BLACK BOX®
NETWORK SERVICES

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SEPTEMBER 2000
PI138A
PI138AE
PI140A
PI140AE

Peripheral Sharer 2 to 1
Peripheral Sharer 4 to 1
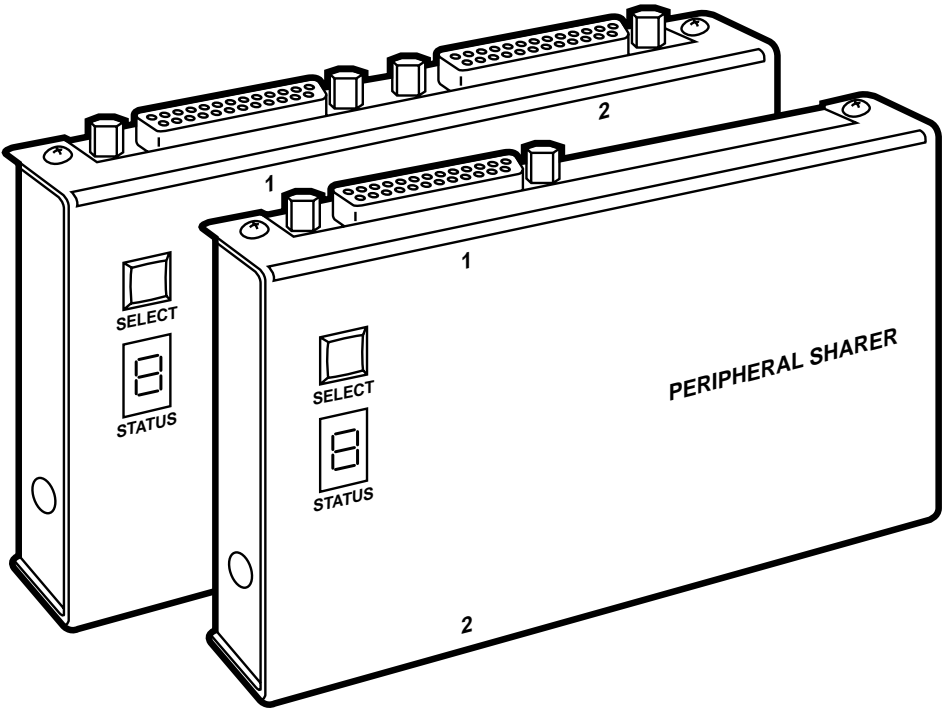
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RADIO FREQUENCY INTERFERENCE STATEMENTS

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 J 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.

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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 classe A prescrites dans le Règlement sur le brouillage radioélectrique publié par Industrie Canada.

(CE)   This unit is CE certified.

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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Contents

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.

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

Connectors—PI138A, PI138AE: (3) DB25 female: (2) bidirectional parallel ports for connection to PCs, (1) bidirectional parallel port for connection to peripherals; PI140A, PI140AE: (5) DB25 female: (4) bidirectional parallel ports for connection to PCs, (1) bidirectional parallel port 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, 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 (part number EQN200).
Peripheral Sharer to Printer: DB25 male to 36-pin male printer cable, shielded, all ground lines connected (part number EQN202).
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.
Peripheral Sharer to Peripheral: 6.5 ft. (2 m)

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 is a high-performance parallel-device sharer suitable for sharing printers, tape backups, certain CD-ROMs, and other devices that attach to PC parallel ports.

2.1 Key Features

- High-performance fully bi-directional parallel ports.

- Automatic printer sharing and tape-backup sharing.

- Data-transfer speeds in excess of 500,000 cps 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 and port status.

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

2.2 Package Contents

- Peripheral Sharer 2 to 1 or Peripheral Sharer 4 to 1

- 115 VAC (PI140A) or 230-VAC (PI140AE) power supply

- Software disk (3.5" format, virus-checked)

- This user manual

Power supply connector (5 VDC, 200 mA)

Mode/port selection key

Port status and data activity display

Parallel port for connection to PC

Parallel port for connection to peripheral

Figure 2-1. Peripheral Sharer 2 to 1.

Power supply connector (5 VDC, 200 mA)

Mode/port selection key

Port status and data activity display
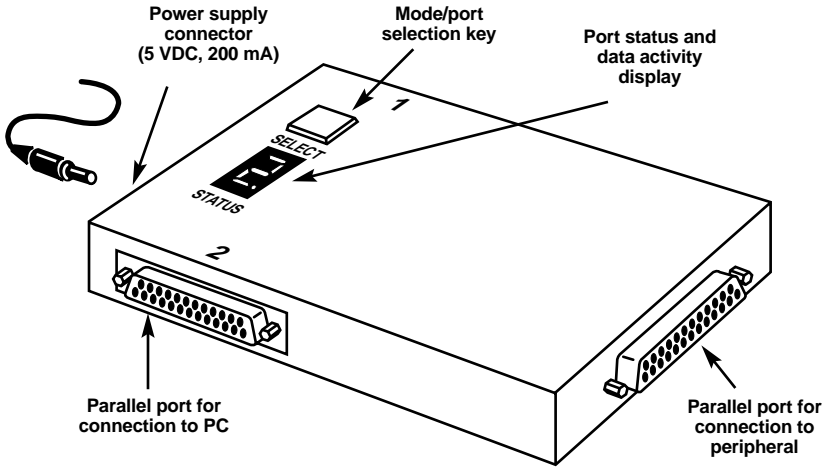
Parallel ports for connection to PCs

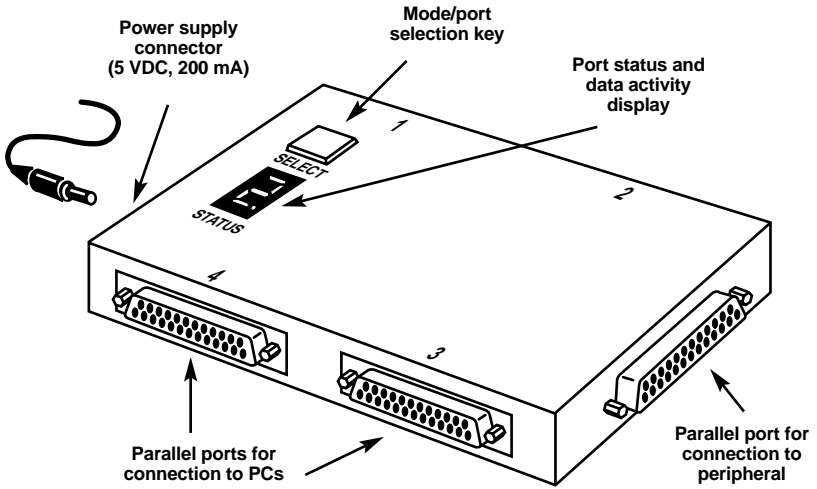Parallel port for connection to peripheral

Figure 2-2. Peripheral Sharer 4 to 1.

3. 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 vertical surface. To mount the unit vertically, we recommend that you use two Velcro® strips.

3.3 Connecting Your Devices

Make sure that the power is disconnected from the Peripheral Sharer. Connect the interface cables as shown in **Figure 2-1**. Connect ports 1 to 2 or 1 to 4 to your computer parallel ports, and connect the Peripheral Sharer's output port to your peripheral. You do not need to connect all of the computer ports (1 to 2 or 1 to 4). 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

Use shielded cables for all connections to the Peripheral Sharer 4 to 1. Using unshielded cables may cause unreliable operation.

3.4 Configuring the Peripheral Sharer

You do not normally need to configure the Peripheral Sharer. Its factory-set timeout value of 20 seconds is suitable for almost all applications. You can change this default if required by using the download program supplied (see **Section 6.3**).

3.5 Configuring Your PC

Configure you 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 (change LPT1 to LPT2 or LPT3 if you are using the second or third parallel port):

MODE LPT1:,,P

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.

3.6 Installing the Software

NOTE

You do not need to install the Peripheral Sharer software to use the Peripheral Sharer 4 to 1 as an automatic printer sharer. This function is supported automatically. However, if you are using Microsoft Windows, make sure that the Print Manager is enabled.

The Peripheral Sharer has simple software utilities that enhance the functionality of the unit. These are particularly useful for applications that require uninterrupted use of a peripheral, such as tape backup systems and CD-ROMs. Refer to **Chapter 5** for detailed installation instructions.

4. Using the Peripheral Sharer

This section explains the general operation of the Peripheral Sharer. We recommend that you first read this section and then read the sub-section in **Chapter 5** that covers your specific application.

4.1 Power-On Status

At power on, 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.

4.2 Front-Panel Key

Use the front-panel key to select auto-scan mode or to select a fixed port manually. Pressing the key will cause the mode to change as shown in **Figure 4-1** (4-port version). The 2-port version operates in a similar way.
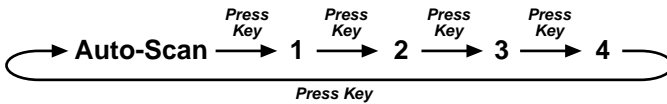
Figure 4-1. Selecting Auto-Scan Mode or a Fixed Port.

4.3 Modes of Operation

- *Auto-scan mode* — In this mode, the Peripheral Sharer will automatically connect your PC to the peripheral when it detects data activity. Your PC will also be automatically disconnected when there has been no data activity for the timeout period (normally 20 seconds).

- *Manual mode* — The peripheral remains connected to the displayed port until you press the key to select another port or auto-scan mode.

- *Software-controlled mode* — The Peripheral Sharer can be controlled by the PC software supplied. This provides compatibility with software applications that require an uninterrupted connection to the peripheral while the software is in use. It is particularly useful for sharing tape-backup systems. See **Sections 5.2, 5.4, 6.1,** and **6.2** for further details.

4.4 Status Display

The status display shows the port status 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. 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.
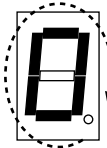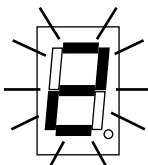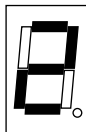
DISPLAY SHOWS   **MEANING**

Illuminated segment   **Auto-scan mode:**
shifts clockwise   **Scanning ports,**
                                                     waiting for data
                                                     activity

Port number is   **Auto-scan mode:**
displayed and flashes   **Peripheral is**
intermittently   **connected to**
                                                     displayed port and
                                                     connection will time
                                                     out

Port number is   **Manual mode:**
displayed and does not   **Peripheral is not**
flash   **connected to**
                                                     displayed port and
                                                     will not time out

Dot in lower right hand   **Data activity**
corner flashes

Figure 4-2. Status Display.

5. Application-Specific Instructions

5.1 Printer Sharing

(All unidirectional, bidirectional, and GDI printers)

GENERAL

Connect your PCs and printer as recommended in **Chapters 3** and **4**. 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 (normally 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.

MICROSOFT WINDOWS

Make sure that the Print Manager is enabled.

DOS PRINTING

Consider adding the MODE LPT1:,,R command to your AUTOEXEC.BAT file (see **Section 3.5**).

PRINTERS WITH ENHANCED BI-DIRECTIONAL PORT FEATURES

Detailed instructions on the use of the following printers are given in **Appendixes B** through **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 series—**Appendix B**

- Lexmark 4039—**Appendix C**

- Lexmark WinWriter 600—**Appendix D**

5.2 Sharing Parallel-Port Tape-Backup Drives

To use a tape backup drive with the Peripheral Sharer, copy the program SMART.EXE from the Peripheral Sharer disk to a suitable directory on your PC's hard disk (for example, your tape-backup directory could be C:\BACKPACK).

SMART.EXE is a DOS program that has been specifically designed for use with tape-backup drives and similar devices. It has 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 SMART to run your tape backup program. SMART will automatically make a connection to your tape drive, run your tape-backup software, and break the connection when the backup has been completed. If the tape drive is in use, SMART will continuously retry until a connection is made or the user selects abort. Consequently, the Peripheral Sharer will support unattended backups from several PCs.

NOTE

Always use SMART 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, use the SMARTCON program—see **Section 6.2**.

5.2.1 USING **SMART** TO RUN YOUR TAPE BACKUP SOFTWARE

Use the following command format at the DOS prompt:

(dos path) SMART
(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 are:

    SMART   BPBACKUP

and

    C:\BACKPACK\SMART
    C:\BACKPACK\BPBACKUP
    LPT1

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 SMART ON and SMART OFF commands as an alternative method that uses less memory. See **Section 6.1** for full details.

5.2.2 UNATTENDED BACKUPS FROM SEVERAL PCS

Most tape-backup drives support a macro function that you can use to perform regular unattended backups. SMART allows 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, SMART will wait until the drive is free and then perform the automatic backup.

    SMART   DAILY   LPT2

5.2.3 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 SMART WEEKLY LPT1.

If you do not have enough memory to do this, create a batch file as described in **Section 6.1** and change the macro name to the batch-file name.

5.3 Sharing a Printer and a Tape-Backup Drive

If your tape-backup drive has a feed-through parallel port, then you can use the Peripheral Sharer to share a printer and a tape backup automatically. Typically, the printer would be shared during normal office hours and the tape backup would perform unattended backups during the night. To share devices in this way, connect the output from the Peripheral Sharer to the tape-backup unit and then connect the printer to the feed-through port on the back of the tape drive.

5.4 Sharing a Parallel-Port CD-ROM Drive

5.4.1 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 under-standing 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 you cannot install the drivers in this way, since 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 this from the DOS prompt. The CD-ROM drive's manufacturer will normally provide a program to allow you to do this (for the BackPack, the program is DEVICE.COM).

The installation batch file will be similar to that detailed below (an 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 SMART.EXE to establish a guaranteed connection to the Peripheral Sharer. This 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 you have copied the program SMART.EXE from the disk to the directory C:\SMART.

```
C:\SMART\SMART ON LPT1
IF ERROR LEVEL 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 SMART.EXE program supplied.

```
C:\SMART\SMART 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\SMART ON LPT1
IF ERROR LEVEL 1 GOTO
TERMINATE
REM load the CD-ROM drivers
C:\BPCDROM\DEVICE=BPCDDRV.S
YS
IF EXIST BPCDDRV$
C:\BPCDROM\MSCDEX
/D:BPCDDRV$ /L:F
REM set the Peripheral Sharer back
to auto-scan mode
C:\SMART\SMART OFF LPT1
REM label to identify end of batch
file
:TERMINATE
```

5.4.2 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 SMART (DOS) or SMARTCON (Windows).

2. Use the CD-ROM as if you were connected directly to the drive.

3. End the CD-ROM session using SMART or SMARTCON so that other users can access the CD-ROM drive.

5.4.3 STARTING AND ENDING CD-ROM SESSIONS USING SMART OR SMARTCON

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

    SMART ON LPTx
    (where x=1,2 or 3)

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

    SMART OFF LPTx
    (where x=1,2 or 3)

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

Double click on the SMARTCON icon. When the Peripheral Sharer window is displayed, use the mouse to click outside the 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 Disconnect button. Your CD-ROM session will then be ended.

6. Peripheral Sharer Software Utilities

The Peripheral Sharer software utilities are supplied with your unit.

6.1 SMART.EXE

This is a DOS program that allows you to instruct the Peripheral Sharer to remain connected to your PC until further notice. This is useful when 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 or a printer control panel program.

6.1.1 USING SMART TO RUN ANOTHER PROGRAM

SMART 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 their application program and then using the key to select auto-scan mode. The command format is:

SMART (program & options) LPTx

where x=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 is BPBACKUP, then use:

SMART BPBACKUP LPT1

6.1.2 USING SMART TO MAKE A CONNECTION

SMART can be used to establish a connection to the shared peripheral that will not timeout. 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.

SMART ON LPTx (x=1,2 or 3)

LPT1 is assumed if an LPT port is not specified.

6.1.3 USING SMART TO BREAK A CONNECTION

SMART can be used to break a connection that has been made using the SMART ON command and return the Peripheral Sharer to auto-scan mode. This can be done using the following command line, which is equivalent to selecting auto-scan mode using the Peripheral Sharer's key.

SMART OFF LPTx (x=1, 2 or 3)

LPT1 is assumed if an LPT port is not specified.

6.1.4 USING SMART WITHIN BATCH FILES

SMART 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 SMART to run a program (**Section 6.1.1**) but has the advantage that less memory is needed. The SMART program returns error level 1 if it has 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.

```
SMART ON LPT1
IF ERRORLEVEL 1 GOTO
TERMINATE
EXAMPLE.EXE
SMART OFF LPT1
:TERMINATE
```

For a detailed example refer to **Section 5.1.1**. A small number of programs, such as Remote Control Panel from Hewlett-Packard, may terminate batch files when they are run. Consequently, they cannot be used in the mode described above. Use the method described in **Section 6.1.1** instead.

6.2 SMARTCON.EXE

SMARTCON is a Windows program that performs a similar function to the DOS program SMART.EXE described in the previous section. To install SMARTCON insert the Peripheral Sharer disk in drive A and select Run from the Program Manager's File menu. Run the file A:\SETUP.EXE and follow the instructions in the installation menus.

The installation program will create a SMARTCON icon in the Peripheral Sharer group on your Windows desktop. Double click on the SMARTCON icon to establish an exclusive connection to the Peripheral Sharer. Click on the Disconnect 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 SMARTCON icon.

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

3. Run the application that requires an exclusive connection.

4. Return to the Peripheral Sharer window (by pressing ALT and TAB or by clicking on the window).

5. Select the Disconnect button.

6.3 DOWNLOAD.EXE

DOWNLOAD is a DOS program that lets you change the global Peripheral Sharer options. These options are stored in the unit's EEPROM memory and are retained even when the power is off. If you wish to reset the options to their factory settings, power on the Peripheral Sharer while holding the front panel 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 experience problems, try using shorter cables.

A.1 PC to Peripheral Sharer

Cable specification:

25-pin male to 25-pin male, braid shielded.

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

For printer sharing, cables up to 32.8 ft. (10m) long may normally be used. For sharing tape backup drives and CD-ROMs, cables up to 22.9 ft. (7 m) long may normally be used.

A.2 Peripheral Sharer to Peripheral

Cable specification:

25-pin male to 36-pin male, braid shielded.

Wired as a standard PC to printer cable.

Cables should be no longer than 6.5 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, the bi-directional functions may be lost.

Appendix B: HP LaserJet 4 Series Printers

B.1 Operation Under DOS

PRINTING

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

HP EXPLORER SOFTWARE

The Explorer software suite consists of a Remote Control Panel program that can be used with the Peripheral Sharer and a Status Monitor program. This is inconvenient to use in a shared-printer environment. During installation of your Explorer software, you should 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.EXE program supplied with the Peripheral Sharer (see **Section 6.1**) 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

You should make sure that the Windows Print Manager is enabled (which is the Windows default). This will enable you to 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 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.

De-install Status Window (recommended)

(Automatic background printing with no user action required)

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

Leaving Status Window installed

(Foreground printing with user action required after each print job)

With the Status Window installed, you will get full real time information on the status of the print job as it is being printed. After the print job has been sent, the Main Status Window program continuously communicates with the printer to tell you if the paper has run out or if there is a problem with the printer. In a shared printer system, it is the user's responsibility to shut down the Main Status Window after each print job so that other users can automatically access the printer.

HINT

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, you should prevent the Status Window from loading automatically when you boot Windows, 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

Full bi-directional 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 fully 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 MarkVis-ion to run automatically when Windows boots. In a shared-printer environment, 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 bidirectional 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.

Under certain circumstances, the Windows Print Manager will communicate continuously with the printer. This stops the Peripheral Sharer from timing out and prevents other users from accessing the printer until the Print Manager window is closed down. If you are using the WinWriter 600 in bi-directional mode, you must close down the Print Manager after each print job. To do this easily, 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 5 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 further. 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 status window function (see section B2 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.

Appendix F: HP DeskJet 600 and 800 Printers

F.1 Installing the DeskJet 600/800 Printers

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.

NOTE

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 use 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 use 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 keeps 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 under the printer icon in the **Properties>>Details menu**. Again, set both timeout settings to 900.

To select non bi-directional mode, you will need to run the HP configuration utility program. This is installed when you install your DeskJet printer drivers. Depending upon 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: 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 if you use a different port, substitute LPT2 or LPT3) in your AUTOEXEC.BAT file—see **Section 3.5**.

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 to establish a connection before you run the software—see **Section 6.1**.