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NETWORK SERVICES

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◆**BLACK BOX**®
NETWORK SERVICES

Peripheral Sharer

FEDERAL COMMUNICATIONS COMMISSION AND INDUSTRY CANADA RADIO-FREQUENCY INTERFERENCE STATEMENTS

This equipment generates, uses, and can radiate radio-frequency energy, and if not installed and used properly, that is, in strict accordance with the manufacturer's instructions, may cause interference to radio communication. It has been tested and found to comply with the limits for a Class A computing device in accordance with the specifications in Subpart B of Part 15 of FCC rules, which are designed to provide reasonable protection against such interference when the equipment is operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference, in which case the user at his own expense will be required to take whatever measures may be necessary to correct the interference.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This digital apparatus does not exceed the Class A limits for radio noise emission from digital apparatus set out in the Radio Interference Regulation of Industry Canada.

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la classe A prescrites dans le Règlement sur le brouillage radioélectrique publié par Industrie Canada.

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EUROPEAN UNION DECLARATION OF CONFORMITY

This equipment has been tested and found to comply with the limits for a class A computing device in accordance with the specifications in the European standard EN55022. These limits are designed to provide reasonable protection against harmful interference. This equipment generates, uses and can radiate radio frequency energy and if not installed and used in accordance with the instructions may cause harmful interference to radio or television reception. However, there is no guarantee that harmful interference will not occur in a particular installation. If this equipment does cause interference to radio or television reception, which can be determined by turning the equipment on and off, the user is encouraged to correct the interference with one or more of the following measures:

(a) Reorient or relocate the receiving antenna.

(b) Increase the separation between the equipment and the receiver.

(c) Connect the equipment to an outlet on a circuit different from that to which the receiver is connected.

(d) Consult the supplier or an experienced radio/TV technician for help.

Shielded cables must be used with this equipment to maintain compliance with radio-frequency energy-emission regulations and ensure a suitably high level of immunity to electromagnetic disturbances.

$$C\,E$$

NORMAS OFICIALES MEXICANAS (NOM)
ELECTRICAL SAFETY STATEMENT

INSTRUCCIONES DE SEGURIDAD

1. Todas las instrucciones de seguridad y operación deberán ser leídas antes de que el aparato eléctrico sea operado.

2. Las instrucciones de seguridad y operación deberán ser guardadas para referencia futura.

3. Todas las advertencias en el aparato eléctrico y en sus instrucciones de operación deben ser respetadas.

4. Todas las instrucciones de operación y uso deben ser seguidas.

5. El aparato eléctrico no deberá ser usado cerca del agua—por ejemplo, cerca de la tina de baño, lavabo, sótano mojado o cerca de una alberca, etc..

6. El aparato eléctrico debe ser usado únicamente con carritos o pedestales que sean recomendados por el fabricante.

7. El aparato eléctrico debe ser montado a la pared o al techo sólo como sea recomendado por el fabricante.

8. Servicio—El usuario no debe intentar dar servicio al equipo eléctrico más allá a lo descrito en las instrucciones de operación. Todo otro servicio deberá ser referido a personal de servicio calificado.

9. El aparato eléctrico debe ser situado de tal manera que su posición no interfiera su uso. La colocación del aparato eléctrico sobre una cama, sofá, alfombra o superficie similar puede bloquea la ventilación, no se debe colocar en libreros o gabinetes que impidan el flujo de aire por los orificios de ventilación.

10. El equipo eléctrico deber ser situado fuera del alcance de fuentes de calor como radiadores, registros de calor, estufas u otros aparatos (incluyendo amplificadores) que producen calor.

11. El aparato eléctrico deberá ser connectado a una fuente de poder sólo del tipo descrito en el instructivo de operación, o como se indique en el aparato.

12. Precaución debe ser tomada de tal manera que la tierra fisica y la polarización del equipo no sea eliminada.

13. Los cables de la fuente de poder deben ser guiados de tal manera que no sean pisados ni pellizcados por objetos colocados sobre o contra ellos, poniendo particular atención a los contactos y receptáculos donde salen del aparato.

14. El equipo eléctrico debe ser limpiado únicamente de acuerdo a las recomendaciones del fabricante.

15. En caso de existir, una antena externa deberá ser localizada lejos de las lineas de energia.

16. El cable de corriente deberá ser desconectado del cuando el equipo no sea usado por un largo periodo de tiempo.

17. Cuidado debe ser tomado de tal manera que objectos liquidos no sean derramados sobre la cubierta u orificios de ventilación.

18. Servicio por personal calificado deberá ser provisto cuando:

    A: El cable de poder o el contacto ha sido dañado; u

    B: Objectos han caído o líquido ha sido derramado dentro del aparato; o

    C: El aparato ha sido expuesto a la lluvia; o

    D: El aparato parece no operar normalmente o muestra un cambio en su desempeño; o

    E: El aparato ha sido tirado o su cubierta ha sido dañada.

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Chapter   **Page**

1. Specifications

General Compatibility: Can be used with most devices that attach to PC parallel ports (with the aid of the SMARTLOG program supplied). Only one user has access to the shared peripheral at a time. Dongles may only be shared in strict accordance with software license agreements.

Printer Compatibility: DOS, Windows, and graphics printing from all types of PCs. All printers with unidirectional (Centronics compatible) parallel ports. Printers with bidirectional and BOISE parallel ports. GDI printers.

Tape Drive Compatibility: Tape drives that attach to PC parallel ports. Tape-drive macros and scheduled macros that run from the DOS prompt.

CD-ROM Compatibility: CD-ROM drives that attach to PC parallel ports with drivers that can be loaded from the DOS prompt. DOS and Windows operation.

Performance: Data-transfer rates exceeding 500,000 characters per second (4 Mbps) are supported.

Connectors: PI148A, PI148AE: (4) DB25 female: (2) bidirectional parallel ports for connection to PCs, (2) bidirectional parallel ports for connection to peripherals; PI149A, PI149AE: (6) DB25 female: (4) bidirectional parallel ports for connection to PCs, (2) bidirectional parallel ports for connection to peripherals; PI150A, PI150AE: (8) DB25 female: (6) bidirectional parallel ports for connection to PCs, (2) bidirectional parallel ports for connection to peripherals.

Operation: Can be used in auto-scan mode, manual-select mode, or software-controlled mode.

Keypad: Used to select auto-scan mode or destination, or toggle between manually selected ports.

Status Display: 7-segment display shows auto-scan mode, automatically selected port, manually selected port, and data flow. LED indicates output channel A/B selected.

Options: Timeout options of 20 seconds, 1 minute, 2 minutes, or 4 minutes. Normal or high scan rates. Stored in EEPROM and retained when power is off. Can be changed using download program provided. Default options can be selected by holding down key when powering on the unit.

Software: Supplied on a 3.5" PC disk (virus-checked). Contains the following software utilities: SMARTKEY: DOS and Windows peripheral selection software. SMARTLOG: Windows CD-ROM/tape-drive selection software. DOWNLOAD: Used to update the unit's EEPROM options.

Cable Types: PC to Peripheral Sharer: DB25 male connectors on both ends, shielded, pinned straight-through. Peripheral Sharer to Printer: DB25 male to 36-pin male printer cable, shielded, all ground lines connected. Peripheral Sharer to Other Devices: Use PC to Peripheral Sharer cable.

Cable Lengths: Lengths supported vary considerably with cable type and PC/peripheral specifications. IEEE 1284 twisted-pair cables and high-quality cables generally support longer distances.   Maximum recommended cable lengths are: PC to Peripheral Sharer: 32.8 ft. (10 m) for printers, 22.9 ft. (7 m) for tapes/CD-ROMs, Cable part number EQN200; Peripheral Sharer to Peripheral: 6.5 ft. (2 m), Cable part number EQN202

Power: 115 or 230 VAC, 5 VDC, 500 mA

Size: 3.7"H x 8.5"W x 1"D (9.5 x 21.5 x 2.5 cm)

Weight: 1.2 lb. (0.5 kg)

2. Introduction

The Peripheral Sharer 2 to 2, 4 to 2, or 6 to 2 is a high-performance parallel-device sharer suitable for sharing printers (conventional and GDI types), plotters, tape backup drives, certain CD-ROM drives, dongles, EPROM programmers, and other devices that attach to PC parallel ports.

2.1 Key Features

- High-performance bi-directional parallel ports.

- Supports up to 2, 4, or 6 computers and 2 peripherals.

- Automatic printer sharing and automated tape-backup sharing.

- Data-transfer speeds in excess of 500,000 bytes/second are supported.

- Automatic (auto-scan) or manual port selection.

- Exclusive peripheral use can be selected via DOS or Windows software.

- Status indicator shows data flow, routing and port status.

- Download program for changing global timeout and scan-rate options.

2.2 Package Contents

- Peripheral Sharer 2 to 2, 4 to 2, or 6 to 2.

- Power supply suitable for your country.

- Software disk (3.5" format—virus-checked).

- This user's manual.
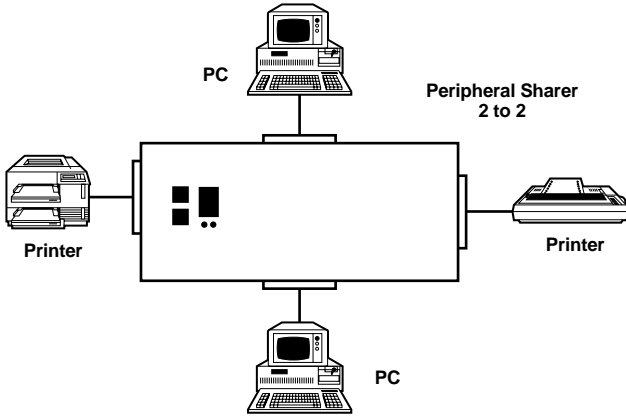
Figure 2-1. Peripheral Sharer 2 to 2 Application.
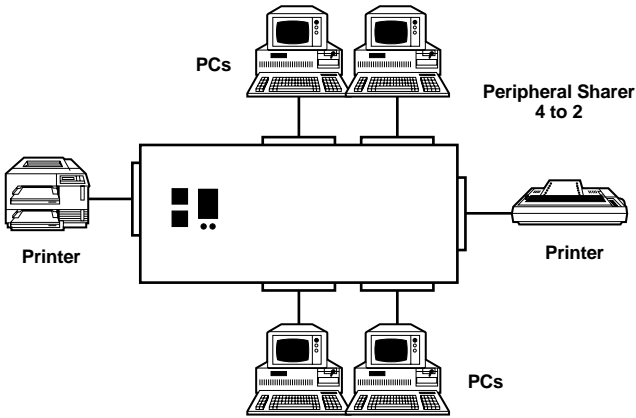
Figure 2-2. Peripheral Sharer 4 to 2 Application.

Power supply
connector
(5 VDC, 500 mA)

Peripheral
Port A

Key for selecting
computer for
auto-scan mode

Port status and
data activity
display

Key for selecting
peripheral

A/B display
shows currently
selected
peripheral port

Computer ports
1 to 6
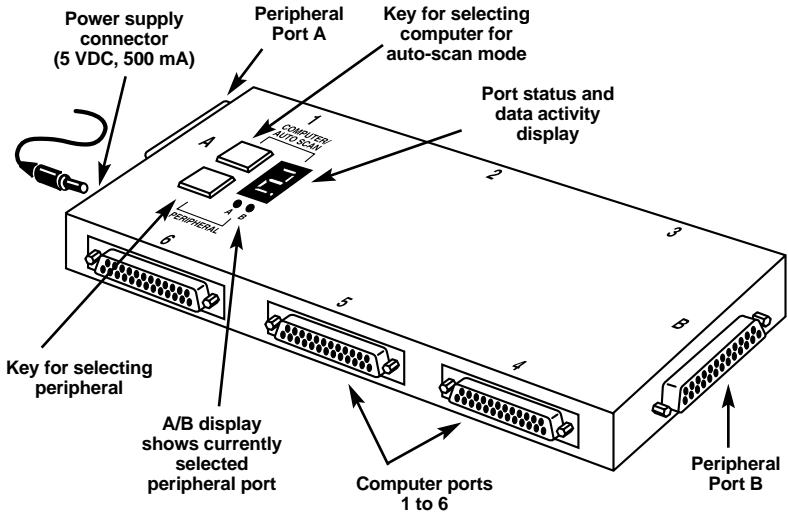
Peripheral
Port B

Figure 2-3. Peripheral Sharer 6 to 2.

3. Hardware Installation

3.1 Cables

Choose a site for the Peripheral Sharer that minimizes the overall cable lengths. Cable specifications and recommended maximum lengths are given in **Appendix A**.

3.2 Mounting the Peripheral Sharer

The Peripheral Sharer can be used on a desktop or mounted on a wall or on the side of a printer.

3.3 Connecting Your Devices

Make sure that the power is disconnected from the Peripheral Sharer. Connect the interface cables as shown in **Figures 2-1** through **2-3**. Ports 1 to 2, 4, or 6 should be connected to your computer parallel ports and ports A and B should be connected to your peripheral(s). You don't need to connect all of the computer ports.

   If you wish to automatically share a single printer or plotter, then it should be connected to port A (print data is routed to this port by default). **Section 3.4** shows typical Peripheral Sharer configurations for other applications. Connect the Peripheral Sharer's power adapter to the mains and power on by plugging the power lead into the socket on the side of the unit.

NOTE

Shielded cables should be used for all connections to the Peripheral Sharer. Using unshielded cables may cause unreliable operation.

3.4 Typical Peripheral Sharer Configurations

3.4.1 SHARING A PRINTER BETWEEN SEVERAL PCS

Connect the printer to port A. The Peripheral Sharer will operate automatically without the need for additional software. It automatically connects to the printer when it detects incoming print data and then disconnects when no new data has been transmitted for the timeout period, leaving the printer free for the next user. Bidirectional printer control-panel programs are supported automatically. See **Section 3.6** for PC configuration information.
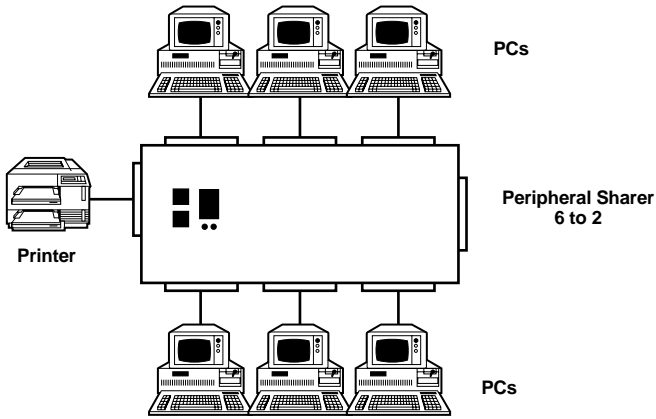
Figure 3-1. Sharing a Printer Between Several PCs.

3.4.2 SHARING A PRINTER AND A TAPE DRIVE OR CD-ROM

Connect the printer to port A and the tape drive or CD-ROM to port B. Printer sharing will be automatic and the tape drive or CD-ROM can be accessed using the SMARTA and SMARTB (DOS) or SMARTLOG (Windows) programs provided. The keypad may also be used to select the peripheral.
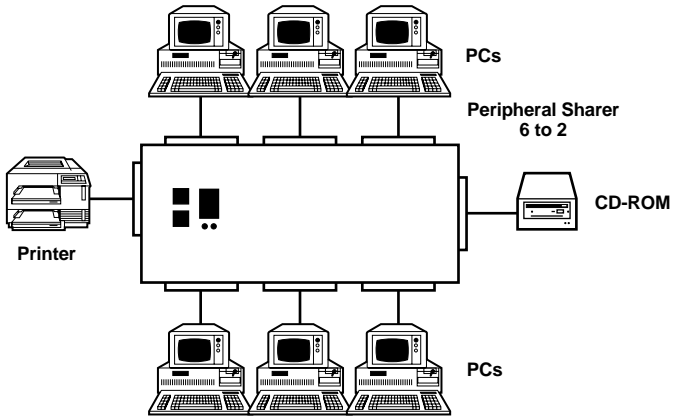
Figure 3-2. Sharing a Printer and a Tape Drive/CD-ROM.

3.4.3 SHARING TWO PRINTERS

Connect the most commonly used printer to port A and the other printer to port B. When the Peripheral Sharer is switched on, all print data will automatically be sent to port A. To switch between printers use the SMARTKEY program or the keypad.
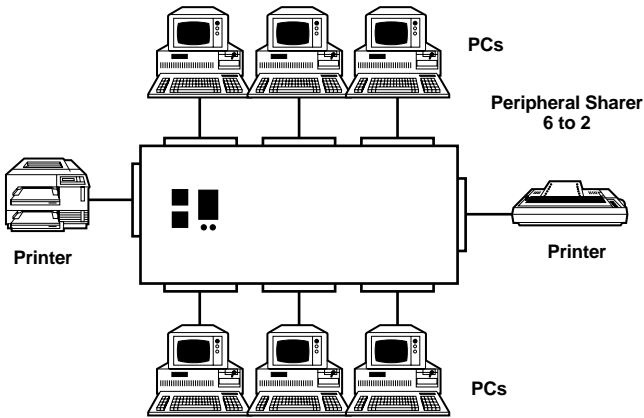
Figure 3-3. Sharing Two Printers.

3.4.4 SHARING BIDIRECTIONAL PARALLEL DEVICES THAT ARE NOT PRINTERS

If you are sharing a single device, connect it to port A. Use the SMART or SMARTLOG programs to log in (connect) to and log out (disconnect) from the shared peripherals.
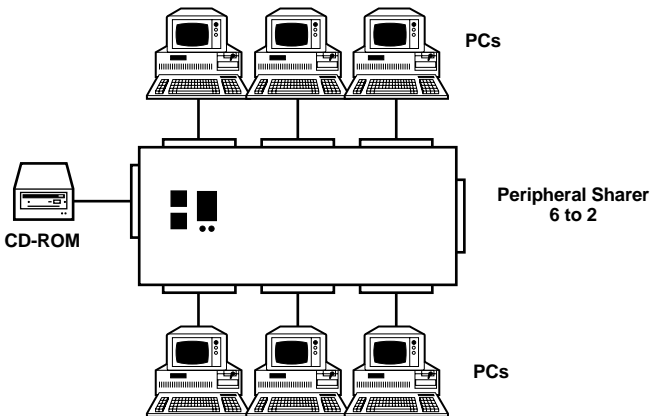
Figure 3-4. Sharing Bidirectional Devices That Are Not Printers.

3.4.5 CASCADING DEVICES

Many devices that connect to parallel ports, such as dongles, tape-backup drives, and CD-ROM drives, can be cascaded as shown in **Figure 3-5**. The Peripheral Sharer supports cascaded peripherals. The printers can be selected using the SMARTKEY selection software, and the cascaded parallel-port peripherals can be selected using the SMART or SMARTLOG software.
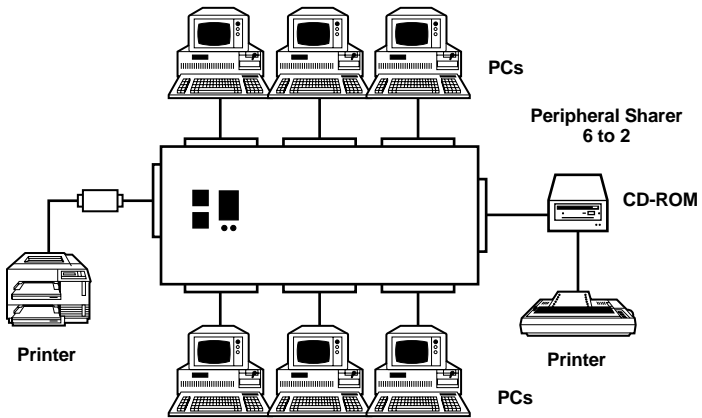
Figure 3-5. Cascading Devices.

3.5 Configuring the Peripheral Sharer 6 to 2

It is not normally necessary to configure the Peripheral Sharer, which is supplied with a factory-set timeout value of 20 seconds. This is suitable for almost all applications. This default can be changed if required by using the download program supplied (see **Section 7.4**).

3.6 Configuring Your PC

Configure your PC in the same way that you would if your peripheral was connected directly to your PC's parallel port. We also recommend that you add the following command line to your AUTOEXEC.BAT file (exchange LPT1 for LPT2 or LPT3 if you are using the second or third parallel port):

MODE LPT1:,,R

This is not strictly needed for most PCs, but it provides full compatibility with certain software packages on a small number of PCs that are not compatible automatically. You may choose to skip this step and only include this command line if you experience printing problems (if you get an off-line message reported from a DOS package when the printer is actually free then you should include the MODE command in your AUTOEXEC.BAT file).

The MODE program is supplied with your PC's DOS software.

4. Software Installation

4.1 Choosing Which Software to Install

The Peripheral Sharer is provided with a number of software utilities for the following applications.

A) Sharing a single printer between several PCs

You do not need to install any Peripheral Sharer software to automatically share a single printer between several PCs. This function is supported automatically. However, users of Microsoft Windows should make sure that the Print Manager is enabled.

B) Sharing two printers between several PCs

Install the SMARTKEY software selection program (see **Sections 4.2** and **7.1**). This enables PC users to select the required printer from both DOS and Windows environments. Users of Microsoft Windows should make sure that the Print Manager is enabled.

C) Sharing a single printer together with a tape drive or CD-ROM unit

Printer sharing is automatic and no utility software is needed to support this function. For DOS-based systems, install the SMART programs to enable access to the tape drive or CD-ROM (see **Section 7.2**). For Windows based programs, install the SMARTLOG program to enable access to the tape or CD-ROM (see **Section 7.3**).

D) Sharing two printers together with cascaded tape/CD-ROM drives

Install the SMARTKEY utility to enable printer selection (see **Section 7.1**). Install the SMART (DOS) or SMARTLOG (Windows) utility to enable access to the cascaded tape drive or CD-ROM (see **Sections 7.2** and **7.3**).

E) Sharing devices other than printers

Install the SMART (DOS) or SMARTLOG (Windows) utility to enable uninterrupted access to the parallel-port peripherals.

4.2 Installing the SMARTKEY Printer-Selection Software

To install SMARTKEY for Windows:

1. Insert the Peripheral Sharer disk in drive A.

2. Run the file A:\SETUP.EXE from within Windows.

3. Follow the instructions given in the installation program.

   To install SMARTKEY for DOS:

1. Insert the Peripheral Sharer disk in drive A and type
   A: (enter)

2. Then (at the A: prompt) type INSTALL (enter)

3. Follow the instructions given in the installation program.

4. Reboot your PC.

4.3 Installing the SMART Utility for DOS

Copy the files SMARTA.EXE and SMARTB.EXE from the Peripheral Sharer disk to a suitable directory on your PC's hard disk.

4.4 Installing the SMARTLOG Utility for Windows

1. Insert the Peripheral Sharer disk in drive A.

2. Run the file A:\SETUP.EXE from within Windows.

3. Follow the instructions given in the installation program.

5. Using the Peripheral Sharer

This section explains the general operation of the Peripheral Sharer. We recommend that you read this section and then read the sub-section in **Chapter 6** that covers your specific application.

5.1 Power-On Status

At power-on, the Peripheral Sharer will run through a short self-test sequence, during which the display will count from 1 to 6. After the self-test, the segments of the status display will light in sequence in a clockwise direction. This indicates that the Peripheral Sharer has powered on correctly and is in auto-scan mode.

5.2 Front-Panel Keys

COMPUTER / AUTO SCAN key

This is used to select auto-scan mode or to select a fixed computer port manually. Pressing the key will cause the mode to change as shown in Figure 5-1.
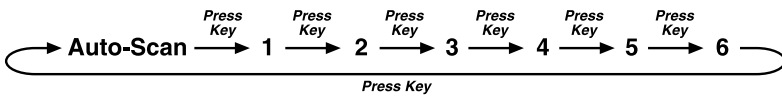
Figure 5-1. Computer/Auto Scan Key.

PERIPHERAL key

This key does not have any function when the Peripheral Sharer is in auto-scan mode. When a computer port has been selected (number displayed on numerical display), this key toggles the selected peripheral port from A to B and vice versa. The selected peripheral routing is retained when the Peripheral Sharer is returned to auto-scan mode.

NOTE

The Peripheral Sharer can be controlled using the software supplied. The keypad is provided for convenience only.

5.3 Selecting Print-Data Routing Using the Front-Panel Keys

When the Peripheral Sharer is first switched on, all print data received on any of the computer ports will be routed by default to peripheral port A. If you wish to change the data routing for your PC using the front-panel keypad, proceed as follows:

1. Select the port that your computer is connected to using the COMPUTER/AUTO SCAN key.

2. Select the required peripheral using the PERIPHERAL key.

3. Return the Peripheral Sharer to auto-scan mode using the COMPUTER/AUTO SCAN key.

When the Peripheral Sharer receives data from your PC, it will automatically connect to the specified peripheral and return to auto-scan mode when the print job has finished.

5.4 Modes of Operation

Auto-scan mode

Auto-scan mode is ideal for printer and plotter sharing applications. In this mode, the Peripheral Sharer will automatically connect your PC to the currently selected peripheral (A or B) when data activity is detected. Your PC will also be automatically disconnected from the peripheral when there has been no data activity for the timeout period (normally 20 seconds). Each computer can select the required peripheral independently either via the keypad or via the SMARTKEY software provided.

Manual mode

The peripheral remains connected to the displayed port until the user presses the key to select another port or auto-scan mode.

Software-controlled mode

Many devices that attach to parallel ports require an exclusive (uninterrupted) link to the PC. Typical examples of such devices are tape backup drives, CD-ROM drives, dongles, and EPROM programmers. For these applications, auto-scan mode is not appropriate, since the shared device may time out and lose its connection. Consequently, the Peripheral Sharer is supplied with a number of software programs that enable the PC to establish an uninterrupted link to these devices while they are in use. See **Sections 6.2** through **6.5**, **7.2**, and **7.3** for further details.

5.5 Status Display

The status display shows the port status, the selected peripheral, and data flow.

In auto-scan mode (with no data activity), the segments will light in sequence in a clockwise direction. When data activity is detected the port number will be displayed together with the currently selected peripheral (A or B) for that port. The number will flash to indicate that the port has been selected automatically and the data light will flash as data is being transferred. When there has been no data activity for the timeout period, the connection will be broken and the display will revert to lighting segments in sequence. In manual mode, the selected port number will be displayed continuously. When a port number is displayed, the currently selected peripheral for that port will be shown on the A/B indicators under the status display.
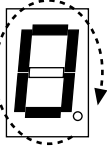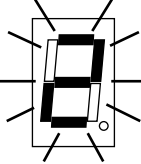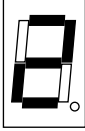
DISPLAY SHOWS

Illuminated segment shifts clockwise.

MEANING

Auto-scan mode: Scanning ports, waiting for data activity.

Port number is displayed and flashes intermittently.

Auto-scan mode: Peripheral is connected to displayed port and connection will time out.

Port number is displayed and does not flash.

Manual mode: Peripheral is connected to displayed port and connection will not time out.

Dot in lower right-hand corner flashes.

Data activity.

Figure 5-2. Status Display.

6. Application-Specific Instructions

6.1 Printer Sharing (all unidirectional, bidirectional, and GDI printers)

Sharing a single printer:

Connect your PCs and printers as recommended in **Chapter 3**. If you are sharing a single printer attached to port A, you do not need to install any peripheral-selection software. From your PC, print as you would if you were connected directly to the printer. The Peripheral Sharer will automatically connect your PC to the printer. When your print job is finished, the Peripheral Sharer will wait until it has detected no data transfer for the timeout period (default 20 seconds) and then return to auto-scan mode. Connections are made on a first-come-first-served basis. If the printer is in use and you are not using a print spooler, you may get a "printer off-line" message and have to wait until the printer is free.

Sharing two printers:

You will need to install the SMARTKEY selection software or use the keypad to switch between the two printers (see **Section 7.1**). You only need to use the SMARTKEY software when you wish to change the printer that you are using. By default, all print data is sent to the latest selected peripheral. To print to the other printer, activate the SMARTKEY software and select the printer. Once the new printer is selected, you can print to it in the same way that you would if it was connected directly to your PC's parallel port. All print data will continue to be routed to this printer until you select the other printer with the SMARTKEY software.

Microsoft Windows:

Make sure that the Print Manager is enabled.

DOS printing:

Consider adding the MODE command to your AUTOEXEC.BAT file (see **Section 3.6**).

Printers with enhanced bidirectional port features:

Detailed instructions on the use of the following printers are given in **Appendixes B** to **D**. Similar instructions also apply to printers with similar features. If you have a printer with enhanced bi-directional features, please read these sections.

- Hewlett-Packard® LaserJet® 4 and 5 series—**Appendix B**
- Lexmark™ 4039—**Appendix C**
- Lexmark WinWriter 600—**Appendix D**

6.2 Sharing Parallel-Port Tape-Backup Drives

To use a tape backup drive with the Peripheral Sharer, copy the programs SMARTA.EXE and SMARTB.EXE from the Peripheral Sharer disk to a suitable directory on your PC's hard disk (we suggest your tape-backup directory—for example, C:\BACKPACK). SMARTA and SMARTB are DOS programs that have been specifically designed for use with tape-backup drives and similar devices. The SMARTA program controls connections to the Peripheral Sharer's peripheral port A, and the SMARTB program controls connections to port B. The SMART programs have three main functions:

1. To establish a connection with the tape drive before the tape-drive software is run on your PC.

2. To make sure that the connection does not time out in the middle of a backup session.

3. To return the Peripheral Sharer to auto-scan mode when the backup has been completed so that another PC can use the tape drive.

Use SMARTA or SMARTB to run your tape-backup program. They will automatically make a connection to your tape drive, run your tape-backup software, and break the connection when the backup has completed. If the tape drive is in use, the SMART programs will continuously retry until a connection is made or the user selects abort. Consequently, the Peripheral Sharer will support unattended backups from several PCs.

Always use SMARTA or SMARTB to run your tape-backup software. Running your tape-backup software directly from the DOS prompt will not be reliable.

If you have Windows based tape-backup software, you should use the SMARTLOG program—see **Section 7.3**.

6.2.1 USING THE SMART PROGRAMS TO RUN YOUR TAPE-BACKUP SOFTWARE

Use the following command format at the DOS prompt.

(dos path) (SMARTA or SMARTB) (dos path)(backup program) (LPT port)

where (backup program) is the name of the backup program, (LPT port) is either LPT1, LPT2, or LPT3, and (dos path) is the DOS path. If you omit the LPT port then LPT1 is assumed. Examples:

SMARTA BPBACKUP
(tape drive is connected to Peripheral Sharer output port A)

C:\BACKPACK\SMARTB C:\BACKPACK\BPBACKUP LPT1
(tape drive is connected to Peripheral Sharer output port B)

To avoid typing in this command line each time you run your tape-backup software, you may wish to create a batch file that contains this command. If your PC does not have enough memory to hold the SMART program and the backup program, you may use a batch file with SMARTA ON and SMARTA OFF commands as an alternative method that uses less memory. See **Section 6.4** for full details.

6.2.2 UNATTENDED BACKUPS FROM SEVERAL PCS

Most tape-backup drives support a macro function that you can use to perform regular unattended backups. The SMART programs allow you to conveniently run a backup macro from several PCs. For example you could use the following command to run the "DAILY" macro at the end of each day. If another PC is currently using the tape drive, the SMART program will wait until the drive is free and then perform the automatic backup.

SMARTB DAILY LPT2

6.2.3 SCHEDULED BACKUPS

Most good tape-backup drives support a scheduled macro function that you can use to perform regular scheduled unattended backups. Change the scheduled macro name to the SMART command line. For example, if the scheduled macro name is WEEKLY, then substitute SMARTB WEEKLY LPT1. If you do not have enough memory to do this, create a batch file as described in **Section 6.4** and change the macro name to the batch-file name.

6.3 Sharing a Printer and a Tape-Backup Drive

For this type of application, the printer would typically be shared during normal office hours and the tape backup would perform unattended backups during the night. If you are using the Peripheral Sharer to share a single printer and a tape-backup drive, then you only need to install the software for tape drive access. Printer sharing remains automatic, and you don't need to use the SMARTKEY printer-selection software.

In printer-sharing mode, all print data is sent to port A on a first-come, first-served basis. The tape drive is then accessed using the SMARTB (DOS) or SMARTLOG (Windows) utilities. At the end of the tape-backup session, when the Peripheral Sharer is returned to auto-scan mode, the destination for print data will revert back to port A. You do not have to specifically select port A even though you have been using port B.

6.4 Sharing a Parallel-Port CD-ROM Drive

6.4.1 INSTALLING CD-ROM DRIVERS

The Peripheral Sharer will support sharing of certain CD-ROM drives. The following instructions explain the principles behind sharing CD-ROM drives using the Micro Solutions BackPack drive as an example. The exact installation details will vary between CD-ROM devices, but a similar installation process may be used. To install a shared CD-ROM, you will need to be able to edit a DOS batch file and have a basic understanding of the AUTOEXEC.BAT and CONFIG.SYS files. Please refer to your DOS manual if you require further details.

To use a parallel-port CD-ROM, you will need to install drivers on your PC. For example: The BackPack driver has two components, MSCDEX.EXE and BPCDDRV.SYS, which are normally loaded in the AUTOEXEC.BAT and CONFIG.SYS for a single-user system. In a shared system it is not possible to install the drivers in this way. This is because the drivers have to communicate with the CD-ROM before they will install themselves correctly. Consequently, if two PCs are switched on at the same time, only one will gain access to the CD-ROM, and the second will not install the driver correctly. To overcome this and make sure that the drivers are installed correctly, we recommend that you install the drivers using a DOS batch file. You can run this batch file from the DOS prompt after you have switched on your PC.

If your CD-ROM has a driver component that is normally loaded via the CONFIG.SYS file (for example, BPCDDRV.SYS), you will need to load it from the DOS prompt. The CD-ROM drive's manufacturer will normally provide a program to allow you to do this (in the case of the BackPack, DEVICE.COM).

The installation batch file will be similar to that detailed below (example batch file stored as CDROM.BAT on the Peripheral Sharer disk). Modify this batch file as necessary to install your CD-ROM drivers. The batch file includes the following steps:

1. Run the Peripheral Sharer connection program SMARTA.EXE (or SMARTB.EXE) to establish a guaranteed connection to the required Peripheral Sharer port. The SMART program will continue trying to connect until a connection is made or until you press (A) for Abort. If a connection cannot be made (error level 1) then the batch file will terminate; otherwise the batch file will continue. The following command assumes that the program SMARTA.EXE has been copied from the disk to the directory C:\SMART.

C:\SMART\SMARTA ON LPT1

IF ERRORLEVEL 1 GOTO TERMINATE

2. Install the CD-ROM drivers as recommended by the CD-ROM manufacturer. The example BackPack commands are shown below. They assume that the files BPCDDRV.SYS, DEVICE.COM, and MSCDEX.EXE have been copied to the directory C:\BPCDROM. The first line loads the driver BPCDDRV.SYS, and the second line loads the driver MSCDEX if the BPCDDRV.SYS driver has been loaded successfully.

C:\BPCDROM\DEVICE=BPCDDRV.SYS

IF EXIST BPCDDRV$ C:\BPCDROM\MSCDEX /D:BPCDDRV$ /L:F

3. Return the Peripheral Sharer to auto-scan mode using the SMARTA.EXE program supplied.

C:\SMART\SMARTA OFF LPT1

4. Label the end of the batch file.

:TERMINATE

The finished batch file is shown below. Comment lines (REMinders) have been added for clarity. Run the batch file from the DOS prompt to load the CD-ROM drivers.

REM establish an exclusive connection to the Peripheral Sharer; quit if unsuccessful

C:\SMART\SMARTA ON LPT1

IF ERRORLEVEL 1 GOTO TERMINATE

REM load the CD-ROM drivers

C:\BPCDROM\DEVICE=BPCDDRV.SYS

IF EXIST BPCDDRV$ C:\BPCDROM\MSCDEX /D:BPCDDRV$ /L:F

REM set the Peripheral Sharer back to auto-scan mode

C:\SMART\SMARTA OFF LPT1

REM label to identify end of batch file

:TERMINATE

6.4.2 USING A SHARED CD-ROM

Once the drivers have been installed, you can use a shared CD-ROM as follows:

1. Start a CD-ROM session using SMARTA, SMARTB (DOS), or SMARTLOG (Windows).

2. Use the CD-ROM as if your parallel port was connected directly to the drive.

3. End the CD-ROM session using SMARTA, SMARTB, or SMARTLOG so that other users can access the CD-ROM drive.

6.4.3 STARTING AND ENDING CD-ROM SESSIONS USING SMARTA, SMARTB, AND SMARTLOG

To start a CD-ROM session from the DOS prompt, use:

SMARTx ON LPTn
(where x=A or B; n=1, 2, or 3)

To end a CD-ROM session from the DOS prompt, use:

SMARTx OFF LPTn
(where x=A or B; n=1, 2, or 3)

To start a CD-ROM session from the Windows desktop:

Double-click on the SMARTLOG icon. When the Peripheral Sharer logon window is displayed, select the port that is connected to the CD-ROM drive. Use the mouse to click outside the resulting window. The Peripheral Sharer window will then remain active while you use the CD-ROM drive.

To end a CD-ROM session from the Windows desktop:

Return to the Peripheral Sharer window (by pressing ALT and TAB or by clicking on the window). Click on the Logout (disconnect) button. Your CD-ROM session will then be ended.

6.5 Sharing Dongles

The Peripheral Sharer will allow dongles to be shared between PCs on a one-at-a-time basis only. It will NOT allow PCs to share the same dongle simultaneously. Use the SMARTA, SMARTB, or SMARTLOG program to establish an uninterrupted bidirectional connection with the dongle while you are using the software associated with the dongle. Dongles should only be shared in this way if it is allowed under the terms of the software vendor's license agreement.

7. Peripheral-Sharer Software Utilities

The Peripheral Sharer software utilities are supplied with your unit.

7.1 SMARTKEY Printer Selection Software

The SMARTKEY printer-selection software can be installed for use from DOS, Windows, or both.

Running SMARTKEY from DOS

For use with DOS, SMARTKEY can be installed as a TSR (Terminate and Stay Resident) program or just run from the DOS prompt. When installed as a TSR, SMARTKEY can be invoked using a hotkey combination from within any DOS program. To do this, press the hotkey combination that you selected during the installation routine (for example, <CTRL> <ALT> <SHIFT>).

Running SMARTKEY from Windows

Double-click on the SMARTKEY icon that was created during the installation routine. A DOS-style window will appear with the SMARTKEY selection menu. If SMARTKEY has been installed as a TSR for DOS, then the names that you specified for your peripherals will appear in the menu.

Using SMARTKEY

Select the required peripheral using the A and B keys. Once you have selected the required peripheral, you can print to it in the same way that you would if it were connected directly to the parallel port on your PC.

7.2 SMART Utilities (SMARTA.EXE and SMARTB.EXE)

The SMART utilities for DOS consist of two programs, SMARTA.EXE and SMARTB.EXE. SMARTA is used to access and control port A and SMARTB is used to control port B. Both programs share the same command syntax.

The SMART programs allow you to instruct the Peripheral Sharer to leave the selected peripheral port connected to your PC until further notice. This is useful for situations where you wish to make sure that you have uninterrupted use of a peripheral while you are running an application such as a tape-backup package.

7.2.1 USING SMARTA (OR SMARTB) TO RUN ANOTHER PROGRAM

The SMART program communicates with the Peripheral Sharer until it makes a connection to the peripheral. It then runs the specified program and returns the Peripheral Sharer to auto-scan mode when the user quits. The process is equivalent to the user selecting a fixed port using the Peripheral Sharer's key, running an application program, and then using the key to select auto-scan mode. The command format is:

SMARTx (program & options) LPTn

where x=A or B and n=1, 2, or 3; (program & options) is the program to run with any associated options that would normally be added to the DOS command line.

For example, if the required command line for a tape-backup program was BPBACKUP, then use:

SMARTB BPBACKUP LPT1

7.2.2 USING SMARTA AND SMARTB TO MAKE CONNECTIONS

The SMART programs can be used to establish a connection to the shared peripheral that will not time out. This can be done using the following command line. This command is equivalent to the user selecting a fixed port using the Peripheral Sharer's key.

SMARTx ON LPTn
(x=A or B; n=1, 2, or 3)

LPT1 is assumed if an LPT port is not specified.

7.2.3 USING THE SMART PROGRAMS TO BREAK A CONNECTION

The SMART programs can be used to break a connection that has been made using the SMARTA ON or SMARTB ON commands and return the Peripheral Sharer to auto-scan mode. This can be done using the following command line. This command is equivalent to the user selecting auto-scan mode using the Peripheral Sharer's key.

SMARTx OFF LPTn
(x= A or B; n=1, 2, or 3)

LPT1 is assumed if an LPT port is not specified. The commands SMARTA OFF and SMARTB OFF perform exactly the same function.

7.2.4 USING SMART PROGRAMS WITHIN BATCH FILES

SMARTA and SMARTB can be used within DOS batch files to make a connection, run an application and then break the connection when the user quits. This is equivalent to using SMARTA (or SMARTB) to run a program (**Section 6.2.1**) but has the advantage that less memory is needed. The SMART programs return error level 1 if they have failed to make a connection. This property can be used within your DOS batch file to quit if the connection attempt has failed. A typical batch file is shown below.

    SMARTA ON LPT1
    IF ERROR LEVEL 1 GOTO TERMINATE
    EXAMPLE.EXE
    SMARTA OFF LPT1
    :TERMINATE

For a detailed example, refer to **Section 6.4**. A small number of programs such as HP's Remote Control Panel may terminate batch files when they are run. Consequently they cannot be used in the mode described above. Use the method described in **Section 7.2.1** instead.

7.3 SMARTLOG Utility for Windows

SMARTLOG is a Windows program that performs a similar function to the DOS SMART programs described in the previous section. It enables the user to establish an exclusive (uninterrupted) bidirectional parallel connection to the shared peripheral. When the user has finished accessing the peripheral the SMARTLOG program can be used to break the exclusive connection and return the Peripheral Sharer to auto-scan mode.

The installation program will create a SMARTLOG icon in the Peripheral Sharer group on your Windows desktop. Double-click on the SMARTLOG icon to view the login screen. Select the peripheral that you wish to log on to (A or B). When you have finished using the peripheral, click on the Logout button to break the exclusive connection and return the Peripheral Sharer to auto-scan mode.

To run Windows applications with an assured connection to the shared peripheral:

1. Double-click on the SMARTLOG icon.

2. Select the peripheral port that you wish to log on to (A or B).

3. When a connection has been made, leave the Peripheral Sharer window active by clicking outside the window or by pressing ALT and TAB.

4. Run the application that requires an exclusive connection.

5. When you have finished using the application, return to the Peripheral Sharer window (by pressing ALT and TAB or by clicking on the window).

6. Select the Logout (disconnect) button.

7.4 DOWNLOAD Utility

DOWNLOAD is a DOS program that allows you to change the global Peripheral Sharer options. These options are stored in the Peripheral Sharer's EEPROM memory and are retained even when the power is off. If you wish to reset the Peripheral Sharer options to their factory settings, power on the Peripheral Sharer while holding the COMPUTER/AUTO SCAN key down.

The format of the download program is (from the DOS prompt):

DOWNLOAD LPTx (option)

where x is 1, 2, or 3 and (option) is one of the following options:

• TIMEOUT:20—Sets global timeout to 20 seconds

• TIMEOUT:60—Sets global timeout to 60 seconds

• TIMEOUT:120—Sets global timeout to 120 seconds

• TIMEOUT:240 —Sets global timeout to 240 seconds

• SCAN:HIGH—Sets high scan rate

• SCAN:NORMAL—Sets normal scan rate

For example:

DOWNLOAD LPT1 SCAN:HIGH

Appendix A: Cables

NOTE

The maximum cable lengths supported vary widely between devices and cables. You might be able to use cables that are longer than those specified below with certain PCs and peripherals, but this cannot be guaranteed. If you have problems, try using shorter cables.

A.1 PC to Peripheral Sharer

Cable specification:

DB25 male to DB25 male, braid-shielded.

All lines connected 1-1, 2-2, 3-3, etc.

For printer sharing, cables up to 32.8 ft. (10 m) long may normally be used. For sharing tape backup drives and CD-ROMs, cables up to 23 ft. (7 m) long may normally be used.

A.2 Peripheral Sharer to Peripheral

Cable specification:

DB25 male to 36-pin (Centronics type) male, braid-shielded.

Wired as a standard PC-to-printer cable.

Cables should be no longer than 6.6 ft. (2 m).

A.3 IEEE1284-Compliant Cables

IEEE1284-compliant cables use internal twisted-pair wires and can generally be used at longer distances than more standard parallel cables.

A.4 Data Boosters

Most data boosters do not support bidirectional communication. If you use a data booster with the Peripheral Sharer, then the bidirectional functions may be lost.

Appendix B: HP LaserJet 4/5 Series Printers

For information specific to the LaserJet 5, see **Appendix E**.

B.1 Operation under DOS

Printing:

For normal printing operations, the Peripheral Sharer will share the LaserJet 4 and 5 automatically.

HP Explorer Software:

The Explorer software suite consists of a Remote Control Panel program, which can be used with the Peripheral Sharer, and a Status Monitor program, which is inconvenient to use in a shared-printer environment. During installation of your Explorer software, make sure that the installation program does not install the Status Monitor in your AUTOEXEC.BAT file. Allow the installation program to create an example AUTOEXEC.BAT program instead.

Remote Control Panel:

The Peripheral Sharer supports HP Explorer Remote Control Panel software automatically. Remember that the Peripheral Sharer may timeout during your Remote Control Panel session if it is in auto-scan mode and another user prints to the printer. This does not generally cause a problem. However, if you wish to have guaranteed exclusive use of the printer while you are using the Explorer software, you may use the SMART programs supplied with the Peripheral Sharer (see **Sections 7.2** and **7.3**) or select the computer manually using the front-panel keypad of the Peripheral Sharer.

Status Monitor:

This program is designed for use by a single user only. It communicates continuously with the printer, preventing other users from printing or accessing the printer in auto-scan mode. We recommend that you do not use the DOS status monitor with the Peripheral Sharer. Consider using the Windows printer status monitor instead.

B.2 Operation under Windows

Printing:

Make sure that the Windows Print Manager is enabled (which is the Windows default). This will let you queue your print jobs even if the printer is currently in use by another computer. The Peripheral Sharer will share the printer automatically.

Installing Windows Drivers:

Follow the automatic installation procedure recommended by Hewlett-Packard. If your printer is supplied with a Status Window program, you may choose either to keep the Status Window or to de-install it using the Hewlett-Packard de-install program. Please read the following sections to see which mode is most appropriate for your system.

1. De-install Status Window (recommended)

With the Status Window de-installed, printer sharing is fully automatic. This mode is best for systems with heavy printer use.

2) Leaving Status Window installed

With the Status Window installed, you will get full real-time information on the status of the print job as it is being printed, but you will need to shut down the Main Status Window, or other users will not have access to the printer. That's because, after the print job has been sent, the Main Status Window program continuously communicates with the printer so that it can inform the user if the paper has run out or if there is a problem with the printer.

NOTE

The status monitor window is often in the background after a print job. To shut it down easily, press ALT and TAB until you get to the Main Status Window, close the window, and then press ALT and TAB to get back to your application.

If you are using this mode, prevent the Status Window from loading automatically when you boot Windows. This can be done by editing the WIN.INI file to remove the Hewlett-Packard Status Window (HPSW.EXE) program. If you do not do this, you will have to close the Status Window whenever you boot Windows.

For example: Edit or remove the following line from the WIN.INI file.

run=c:\windows\hpsw.exe

Real-time printer information will not be displayed if the printer is in use by another computer when you print. Instead, the print job will be queued in the Print Manager and printed when the printer becomes free.

NOTE

Make sure that the Main Status Window is shut down when you have finished with the printer.

Appendix C: Lexmark 4039 Printer

Software Driver Installation

During installation of the software drivers, make sure that your PC is connected to the printer by selecting the Peripheral Sharer port manually on the front-panel keypad. Once the drivers have been installed, you may switch back to auto-scan mode.

DOS toolkit

Bidirectional communication is available automatically when using the DOS toolkit. Only one user may retrieve information from the printer at any one time.

MarkVision (Windows status/control program)

The Peripheral Sharer supports MarkVision automatically. Again, only one user will have access to the printer at any one time. If the printer is in use by another computer when you activate MarkVision, printer status will not immediately be available. To retrieve information once the printer becomes free, use the Refresh Current Printer option in the Configure menu.

NOTE

The auto installation program may install MarkVision to automatically run when Windows boots. In a shared-printer environ-ment, run MarkVision only when it is needed. To remove the auto-run feature, edit the WIN.INI file to remove the line:

run=c:\prt4039\lexpanel.exe

which can be found in the [windows] section.

Appendix D: Lexmark WinWriter 600

The Peripheral Sharer will support the Lexmark WinWriter 600 in both unidirectional and bi-directional modes. In bidirectional mode, information such as the type of paper loaded in the printer is available on your PC screen. Printer service messages are also displayed on your screen when the printer needs attention.

If you do not require bi-directional information or do not wish to receive printer service messages, we recommend that you install the WinWriter 600 in unidirectional mode. To do this, install the WinWriter Network Driver. This is a unidirectional driver that is suitable for both networked and non-networked use.

For bidirectional operation, install the WinWriter 600 Driver.

To install the WinWriter driver on a PC connected to a WinWriter via a Peripheral Sharer (Windows 3.X and Windows for Workgroups):

1. Manually select the Peripheral Sharer port that is connected to your PC by using the front-panel key on the Peripheral Sharer.

2. Run the SETUP program supplied by Lexmark.

3. To use the Peripheral Sharer with the WinWriter 600, the Print Manager function needs to be enabled on the WinWriter 600 Driver. This is setup by default during the automatic installation. Do not disable this function.

4. Set the Peripheral Sharer to auto-scan mode.

NOTE

Sharing a WinWriter in bi-directional mode between several PCs running Windows (3.x & WFWG) and the Peripheral Sharer in auto-scan mode.

Under certain circumstances, the Windows Print Manager will communicate continuously with the printer. This stops the Peripheral Sharer from timing out and consequently prevents other users from accessing the printer until the Print Manager window is closed down. If you are using the WinWriter 600 in bidirectional mode, make sure that you close down the Print Manager after each print job. An easy way of doing this is to press ALT and TAB to cycle through the active applications.

Appendix E: HP LaserJet 5 Printers

E.1 Installing the LaserJet 5 Drivers

During the installation of your HP LaserJet software, make sure that your PC is continuously connected to the LaserJet 5. To do this, select the port manually using the Peripheral Sharer's front-panel key. Once you have installed the PC drivers, switch the Peripheral Sharer back to auto-scan mode.

E.2 Driver Compatibility

LaserJet 5 printers are provided with two types of printer driver:

1. HP host-based driver for HP LaserJet 5.

2. HP PCL driver (with optional bi-directional PCL status window).

The host-based driver (1) does not allow your printer to be shared automatically and can only be used with the Peripheral Sharer in manual-select mode. You must use the HP PCL driver (2) for automatic printer sharing.

E.3 Driver Installation

If you have already installed the HP LaserJet 5 driver on your computer, you must uninstall the HP host driver using the Uninstall 5L system program provided with the printer driver (you can find this in the LaserJet printer group). If you do not uninstall the HP host driver first, then subsequent installation of the PCL driver will not allow you to share the printer automatically.

NOTE

If you have already installed any LaserJet 5 printer drivers, you must uninstall these before proceeding. Do this using the Uninstall program provided by HP.

To install the PCL driver, run the HP LaserJet 5 printer driver setup program provided by Hewlett-Packard. Select the **Custom** installation option. When prompted, select the **HP PCL driver** option. The **PCL status window** option selects whether the status window program is automatically activated during printing. For shared printers, it is generally more convenient not to automatically activate the PCL status window during printing because users will need to close down the window after each print job. Consequently, for most systems, we recommend that you do not install the PCL status window function (see **Section B.2** for more details). If you wish to view the status of the printer, we recommend that you run the status window program (HPSW.EXE or HPLJSW.EXE) from a Windows icon.

E.4 Disabling the HP Status Window in Windows 3.x

For automated printing without the need to close down the HP Status Window after each print job, you can deactivate the Status Window. You can do this in Windows 3.x by following these instructions:

1. From the Program Manager, open the HP LaserJet group.

2. Double-click on the HP Status Window icon.

3. Select "Options."

4. Choose "No Status."

5. Choose OK.

6. Choose Yes to the message that appears.

7. Choose OK to the next message that appears.

8. Restart the computer.

E.5 Disabling the Status Window in Windows 95 (5P/5L printers)

For automated printing without the need to close down the HP Status Window after each print job, you can deactivate the Status Window. In Windows 95, you can do this by following these instructions:

1. From the Windows 95 desktop, select Start, Programs.

2. Open the HP LaserJet Printer group.

3. Double-click on the HP Status Window icon.

4. Select "Options."

5. Choose "No Status."

6. Choose OK.

7. Choose Yes to the message that appears.

8. Choose OK to the next message.

9. Restart the computer.

Appendix F: HP DeskJet 600 and 800 Printers

F.1 Installing the DeskJet 600/800 Printer Drivers

During the installation of your HP DeskJet software, make sure that your PC is continuously connected to the DeskJet. To do this, select the port manually using the Peripheral Sharer's front-panel key. Your PC will communicate several times with the printer during the installation process. Once you have installed the PC drivers, switch the Peripheral Sharer back to auto-scan mode.

F.2 HP DeskJet Status Monitor

Make sure that the HP DeskJet status monitor is configured to **Display When Printing** and not to **Display Always**. These settings can be found in the Options menu. If you select the Display Always option, then the status monitor will continuously communicate with the printer after all print jobs. This will prevent other users from accessing the printer.

   The status monitor program communicates with the DeskJet continuously while it is running. Remember that other users will not be able to print to the DeskJet while the Status Monitor is running.

F.3 Bi-directional and Non-bi-directional Printing Modes

The HP DeskJet printer drivers allow you to select both bi-directional and non-bi-directional printing modes. Each has different advantages and you can use either with the Peripheral Sharer.

   Bi-directional printing mode (recommended for systems with low utilization where simultaneous printing is rare)—This is the default printing mode. When you print a page, the Status Window will be automatically activated and you can see the progress of your print job on your screen. You will also receive any printer messages such as paper out signals. However, other users wishing to print will receive error messages while the printer is in use and will not be able to buffer their print jobs in the Print Manager. Consequently, this mode is not recommended for systems where users are likely to want to send print jobs at the same time.

Non-bi-directional printing mode (recommended for systems with higher utilization where simultaneous printing is likely)—Non-bi-directional printing mode allows you to buffer print jobs in your PC while the printer is in use by another computer. You will not see the progress of the print job on your screen, but for most small systems, this is not a problem. For optimum ease of use, we recommend that you set a high Windows printing timeout period of 900 seconds (15 minutes). This avoids the print jobs from stalling if the printer is in use for some time after your print job has been generated. You will find the timeout settings in the Control Panel>>Printers>>Connect menu on Windows 3.11 (set both timeout values to 900). If you are using Windows 95, you will find the timeout settings under the printer icon in the Properties>>Details menu. Again, set both timeout settings to 900.

To select non-bidirectional mode, you will need to run the HP configuration utility program. This is installed when you install your DeskJet printer drivers. Depending on your DeskJet model, the configuration program may be HPVCNFIG.EXE or HPCFG02.EXE or similar (you will find the program in the Windows directory). Run the program and de-select **Bi-directional Communication** to activate non-bi-directional printing mode.

Appendix G: HP LaserJet 6 Printers

G.1 Installing the HP LaserJet 6 Printer Drivers

During the installation of your HP LaserJet software, make sure that your PC is continuously connected to the LaserJet. To do this, select the port manually using the Peripheral Sharer's front panel key. Your PC will communicate several times with the printer during the installation process. Once you have installed the PC drivers, switch the Peripheral Sharer back to auto-scan mode.

G.2 HP LaserJet 6 Printer Drivers (Windows 3.x)

Install the printer drivers using the printer driver disks provided by HP. You may wish to deactivate the HP Status Window during printing (see **Section B.2** for explanation). If you wish to deactivate the Status Window during printing, then follow the instructions in **Section E.4**.

G.3 HP LaserJet 6 Printer Drivers (Windows 95)

The LaserJet 6 driver for Windows 95 has two main components—the PCL driver itself and an HP printer property monitor (HPPROPTY). The printer property monitor polls the printer every couple of seconds to check its status. This constant polling stops the Peripheral Sharer from auto-scanning because the PC is constantly "using" the printer.

With the printer property monitor installed, the Peripheral Sharer will only operate in manual mode and so to enable automatic sharing, you must disable the printer property monitor. If you allow Windows 95 to automatically detect the printer and follow the subsequent instructions, then the printer property monitor will not be installed and no further action should be necessary. However, if you install the printer driver by running the SETUP program on the HP installation disks, then the printer property monitor is installed by default and you will need to de-install it as follows:

1. From the Windows 95 desktop, press Ctrl-Alt-Delete.

2. In the Close Program dialog box, select HPPROPTY and choose End Task.

3. Select "Start," "Find," "Files," or "Folders."

4. In the command line, type HPPROPTY and select Find Now.

5. When the file is located, press the Delete key.

6. Close the Find All files window.

7. From the Windows 95 Desktop, double-click on the Recycle bin.

8. Select File, Empty Recycle Bin.

9. Restart the computer.

Appendix H: Troubleshooting

Problem: Data is corrupted.

Action: Try reducing cable lengths, using higher-quality cables, or using data boosters.

Problem: Data transfer does not occur.

Action: Try connecting the peripheral device directly to the computer to check that it works without the Peripheral Sharer.

Problem: Peripheral Sharer will not time out in auto-scan mode.

Action: If the data-transfer light flickers regularly, then the sending computer may have a continuous peripheral status monitor installed. You may need to remove the status monitor. Refer to **Appendixes B** and **D** for advice on typical examples.

Problem: DOS packages get off-line messages when the printer is free.

Action: Include the MODE LPT1:,,R command (or similar for LPT2,LPT3) in your AUTOEXEC.BAT file—see **Section 3.6**.

Problem: Peripheral Sharer prints intermittently from Windows and gives an off-line message in about 3 out of 4 cases. (This will occur if the Print Manager is not enabled).

Action: Enable the Windows Print Manager.

Problem: Software reports peripheral not ready when sharing tape drives, CD-ROMs etc.

Action: Use SMART programs to establish a connection before you run the software—see **Section 7.2**.