



# **MarkNet internal print servers**

---

**MarkNet N2000 series and  
MarkNet S**

**Quick Start**

**Jan 2000**

## **Edition: January 2000**

The following paragraph does not apply to any country where such provisions are inconsistent with local law: LEXMARK INTERNATIONAL, INC., PROVIDES THIS PUBLICATION "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. Some states do not allow disclaimer of express or implied warranties in certain transactions, therefore, this statement may not apply to you.

This publication could include technical inaccuracies or typographical errors. Changes are periodically made to the information herein; these changes will be incorporated in later editions. Improvements or changes in the products or the programs described may be made at any time.

Comments about this publication may be addressed to Lexmark International, Inc., Department F95/035-3, 740 West New Circle Road, Lexington, Kentucky 40550, U.S.A. In the United Kingdom and Eire, send to Lexmark International Ltd., Marketing and Services Department, Westhorpe House, Westhorpe, Marlow Bucks SL7 3RQ. Lexmark may use or distribute any of the information you supply in any way it believes appropriate without incurring any obligation to you. You can purchase additional copies of publications related to this product by calling 1-800-553-9727. In the United Kingdom and Eire, call 0628-481500. In other countries, contact your point of purchase.

Lexmark and Lexmark with diamond design, MarkNet and MarkVision are trademarks of Lexmark International, Inc., registered in the United States and/or other countries. PostScript is a trademark or registered trademark of Adobe Systems Incorporated. Other trademarks are the property of their respective owners.

© Copyright 1999, 2000 Lexmark International, Inc.

All rights reserved.

### **UNITED STATES GOVERNMENT RESTRICTED RIGHTS**

This software and documentation are provided with RESTRICTED RIGHTS. Use, duplication or disclosure by the Government is subject to restrictions as set forth in subparagraph (c)(1)(ii) of the Rights in Technical Data and Computer Software clause at DFARS 252.227-7013 and in applicable FAR provisions: Lexmark International, Inc., Lexington, KY 40550.

# MarkNet

## internal print server

### Quick Start

<b>Setup</b> - - - - -	<b>4</b>
Prerequisites - - - - -	4
Attach the printer to the network - - - - -	4
Print a network setup page - - - - -	5
Configure and print - - - - -	5
TCP/IP - - - - -	5
Step 1: Set the IP address, netmask and gateway - - - - -	5
Step 2: Set up to print - - - - -	7
Novell NetWare - - - - -	9
NDPS (Novell Distributed Print Services) - - - - -	9
Non-NDPS (queue-based) - - - - -	9
AppleTalk - - - - -	10
OS/2 Warp Server - - - - -	10
<b>Troubleshooting</b> - - - - -	<b>11</b>
TCP/IP - - - - -	11
Novell NetWare - - - - -	12
NDPS (Novell Distributed Print Services) - - - - -	12
Non-NDPS (queue-based) - - - - -	12
Windows NT Server 4.0 - - - - -	13
AppleTalk - - - - -	14
Other network environments - - - - -	14
Lexmark customer support - - - - -	15

# Setup

---

## Prerequisites

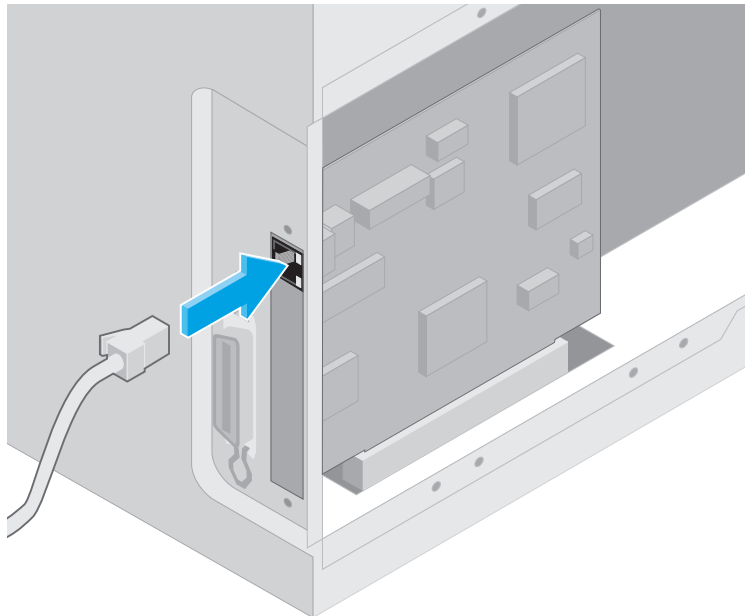
You may have purchased a printer that has Ethernet, Token-Ring or other network ports preinstalled. If not, you should install a MarkNet™ internal print server now. Refer to your printer documentation for instructions on opening the printer and plugging in the card.

*MarkNet internal print servers are sometimes called internal network adapters or INAs.*

## 1 Attach the printer to the network

- a** Turn printer power off. Unplug the power cord.
- b** Plug the network cable into the network port.
- c** Plug the power cord in and turn the printer power on.

*Connect only one network cable even if the MarkNet print server has more than one network port.*



*You never have to worry about setting the network speed on a MarkNet print server. For example, the MarkNet 10/100 Ethernet card automatically senses if your network is 10 Mbps or 100 Mbps and adjusts itself for that speed.*

*Some MarkNet print servers have additional ports that are used for other functions such as copying or faxing. These functions are outside the scope of this book.*

Look for the UAA (universally administered address) under the Network heading on the setup page. The UAA is a 12-digit number. The left column shows the address in MSB form and the right column shows the address in canonical form.

The UAA is preset at the factory. However, you can override it with an optional locally administered address (LAA) if you want some particular physical address for this print server.

For instructions on other ways to set the IP address, look on the Drivers, MarkVision and Utilities CD. Click View Documentation and look for the MarkNet link.

## 2

### Print a network setup page

Use the printer operator panel to print the network setup page. (*Hint: Network Menu/Network Option x/Network x Setup/Print/Print Setup Page*).

The network setup page shows the physical address (UAA) of the MarkNet print server and other important data. Save this page because you will use it later.

## 3

### Configure and print

Network environment	Page
TCP/IP (Windows, OS/2, UNIX)	
"Step 1: Set the IP address, netmask and gateway"	5
"Step 2: Set up to print"	7
Novell NetWare	
"NDPS (Novell Distributed Print Services)"	9
"Non-NDPS (queue-based)"	9
AppleTalk	10
OS/2 Warp Server	10

#### About the Drivers, MarkVision and Utilities CD

You may have more than one version of this CD, received at different times with different Lexmark products. Always use the latest version CD.

---

---

## TCP/IP

---

---

### Step 1: Set the IP address, netmask and gateway

You must assign an IP address, netmask and gateway to the MarkNet print server for other network devices to find the printer on the network.

- If you have DHCP, the proper address values are automatically assigned. To verify the assignment has happened, print a network setup page and make sure the IP address, netmask and gateway appear as non-zero.

- If you don't have DHCP, there are other methods you can use to manually assign the address, such as the printer operator panel, static ARP and telnet, RARP and telnet, BOOTP, or MarkVision or other Lexmark utility. Instructions for three of these methods follow.

## Printer operator panel

A simple way to set the IP address, netmask and gateway inside the print server is to use the printer operator panel. You need to be standing at the printer to use this method.

- 1** On the printer operator panel, choose Network Menu, Network Option x, Network x Setup, TCP/IP, Set IP Address. (*Hint: Press Menu> until you see the correct menu item, and then press Select.*)
- 2** When the current IP address is displayed, use the buttons to change the address. (*Hint: Pressing Select advances to the next segment in the address. Pressing Menu> increases the number by one. <Menu decreases the number by one.*)
- 3** When you finish setting the IP address, press Select until the word SAVED appears briefly.
- 4** Set the IP netmask and gateway in a similar way.
- 5** Print a new network setup page to verify the parameters are set as you intended.

*"x" designates which option slot is being used. For example, if you install the MarkNet print server in option slot 2, the operator panel selection would read: Network Option 2.*

## Static ARP and telnet

You can use this method from any Windows, OS/2, or UNIX workstation. You need to know the physical address of the print server to use this method.

- 1** Find the physical address (UAA) of the print server (for example, 00200022012F) on the network setup page you printed earlier. If you have an Ethernet network, use the number in the right column (canonical). If you have a Token-Ring network, use the number in the left column (MSB).
- 2** Set the IP address in your workstation ARP table. At a command prompt, type a command similar to the following, inserting the IP address you want to assign and the UAA:

```
arp -s 192.168.236.24 00-20-00-22-01-2F
```

- 3** Set the IP address, netmask and gateway in the print server. To do this, telnet to port 9000 on the MarkNet print server by typing a command similar to the following:

```
telnet 192.168.236.24 9000
```

- 4** Verify the print server is up and running on the network.

```
ping 192.168.236.24
```

*The workstation and the printer must be on the same subnet.*

*It doesn't matter which form of the UAA you use (MSB or canonical).*

*Information on installing, using and troubleshooting the utility resides on the CD.*

*If you are using Windows NT Server 4.0 or later and running TCP/IP, you can use Network Plug and Print to automate your printer setup process.*

## Print server TCP/IP setup utility

You can use this simple utility to initialize the printer IP address if your workstation is running Windows 95, Windows 98 or Windows NT and is on the same subnet as the printer. You need to know the 12-digit physical address of the print server to use this method.

To install the utility, launch the Drivers, MarkVision and Utilities CD, do a custom install to add network support, and select Print Server TCP/IP Setup Utility.

Link to the MarkNet resident web pages

Once the IP address has been set (using any method), you can use your browser to remotely view and manage the network printer. Functions include viewing printer status in real time, resetting the printer, changing settings, and so forth. Type the print server IP address in the URL field of the browser (for example, `http://192.168.236.24`) and press Enter.

## Step 2: Set up to print

There are many ways to send a print job, including FTP, TFTP, LPR/LPD, point-to-point (LexIP) and various queue-based methods. Instructions for two of the methods follow.

### Print to a queue on a Windows NT server

This section explains the setup for queue-based printing where network users print to a queue defined on a Windows NT server. The MarkNet print server services this queue. To use this method, you must have at least one server running Windows NT Server software and TCP/IP.

The following instructions apply to Windows NT Server versions 4.0 and later.

- 1** Install the TCP/IP software component on the server that contains the print queue. This software is necessary to establish the link between the MarkNet print server and the queue. Look on the Drivers, MarkVision and Utilities CD for the software. (*Hint: Do a custom install to add network support, and select TCP/IP.*)
- 2** Set up a print queue on the server. Do this by creating a printer object.
  - a** Click Start, Settings, Printers, Add Printer.
  - b** When prompted, select My Computer (not Network printer server).
  - c** Click Add Port.
  - d** Select Lexmark Network Port, and then click New Port. Follow the instructions on the screen.
  - e** Share the queue.

- 3** Set up your Windows 95, Windows 98, or Windows NT clients in the usual way. (*Hint: Start, Settings, Printers, Add Printer.*)

## Point-to-point printing (LexIP)

You can print from any Windows 95, Windows 98 or Windows NT workstation directly to a Lexmark printer located anywhere on the IP network. No server is required.

- 1** Install the TCP/IP software component on the workstation. Look on the Drivers, MarkVision and Utilities CD for the software. (*Hint: Do a custom install to add network support, and select TCP/IP.*)
- 2** Create a printer object on the workstation:
  - a** Click Start, Settings, Printers, Add Printer.
  - b** When prompted, select Local Printer (not Network). This gives you access to the Lexmark Network Printer Monitor later.
  - c** Select the correct printer driver.
  - d** Select any port (LPT, COM, or FILE) for the initial setup. Later, you will change the port to a logical port.
  - e** Click Next, and continue following the instructions on the screen until the printer object has been created.
- 3** Associate the printer object with the physical printer.
  - a** Select the newly created printer object in the printers folder.
  - b** Click File, Properties, Details, Add Port.
  - c** Click Other, Lexmark Network Printer Monitor, OK. A list of available print servers is shown. If your print server does not appear in the list, click Add Adapter and follow the instructions on the screen until it does appear.
  - d** Find the IP address of your print server in the list and select it.
  - e** Specify a logical port name to associate with the printer, and click OK.
  - f** Verify that the logical port name you assigned to the printer now shows in the box labeled Print to the following port.
  - g** Click OK.

*These are the Windows 95/98 instructions. Instructions for Windows NT are on the Drivers, MarkVision and Utilities CD.*

*You can obtain the latest Lexmark printer drivers from our web site located at: [www.lexmark.com](http://www.lexmark.com).*



---

---

# Novell NetWare

---

---

*Some versions of the Drivers, MarkVision and Utilities CD contain the Lexmark NDPS IP Gateway. To find out if your CD contains the gateway, look on the CD for a subdirectory named NDPS.*

## NDPS (Novell Distributed Print Services)

If you have MarkNet print servers in an NDPS environment, we recommend that you install the Lexmark NDPS IP Gateway. This allows your printers to be tightly integrated with NDPS so that you can easily monitor, control and print to them.

You can get the gateway plus all support files and installation procedures from the Lexmark web site ([www.lexmark.com](http://www.lexmark.com)).

## Non-NDPS (queue-based)

The easiest way to configure the print server for NetWare jobs in a non-NDPS environment is to use MarkVision. MarkVision automatically creates all the necessary NetWare objects (print queue objects, print server objects, and printer objects).

Do the following from a Windows NT workstation running Novell NetWare Client32 software, or from a Windows 95 or Windows 98 workstation running either Novell Client32 or Microsoft Client for NetWare networks.

- 1** Install the NetWare software component on the workstation. Look on the Drivers, MarkVision and Utilities CD for the software. (*Hint: Do a custom install to add network support, and select NetWare.*)
- 2** Launch MarkVision. In the MarkVision main window, find the new network printer. Look for the line item containing your print server's physical address (the MSB form of the print server UAA).
- 3** Double-click the network printer. Configure the MarkNet print server by doing the following:
  - a** Set a unique NetWare login name. This is the name the print server uses to log in to the NetWare server.
  - b** Enable the MarkNet port.
  - c** Select PSERVER mode.
    - If you want to manage NDS queues, you must specify the NDS tree and context where the MarkNet print server is defined. You also need to create or select queues to be serviced.
    - If you want to manage bindery queues, you must first specify the file servers. Afterward, you must create or select queues to be serviced.
- 4** If prompted to reset the print server, select Yes to immediately begin servicing the queues.

*The default login name contains the characters !LEX plus the UAA of the MarkNet print server (for example, !LEX00200022012F).*

*For information about choosing PSERVER or RPRINTER mode, look on the CD. Click View Documentation and look for the MarkNet link.*

---

---

## AppleTalk

---

---

The MarkNet print server works automatically with AppleTalk networks. You simply connect the power and the network cables, and you're up and running. However, if you would like to use a zone and printer name different from the defaults you can use MarkVision for Macintosh to change these settings.

Each Macintosh user on the AppleTalk network who wants to use the printer should do the following steps.

- 1** In the Chooser, select the LaserWriter 8 driver.
- 2** If you have a routed network, there is a list of zones you can select from. The new printer is in the default zone for the network. Select this zone. If you don't know which zone to select, look on the network setup page under AppleTalk for Zone.
- 3** Select the new printer. If you don't know which printer to select, look on the network setup page under AppleTalk. The default name of the printer is listed beside Name.
- 4** Click Create.
- 5** If you are prompted to select a PPD (PostScript Printer Description), you need to install the proper PPD from the Drivers, MarkVision and Utilities CD. To do this, launch the CD, click Lexmark Installer, select the appropriate PPD for your printer, and then click Install. Go back to the Chooser and try to create the new printer again.
- 6** Look for an icon to appear in the Chooser next to the printer name. This means you have successfully set up the new printer. A new desktop printer icon is placed on your desktop, too.
- 7** In the Chooser, select the printer you want to use now and close the Chooser window.

*MarkVision for Macintosh resides on the Drivers, MarkVision and Utilities CD.*

*A PPD describes the printer or printer family. For example, the PPD lists which options are valid for the printer.*

---

---

## OS/2 Warp Server

---

---

MarkNet print servers work on OS/2 Warp Server networks. Users can print to the network printer from any client that can successfully attach to the network.

For instructions on configuring the print server for OS/2 networks, look on the Drivers, MarkVision and Utilities CD. Click View Documentation and look for the MarkNet link.

# Troubleshooting

---

*For expanded troubleshooting information, look on the Drivers, MarkVision and Utilities CD. Click View Documentation and look for the MarkNet link.*

*The file you use with FTP can be in PCL or PostScript emulations, PDF, HTML or any other language the printer understands. If the file prints, this confirms the TCP/IP protocol is working properly in the MarkNet print server.*

*To use the MarkNet resident web server, type the print server IP address in the URL field of your browser (for example:  
<http://192.168.236.24>).*

Free firmware updates for any Lexmark print server are available on the web site at [www.lexmark.com](http://www.lexmark.com).

---

---

## TCP/IP

---

---

- 1** Make sure the TCP/IP protocol is turned on (activated) in the print server. To find out, print a network setup page and look in the paragraph under TCP/IP.
- 2** Issue a ping command to the print server.  

```
ping 192.168.236.24
```
- 3** Establish an FTP session with the print server.  

```
ftp 192.168.236.24
```
- 4** Using the FTP put command, print a file to the network printer.  

```
put mytest.ps
```
- 5** Check the port settings on the printer object.
- 6** Check all settings in the print server, using the MarkNet resident web server or MarkVision.
- 7** For non-UNIX networks: Uninstall Lexmark software.
- 8** For non-UNIX networks: Reinstall Lexmark software. During the reinstallation, select only those network protocols you actually use (for example, TCP/IP).
- 9** Try printing again.
- 10** If you are still having trouble, contact Lexmark for help. See “Lexmark customer support” on page 15.

---

---

# Novell NetWare

---

---

## NDPS (Novell Distributed Print Services)

- 1** Make sure the TCP/IP protocol is turned on (activated) in the print server. To find out, print a network setup page and look in the paragraph under TCP/IP.
- 2** Make sure your NetWare file server has TCP/IP support configured and loaded.
- 3** Make sure you are running NDPS version 2.0 or later.
- 4** Make sure you've created and loaded an NDPS Manager.
- 5** Read the online documentation about Lexmark's NDPS support. Look for a README file or a technical white paper either on the Drivers, MarkVision and Utilities CD or in the package you downloaded from Lexmark's web site.
- 6** If you are still having trouble, contact Lexmark for help. See "Lexmark customer support" on page 15.

## Non-NDPS (queue-based)

- 1** Make sure the NetWare protocol is turned on (activated) in the print server. To find out, print a network setup page and look in the paragraph under NetWare.
- 2** Find out if the print server is servicing your NetWare queue.
- 3** If your queue doesn't appear in the list of queues being serviced, reset the printer, wait a few minutes, and look for the queue in the list again.
- 4** If your queue still does not appear in the list of queues being serviced, you have a print server setup problem. Reconfigure the MarkNet print server.
- 5** Try printing from some other application. If the job prints from the second application, you've narrowed the problem to the first application. Make sure you are using the current version of the driver for the problem application.
- 6** Place a job in the queue using a Novell utility such as PCONSOLE. If the job doesn't print, contact Lexmark for help. See "Lexmark customer support" on page 15.

---

---

## Windows NT Server 4.0

---

---

- 1 Make sure you are using TCP/IP for communications between the Windows server and the MarkNet print server.
- 2 Make sure TCP/IP is turned on (activated) in the print server. To find out, print a network setup page and look in the paragraph under TCP/IP.
- 3 Verify that TCP/IP is installed properly on the Windows server. (*Hint: Start, Settings, Control Panel, Network, Protocols*).
- 4 Issue a ping command to the print server.

```
ping 192.168.236.24
```

- 5 Establish an FTP session with the print server.

```
ftp 192.168.236.24
```

- 6 Using the FTP put command, print a file.

```
put mytest.ps
```

- 7 See if the network printer shows up in MarkVision.

- If it doesn't, the print server may have downlevel firmware.
- If it does but you still cannot print, try removing and then re-adding the Lexmark Network Port on the printer object.

- 8 Reset both the print server and the printer.

- 9 If possible, shut down Windows NT Server and restart the server. There could be a spooler problem that requires a restart.

- 10 Uninstall, and then reinstall MarkVision. During the reinstallation, select only the network protocols you actually use (for example, TCP/IP). This also helps MarkVision run faster.

- 11 Try printing again.

- 12 If you are still having trouble, contact Lexmark for help. See "Lexmark customer support" on page 15.

*The file you use with FTP can be in PCL or PostScript emulations, PDF, HTML or any other language the printer understands. If the file prints, this confirms the TCP/IP protocol is working properly in the MarkNet print server.*

---

---

## AppleTalk

---

---

- 1** Make sure the AppleTalk protocol is turned on (activated) in the print server. To find out, print a network setup page and look under AppleTalk.
- 2** Make sure the status of the MarkNet print server is “connected”. To find out, look on the network setup page for Status.
- 3** Do you see the printer in the Chooser? If not, restart the Macintosh workstation and look again.
- 4** If you still don’t see the printer in the Chooser, make sure AppleTalk is active on the workstation (look in the AppleTalk control panel).
- 5** If the job prints but the print quality is poor, refer to the printing tips provided on the CD. These tips can save you a lot of time. To download the document to your workstation, launch the CD, click Lexmark Installer, select Documentation, and then click Install. Look in the Lexmark Extras folder for the document titled Optimize Lexmark Printer Output.
- 6** If you are still having trouble, contact Lexmark for help. See “Lexmark customer support” on page 15.

*Be aware that if you're on a non-routed network, you can only see the printer if your workstation connection (LocalTalk, Ethernet or Token-Ring) matches the connection on the printer. For example, if the Macintosh workstation is on LocalTalk, you cannot see a printer on Ethernet unless there is a router on the network.*

---

---

## Other network environments

---

---

For troubleshooting information about other network environments, look on the Drivers, MarkVision and Utilities CD. Click View Documentation and look for the MarkNet link.

---

---

## Lexmark customer support

---

---

World Wide Web	<a href="http://www.lexmark.com">www.lexmark.com</a>
CompuServe	Go Lexmark
Internet	<a href="ftp://ftp.lexmark.com">ftp.lexmark.com</a>
U.S. and Canada, technical support and any other customer needs	1-800-LEXMARK
Lexmark phone numbers (worldwide)	On the Drivers, MarkVision and Utilities CD, click Contact Lexmark, Customer Support.

# Electronic Emission Notices

---

## Federal Communications Commission (FCC) Compliance Information Statement

The MarkNet internal print server has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

The FCC Class A limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

The manufacturer is not responsible for any radio or television interference caused by using other than recommended cables or by unauthorized changes or modifications to this equipment. Unauthorized changes or modifications could void the user's authority to operate this equipment.

## Industry Canada Compliance Statement

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

## Avis de conformité aux normes d'Industrie Canada

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

## European Community (EC) Directives Conformity

This product is in conformity with the protection requirements of EC Council directives 89/336/EEC and 73/23/EEC on the approximation and harmonization of the laws of the Member States relating to electromagnetic compatibility and safety of electrical equipment designed for use within certain voltage limits.

A declaration of conformity with the requirements of the Directive has been signed by the Director of Manufacturing and Technical Support, Lexmark International, S.A., Boigny, France.

This product satisfies the Class A limits of EN 55022 and safety requirements of EN 60950.

### CISPR 22

**WARNING:** This is a Class A product. In a domestic environment, this product may cause radio interference, in which case the user may be required to take adequate measures.



**AVERTISSEMENT:** Ce produit appartient à la classe A. Dans un environnement résidentiel, ce produit risque de provoquer des interférences radio, auquel cas l'utilisateur devra prendre les mesures adéquates.

**AVVERTENZA:** Questo prodotto appartiene alla Classe A. In ambiente domestico, questo prodotto può causare interferenze radio, nel qual caso è necessario adottare adeguate precauzioni.

**WARNUNG:** Bei diesem Gerät handelt es sich um ein Produkt der Klasse A. In Wohngebieten kann dieses Gerät Störungen des Radio- und Fernsehempfangs verursachen. Der Benutzer muß in diesem Fall geeignete Maßnahmen ergreifen.

**ADVERTENCIA:** Este es un producto de Clase A. En un entorno doméstico, este producto puede causar interferencias de radio, en cuyo caso, se solicitará al usuario que adopte las medidas oportunas.

**AVISO:** Este produto pertence à classe A. Em um ambiente doméstico, ele pode causar interferências em transmissões de rádio. Nesse caso, será necessário que o usuário adote as medidas adequadas.

### **Japanese VCCI Notice**

この装置は、情報処理装置等電波障害自主規制協議会（VCCI）の基準に基づくクラスA情報技術装置です。この装置を家庭環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。

### **The United Kingdom Telecommunications Act 1984**

This apparatus is approved under the approval number NS/G/1234/J/100003 for the indirect connections to the public telecommunications systems in the United Kingdom.





Lexmark and Lexmark with diamond design are trademarks of Lexmark International, Inc., registered in the United States and/or other countries.

© 2000 Lexmark International, Inc.

740 West New Circle Road  
Lexington, Kentucky 40550