can only see other Windows 95 computers and not any computer running Windows 98).

- Choose **Start**, **Find**, **Computer** and type the name of the computer in the window that comes up and click **Find Now**.
- Now make sure that the you are using the same protocol(s) and work-group name on the 95 and 98 computers. To do this, click **Start**, **Settings**, **Control Panel** on two computers running different Windows operating systems. Click on the **Network** icon, choose the **Configuration** tab, then click on the **Identification** tab for Workgroup name. Compare the protocols on both computers and make sure that they are the same. If any protocols are missing, refer to page 59 to install any needed protocol(s).
- 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. Follow these instructions:
- The IPX/SPX-compatible protocol should be installed on all Windows computers (see page 59 if you need to add this protocol). Bring up the properties of the IPX/SPX-compatible protocol by clicking on Start, Settings, Control Panel, then double-click the Network icon. Choose the Configuration tab and highlight IPX/SPX-compatible Protocol. Click on Properties. Now, to install NetBIOS, click on the NetBIOS tab. Put a check next to I want to enable NetBIOS over IPX/SPX. Click OK, then OK again. Windows will copy the appropriate files to your computer. When asked to restart your PC, remove any floppy disks and click **OK**. Be sure to do this on all of your computers that are having trouble seeing your entire network.

11. 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, then double click the System icon. Click on the Device Manager tab. Open System Devices, then open PCI Bus.





- Click on the IRQ Steering tab. Remove the check from **Use IRQ Holder** and click **OK**. Windows will ask you to restart the PC (if it doesn't ask you, then reboot the PC manually).
- After the computer boots up, Windows will try to re-detect 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.

## Running the Card's Diagnostics

If you suspect that there may be a problem with the Fast Ethernet Card, or if you need to identify the card's MAC address, you can use the DIAG diagnostic program on the EtherFast 10/100 LAN Card Driver Disk.

To run the program, start up your computer in DOS. The program only works in standard "real DOS mode" DOS – it will not work in a Windows DOS window. To get into "real DOS mode," do the following:

- In Windows 95, start your computer. *When the Starting Windows...* message appears, press the **F8** key. You will then get to the *Microsoft Window Startup Menu*.
- In Windows 98, start your computer (No *Starting Windows...* message will appear). Immediately and rapidly press the **F8** key until you get the *Microsoft Window Startup Menu*.

1. Choose the **Safe mode command prompt only** option. Press **Enter** on the keyboard.

2. Insert the *Linksys Fast Ethernet 10/100 Network Card Driver Disk* into drive A. Enter the appropriate commands after the following prompts:

   - When "C:\>" appears, type "a:" then press **Enter**.
   - When "A:\>" appears, type "cd diag" then press **Enter**.
   - When "A:\diag>" appears, type "diag" then press **Enter**.

   You can also copy the software to your local (c:\) drive and run DIAG from your hard disk.

3. The *Fast Ethernet Diagnostics Program* will appear, providing a display of the card's basic information (Ethernet Address, IRQ, I/O Port and Media Type). Press **Enter** to begin the testing cycle. If the card isn't found, power off the PC and ensure that the card is properly seated in the PCI slot.

4. The word "pass" will appear next to each successful test. If the card fails the Link Status Test check your cabling and hub connections. If the card fails the Loopback test, check your computer's settings, then contact Linksys Customer Support for help.





# Appendix

## Sharing Your Files and Printers

### Overview

By sharing your files and printers, other PCs on your network will be able to access the resources on your PC.

Before sharing your files and printers, you should prepare your computer to be used with any file servers that may be on the network. If you are **not** using Windows 95 or Windows 98 with an NT or NetWare file server, or if you are not sure if you have a file server, continue below.

If you are using a NetWare or NT file server, go to page 52 or 53, respectively, for client setup.

### Enabling File Sharing

1. Double-click your **My Computer** icon. A window of available disk drives will appear.

2. Using your right mouse button, click once on the drive or folder that you want to make available to other users.

3. Click on **Sharing**, followed by the **Sharing** tab. Click on **Share As**.

4. In the Share Name box, enter a name for the drive or folder you are sharing. This can be any drive on your PC—floppy drive, hard drive, CD drive, zip drive, etc.

5. Decide on the type of access that you want to give other users.

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

***Note:*** *If you are only using your PC to access the Internet, it is highly recommended that you use passwords for your shares.*

6. If you want to assign access passwords, type the passwords into the Password boxes.

7. When you're done, click on the **Apply** button, followed by **OK**. Repeat steps 1-7 for any drive or folder you desire to share on the network.

**You have successfully enabled File Sharing on your PC. Your selected drives or folders can now be accessed by other network users. If a user tries to access one of your password-protected drives or folders, he or she will be asked for the appropriate Read-Only or Full-Access password. Continue on if you wish to share your PC's printer over the network.**

### Enabling Printer Sharing

1. Double-click on the **My Computer** icon.

2. Double-click the **Printers** folder. A window of available printers will appear.

*Note: Any printer you wish to share from your PC must be physically connected to your PC.*

3. 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.

4. Click on **Share As**. In the Share Name box, give a name to the printer you want to share. If you want to assign a password to the printer so that only certain users can access it, type a password in the Password box.

5. Click on the **Apply** button, followed by **OK**. Your printer(s) are now shared.

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

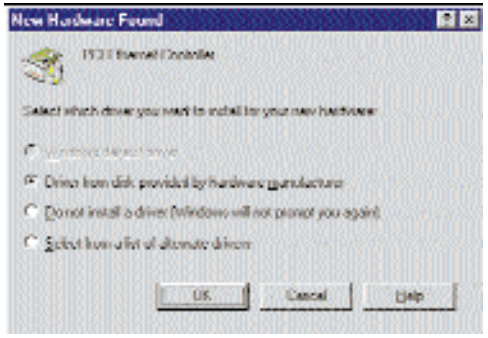
**The Printer Sharing setup and installation is complete. Your printer can now be accessed by other network users. The printer's driver may have to be installed on other PCs. Consult your printer's documentation.**





## Installing the Driver in Windows 95 Version A

1. Windows 95 will detect the EtherFast card and display a *New Hardware Found* window.




2. Slide the **EtherFast Card Driver Disk** into drive A.

3. Select *Driver from disk provided by hardware manufacturer*, then click **OK**.

4. When asked for the location of the files, type **a:** and click **OK**. If Windows 95 goes straight to the desktop, refer to problem 2 on page 44.

5. Windows 95 will copy the appropriate network drivers to your PC. If Windows 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).

6. During the installation, windows may ask you for a computer and workgroup name. If so, refer to the step 8, on page 23. Once you have established computer and workgroup names, return here to continue with the installation.

7. After Windows 95 has completed copying the necessary files to your PC, it may ask you to restart your computer. Remove the Driver Disk and click **OK**.

**The Windows 95 Version A driver installation is complete. Please continue on to Windows 95 Network Component Configuration section on page 21. Consult your network administrator for network configuration information if necessary.**

## Novell NetWare 3.x Client Setup for Windows 98 or 95

The instructions below explain how to set up the regular Novell NetWare 3.x client for use on a Windows 98 or 95 PC.

1. Follow the Windows 95 setup instructions or the Windows 98 setup instructions.

2. Start up Windows 95 or 98. Click on **Start**, **Settings**, then **Control Panel**. Double-click on **Network**. The Network window appears. Click on the **Configuration** tab.

3. In the Primary Logon Box, choose *Client for NetWare Networks*.

4. Under the *The following network components are installed* box, highlight *Client for NetWare Networks* and click on the **Properties** button.

5. The *Client for NetWare Networks Properties* window appears. Under the **General** tab, enter the name of your network's Preferred Server. *Assign the First Network Drive Letter*; the default is F. Make sure the **Enable** logon script processing is checked.

6. Click **OK**. Click on the **Access Control** tab. Make sure the *Share-level access control* option is selected; do not select *User-level access control*.

7. When you're done, click **OK** to restart your computer.

**The NetWare portion of your Windows setup is complete.**





## Windows 98 or 95 Client for Windows NT

If you are installing the EtherFast 10/100 Card in a Windows 95 or 98 PC that you plan on logging into a NT domain server, follow the directions below.

1. Follow the Windows 95 setup instructions or the Windows 98 setup instructions

2. Start up Windows. Click on **Start**, **Settings**, then **Control Panel**. Double-click on **Network**. The Network window appears. Click on the **Configuration** tab.

3. In the Primary Logon Box, you have two choices. Choose one **Client for Microsoft Networks,** which instructs your PC to log into an NT 4.0 server where you already have a username and password set up.

4. Under the the following network components are installed box, highlight Client for Microsoft Networks and click on the **Properties** button.

5. The *Client for Networks Properties* window will appear. Under the *Logon Validation* box, make sure that *Log on to Windows NT* domain is checked. Enter the name of your domain into the *Windows NT Domain* box

6. *Optional*: Click on the **Access Control** tab. Make sure that *Share-level access control* is selected; do not choose *User-level access control*. If Access Control is grayed out and cannot be selected, refer to Problem 5 in the Troubleshooting section on page 45.

7. When you're done, click **OK**. When asked if you want to restart your PC, choose to do so.

**The NT portion of the Windows setup is complete.**

## Starting Over in Windows 95, 98 or 2000

If you experience installation difficulties, you may need to re-install all of the Windows networking components from scratch. The instructions below explain how to give your PC a clean sweep so that you can start the EtherFast Card's software installation over.

The following instructions are for Windows 95 and 98. To start over in Windows 2000, go to page 57.

### Starting Over in Windows 95 & 98

1. At the desktop click on the **Start** Button, highlight **Settings**, click on **Control Panel**.

2. Double-click on the **Network** Icon.

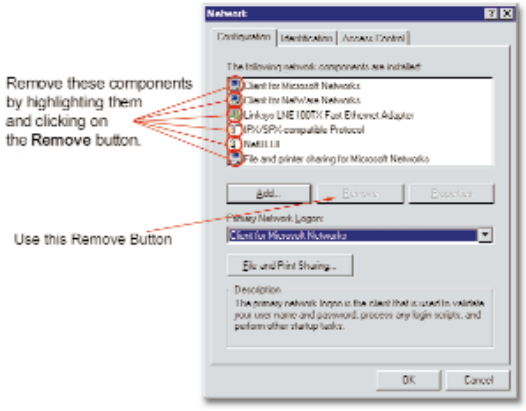
3. If the Configuration box has a component called Dial-Up Adapter, skip forward to step 5. If it doesn't, continue with step 4.

***Note:*** *The screen shot above, and the ones on the next three pages, are examples only. They may differ from system to system.*



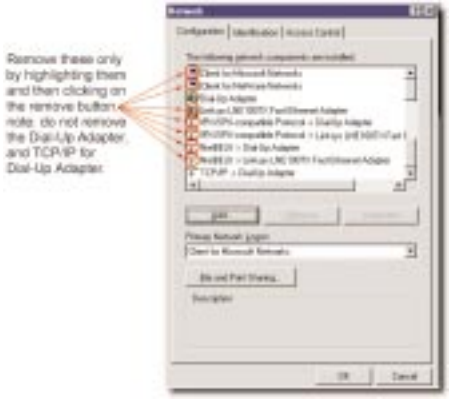


4. Remove any instance of the name Linksys in the box. This includes *IPX/SPX…Linksys*, *NetBEUI…Linksys*, and *TCP/IP…Linksys*. Also remove *Client for Microsoft Networks*, *Client for NetWare Networks*, and *File and Printer Sharing for Microsoft Networks*.




In some cases, removing one of these components may in turn automatically remove other components as well. If this happens, skip ahead to step 6.

5. For PCs with Dial-Up Networking and/or an AOL adapter, remove any instance of the name Linksys, all IPX/SPX protocols, all NetBEUI, all Clients, and File and Printer Sharing for Microsoft Networks. Do **not** remove *Dial-Up Adapter*, *AOL Adapter*, *TCP/IP-Compatible Protocol-AOL Adapter* or *TCP/IP-Compatible Protocol-Dial-Up Adapter*.



6. When you are done removing all the unnecessary components, click **OK**. When asked to restart, click **No**.

7. Return to the Windows Control Panel. Double-click on the **System** Icon. The System Properties window will appear. Click on the **Device Manager** Tab.

8. Scroll down to the Network Adapters item and expand it by clicking on the **open** [+] sign.


11. Remove all devices with the name Linksys in it's description. (If at any point you are asked to restart the computer, Click **No**).

12. Scroll down to the Other Devices section. Remove *PCI Ethernet Controller* or *PCI Ethernet Adapter*. (If Other Devices is not listed, proceed to the next step.)

13. When you're finished, click on the **Close** button, shut down Windows, and restart your computer.

14. After your computer has restarted, turn to page 9 for Windows 98 or page 18 for Windows 95 and follow the setup instructions.





## Starting Over in Windows 2000

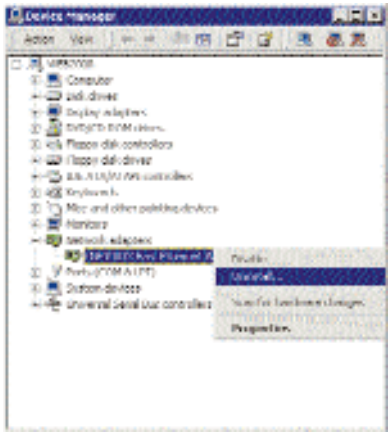
1. Click the Start button, choose Settings, choose Control Panel, then double-click the System icon.The System Properties window will open.

2. Choose the Hardware tab.

3. Click the Device Manager button. The Device Manager window will open.

4. Click the plus sign (+) beside Network Adapters. The LNE100TX Fast Ethernet Adapter listing should appear.

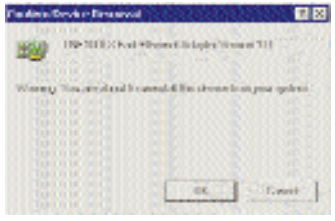
5. Right-click on LNE100TX Fast Ethernet Adapter. A content menu should open (below).



6. First, choose Disable.

7. When asked if you want to Disable the device, click Yes.

8. Right-click on the LNE100TX Fast Ethernet Adapter again. This time, select Uninstall.... Click OK.



9. The Network Adapters category should be removed from the Device Manager listing.

10. Close the Device Manager, click the System Properties window's OK button, and restart your computer.





## Manually Installing the Network Components in Windows 95 & 98

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

1. Click on **Start**, **Settings**, then **Control Panel**.

2. Double-click the **Network** icon. The Network window appears.

3. Click on the **Configuration** tab. Make sure that the following network components are installed.

- *Client for Microsoft Networks*
- *Linksys LNE 100TX Fast Ethernet Adapter (LNE100TX v4)*
- *IPX/SPX-compatible Protocol*
- *NetBEUI*
- *TCP/IP*

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.

***Note:*** *You will likely need your Windows CD-ROM to install network components. If your CD-ROM isn't available, try directing Windows to "c:\windows\options\cabs" when asked for a file location.*

### 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 **Add**. Choose Microsoft as the manufacturer in the Network Client box. Highlight *Client for Microsoft Networks* and click **OK**. The computer will begin copying files to your system. When the installation is complete, you will be asked if you want to reboot. Click **OK**.

### Client for NetWare Networks

If you plan on connecting to a Novell NetWare server (3.x), click on the **Add** button. Highlight *Client* and click on **Add**. In the Network Client window, select *Manufacturer* and choose **Microsoft**. Highlight *Client for Microsoft Networks*. Click **OK**. The computer will begin copying files to your system. When the installation is complete, you will be asked if you want to reboot. Click **OK**.

### 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 **OK** .The computer will begin copying files to your system. When the installation is complete, you will be asked if you want to reboot. Click **OK**.

### NetBEUI

Click on the **Add** button. Select *Protocol*, then click **Add**. Under *Manufacturer*, highlight **Microsoft**. Under *Network Protocol*, highlight **NetBEUI**. Click **OK**. The computer will begin copying files to your system. When the installation is complete, you will be asked if you want to reboot. Click **OK**.

### TCP/IP

Click on the **Add** button. Select *Protocol*, then click **Add**. Under *Manufacturer*, highlight **Microsoft**. Under *Network Protocol*, highlight **TCP/IP**. Click **OK**. The computer will begin copying files to your system. When the installation is complete, you will be asked if you want to reboot. Click **OK**.





## Installing and Configuring Wake-On-LAN

### Overview

Only install the Wake-On-LAN wires if your motherboard supports remote wake-up events. Improperly connecting the wire or connecting it to a motherboard socket other than the designated 3-pin socket can damage your hardware.

The EtherFast 10/100 LAN Card supports both *Magic Packet* and *Link Change* remote wake-up events.

**Magic Packet** An administrator can send a "wake-up" packet to a specific PC on the network. That computer then boots up, allowing the administrator to access the PC's drives. After the work is done, the PC goes into a sleep mode (using about 10% of the normal amount of power) or shuts off completely, depending on the management software being used.

**Link Change** is a remote wake up event that is triggered by any change in the EtherFast card's link state. If you have Wake-On-LAN networking set up on the PC, plugging an active network cable into the LAN Card will cause the PC to automatically turn itself on.

### Motherboard Support

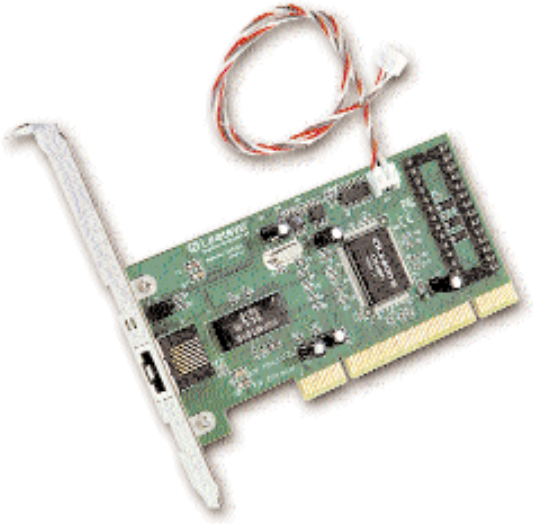
WOL-compatible motherboards can offer support for a number of different Wake-On-LAN interfaces. The EtherFast 10/100 LAN Card is compatible with PME and RWU-high. Consult the motherboard documentation that came with your PC to find out which type of WOL interface your computer will use to communicate with the network card. In some cases, you may need to enable the WOL support in your PC's BIOS.

***Note:*** *Some PME-supporting motherboards may not require the WOL wire to be connected. Check your PC's documentation for more information.*

## Setting Up Your EtherFast LAN Card for Wake-On-LAN Use

> ***Note:*** *The location of each motherboard's WOL connection will vary from PC to PC. Consult your PC's documentation if you can't find it.*

1. Turn off your PC and remove the power cable from the wall. Use the picture below to locate where the WOL wire plugs into your EtherFast LAN Card.



2. Connect one end of the 3-pin Wake-On-LAN wire to the EtherFast LAN Card.

3. If your EtherFast LAN card isn't plugged into your motherboard, slide it in now.

4. Connect the loose end of the WOL wire into the WOL plug on your PC's motherboard. (Check your motherboard's documentation for proper WOL wire installation.)





## Sending a Magic Packet

In order to use WOL you need to know the MAC address of the card you wish to "wake". If you don't know the MAC address of the PC you are on, turn to page 48 to learn how to run the EtherFast Card's diagnostic program.

1. Turn off the PC on which you want to test the WOL feature. Go to another PC on the network and log in.

2. Go to an MS-DOS prompt. Run the diagnostics program (page 48). Press **Enter** to begin the test.

3. When the test is complete, press **F3** and select **Send an ACPI Packet**.

4. Press the **M** key. You will be asked for the destination of the magic packet. Enter the MAC address of the PC you want to "wake up" and press **Enter**.

5. Check to ensure that the PC has woken up.

> ***Note:*** *The **Diag** program works only if both the PC sending the magic packet and the PC receiving the magic packet are installed with EtherFast 10/100 LAN (version 4) cards.*

## Testing a Link Change WOL PC

This test will see if your PC responds to a change in the network link state by waking up. Use a configured PC that is on an active network link.

1. Turn your PC off and disconnect it from the network either by turning off the hub or switch or by disconnecting the network cable form the LAN card.

2. Wait about ten seconds, then plug the cable back in or turn on the hub. The PC should wake up.

## About Plug-and-Play PCI Technology

The EtherFast 10/100 LAN Card is designed to run in a 32-bit desktop computer equipped with PCI expansion slots. The card is built to the PCI 2.1 standard.

Short for **Peripheral Components Interconnect**, PCI is a technology that allows special Plug-and-Play expansion cards to be automatically configured by a computer's **BIOS** (Basic Input/Output System) once they have been installed. (Refer to your computer's user guide for more information about its BIOS.)

When a PCI card is used in a computer that supports Plug-and-Play, the card is automatically configured each time the computer is booted. The card's IRQ, I/O address, and other operating parameters are automatically assigned.

There is no easy way to change a Plug-and-Play card's IRQ and other settings outside of the BIOS menu(s) that your computer provides. If the resources that are assigned to your EtherFast card seem to conflict with other devices in your computer, you will need to use your system's BIOS to resolve the conflicts. If you have problems configuring your BIOS or resolving IRQ or other hardware conflicts, consult your computer's manual or contact your PC's manufacturer for BIOS setup and configuration directions.

Here are some general guidelines to follow when installing a PCI card (such as the EtherFast card) into your computer:

1. The EtherFast LAN adapter should be used in a 32-bit PCI slot that supports PCI Bus Mastering. It cannot be plugged into a PCI Bus Slave slot. Consult your motherboard's documentation for more information on master and slave slots.

2. If loading the EMM386.EXE program in your PC's CONFIG.SYS, you must use version MS-DOS 6.22 or above. If you load an older EMM386.EXE program (below DOS 6.22), your PC will hang up while loading the network driver.

3. When using NT, set your system's PNP OS option in the BIOS settings to MANUAL or DISABLE. NT is not a Plug-and-Play OS, and will not usually recognize LAN cards if they are set to be automatically detected and configured. If you need to configure your PC's BIOS in order to resolve an IRQ or other conflict with the EtherFast card, there are a few possibilities:





**No Changes Allowed** Your PC may not allow you to change the IRQ value(s) of the PCI slot(s). In this case, you will ONLY be able to use the IRQ and I/O values that have been pre-assigned to each slot. The popular BIOS from Phoenix, for example, does not generally allow you to modify BIOS-assigned IRQ settings.

**Jumper Changes** You may be able to change the IRQ & I/O values for a given PCI slot by setting jumpers on your PC motherboard. Please refer to your PC's motherboard user guide for specific instructions.

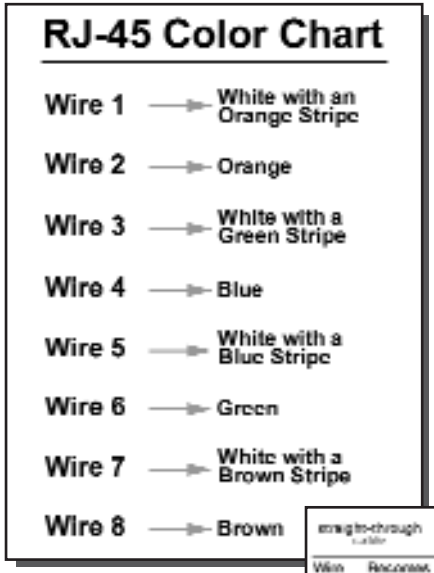
**Menu Changes** Your PC may allow you to change the IRQ & I/O values for a given PCI slot by accessing the PC's BIOS setup menu. Please refer to your PC's user guide for specific details. The BIOS from companies like AMI and Award are fully customizable from their BIOS menus, for example.

## Linux, Open Source and Beta Operating Systems

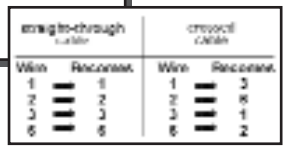
Linksys does not provide technical support for **Linux**, **BSD**, or other freeware, Beta, or open source operating systems. Although many Linksys products have been proven to perform well under Linux and other freeware OSes, technical support for setup and troubleshooting is not provided. For information on where to find device drivers and setup instructions for Linux and other freeware OSes, visit the support pages and FAQ files on the Linksys website at **www.linksys.com**.

## Twisted-Pair Cabling

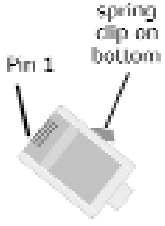
There are different grades, or categories, of twisted-pair cabling. Category 5 is the most reliable and is highly recommended. Category 3 is a good second choice. Straight-through cables are used for connecting computers to a hub. Crossover cables are used for connecting a hub to another hub (there is an exception: some hubs have a built-in uplink port that is crossed internally, which allows you to link or connect hubs together with a straight-through cable instead).




You can buy pre-made Category 5 cabling, or cut and crimp your own. Category 5 cables can be purchased or crimped as either straight-through or crossover cables. A Category 5 cable has 8 thin, color-coded wires inside that run from one end of the cable to the other. All 8 wires are used. In a straight-through cable, wires 1, 2, 3, and 6 at one end of the cable are also wires 1, 2, 3, and 6 at the other end. In a crossover cable, the order of the wires change from one end to the other: wire 1 becomes 3, and 2 becomes 6. See the diagrams on the next page for more detailed information on straight-through and crossover cabling.



To determine which wire is wire number 1, hold the cable so that the end of the plastic RJ-45 tip (the part that goes into a wall jack first) is facing away from you. Face the clip down so that the copper side faces up (the springy clip will now be parallel to the floor).When looking down on the copper side, wire 1 will be on the far left.

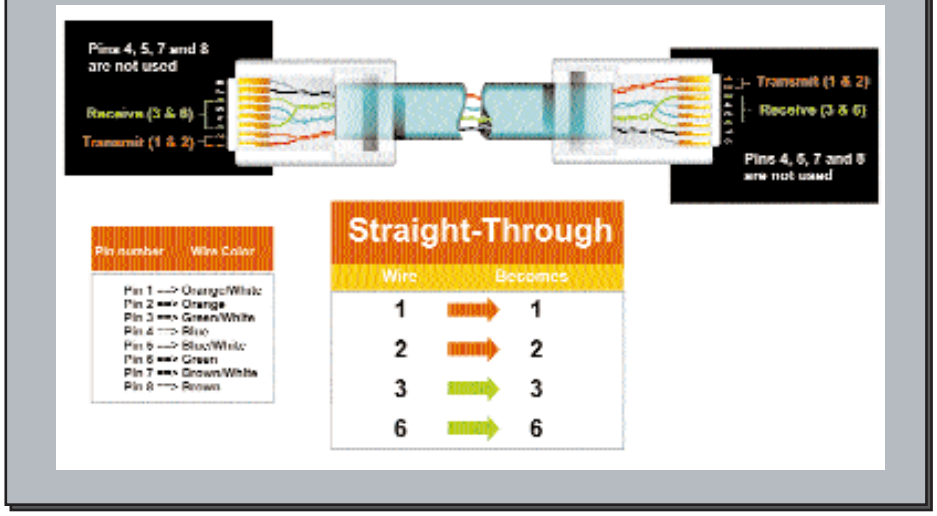




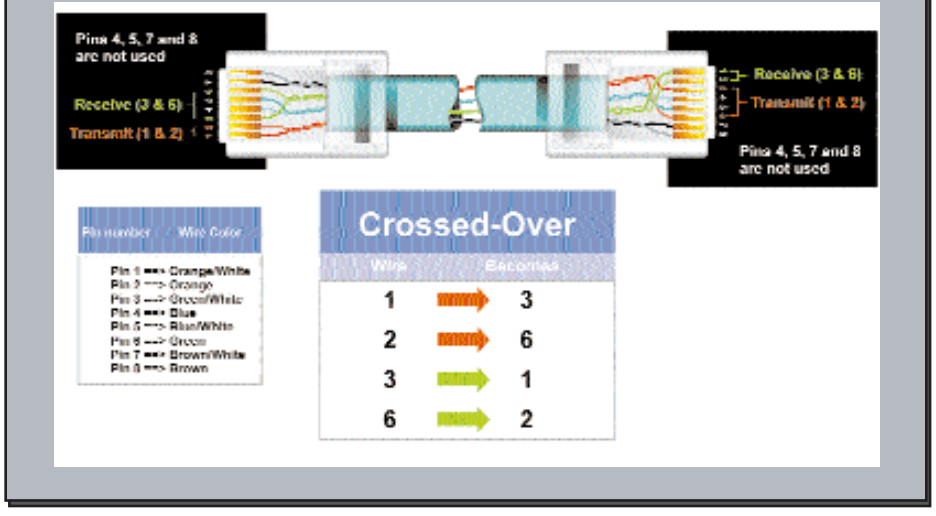



## Crimping Your Own Network Cables

• Straight-Through Cabling

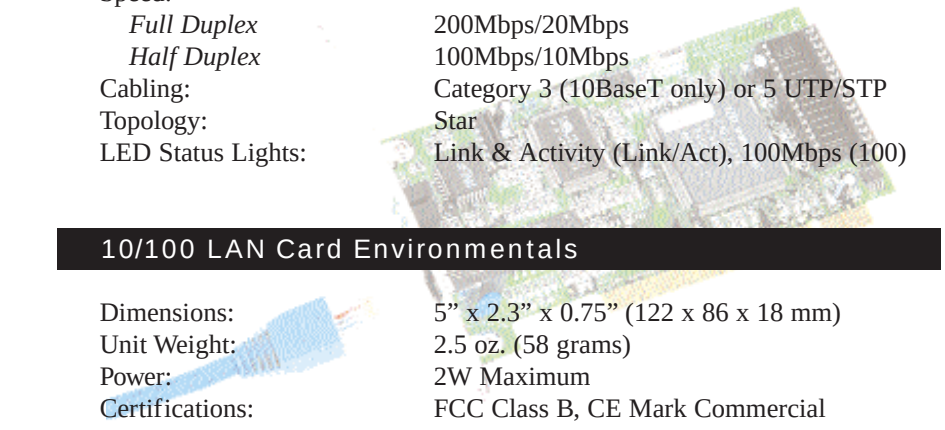



•Cross-Over Cabling



## 10/100 LAN Card Specifications

| | |
|---|---|
| Model Numbers: | LNE100TX v4 |
| System: | PCI 2.1 (or higher) compliant PC |
| Standards: | IEEE 802.3, IEEE 802.3u, PCI 2.1 & 2.2, ACPI, PC99 |
| Protocol: | CSMA/CD |
| Ports: | One Combo RJ-45 10BaseT/100BaseTX |
| Speed: | |
| *Full Duplex* | 200Mbps/20Mbps |
| *Half Duplex* | 100Mbps/10Mbps |
| Cabling: | Category 3 (10BaseT only) or 5 UTP/STP |
| Topology: | Star |
| LED Status Lights: | Link & Activity (Link/Act), 100Mbps (100) |



## 10/100 LAN Card Environmentals

| | |
|---|---|
| Dimensions: | 5” x 2.3” x 0.75” (122 x 86 x 18 mm) |
| Unit Weight: | 2.5 oz. (58 grams) |
| Power: | 2W Maximum |
| Certifications: | FCC Class B, CE Mark Commercial |
| Operating Temperature: | 0°C - 50°C (32°F - 122°F) |
| Storage Temperature: | -20°C - 70°C (-4°F - 158°F) |
| Operating Humidity: | 10% - 90% Non-Condensing |
| Storage Humidity: | 5% - 95% Non-Condensing |

## 10/100 5-Port Workgroup Hub Specifications

| | |
|---|---|
| Model Numbers | EFAH05W v2 |
| Standards | IEEE 802.3 (10BaseT),<br>IEEE 802.3u (100BaseTX) |
| Protocol | CSMA/CD |
| Ports | Five 10BaseT/100BaseTX RJ-45 Ports,<br>One Shared RJ-45 Uplink Port |
| Speed Per Port (Mbps) | 10Mbps (10BaseT)<br>100Mbps (100BaseTX) |
| Cabling Type | |
| *10BaseT:* | Category 3 UTP (or better) |
| 100BaseTX: | Category 5 UTP (or better) |
| Topology | Star |
| LEDs | Power, 100Mbps*, Link/Activity* (*per port) |

## 10/100 5-Port Workgroup Hub Environmental

| | |
|---|---|
| Dimensions | 4.5” x 3.5” x 1.3” |
| Unit Weight | 4.7 oz. |
| Power | 7.5DC, 700mA |
| Certifications | FCC Class B,<br>CE Mark Commercial,<br>UL and CSA Listed |
| Operating Temp | 0ºC to 50ºC (32ºF to 122ºF) |
| Storage Temp | -20ºC to 70ºC (-4ºF to 158ºF) |
| Operating Humidity | 10% to 85% Non-Condensing |
| Storage Humidity | 5% to 90% Non-Condensing |





## Customer Support

For help with the installation or operation of your EtherFast 10/100 Network in a Box, contact Linksys Customer Support at one of the phone numbers or Internet addresses below.

| | |
|---|---|
| **Customer Support** | (800) 326-7114<br>(949) 261-1288 |
| **Information** | (800) 546-5797 |
| **Fax** | (949) 261-8868 |
| **E-mail** | support@linksys.com |
| **Web** | http://www.linksys.com |
| **FTP Site** | ftp.linksys.com |

## Linksys Warranty Information

***Note:*** *You must have your proof of purchase and a bar-code from the product's packaging on hand when calling. Return requests can not be processed without proof of purchase.*

Linksys guarantees that every EtherFast 10/100 Network in a Box is free from physical defects in material and workmanship under normal use for five (5) year from the date of purchase. If the product proves defective during this warranty period, contact Linksys Customer Support to obtain a Return Authorization number. When returning a product, mark the Return Authorization number clearly on the outside of the package and include your original 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 OFFERS NO REFUNDS FOR ITS PRODUCTS.

**Tampering with or disassembling this product voids its warranty.**

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