

# **OWNER'S MANUAL**

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## **LASERSHARE SERIES PRINT MASTER**

## **LASER PRINTER SHARING DEVICE**

LaserShare 4A, Revision 2.01  
LaserShare 4C, Revision 2.01  
LaserShare 4E, Revision 2.01

Thank you for selecting a BayTech LaserShare.

The data provided in this Owner's Manual explains the various ways you can operate your unit and configure it to your own computer system. We suggest that you read this manual carefully before attempting to install the Laser Share and that you place special emphasis on correct cabling and configuration. If you have any problems with your installation, please contact a BayTech applications engineer for assistance.

BayTech also manufactures data communications devices that provide port sharing and expansion, networking, port contention, buffered and non-buffered printer sharing, data acquisition multiplexing, statistical multiplexing, and modems. If you would like information on any of these models, please contact BayTech Customer Service.

We welcome any comments you may have about our products. And we hope that you will continue to look to BayTech for your data communications needs.

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## 1.0 GENERAL INFORMATION

LaserShare is an intelligent printer controller that allows up to four computers to send data to a single HP LaserJet Series II, HP LaserJet Series IID, HP LaserJet Series III, HP LaserJet Series IIID, Brother HL8e\*, or Wang LDP8 laser printer. LaserShare can accept data from all ports simultaneously and data is printed on a first-in first-out basis.

Users appear to be directly connected to the Laser Printer. Normal printer commands are used to send print jobs to the LaserShare.

All LaserShare models come standard with a buffer that can range from 256 KB to 4.0 MB. LaserShare 4C has four EIA-232 serial ports, LaserShare 4E has two parallel and two EIA-232 serial ports, and LaserShare 4A has four parallel ports.

LaserShare connects directly into the optional I/O slot of the laser printer. Power is taken directly from the laser printer so there is no need for a power cord.

Please see *Figure 1.0* for an illustration of the LaserShare installation.

All computer ports can be programmed to send a Header Page message before each print job. Form feeds can also be programmed to be sent before, after, or before and after each print job. The end of a print job is determined by a user-defined inactivity time-out value.

LaserShare's serial ports support CTS/DTR (hardware) and XON/XOFF (software) handshaking. Hardware handshaking is the default handshaking mode. Software handshaking is enabled in the configuration mode. All serial ports can be programmed to use software handshaking. LaserShare's parallel ports adhere to Centronics protocol.

LaserShare's features are programmed via a menu-driven configuration mode. All changes are permanently saved in non-volatile memory.

\* The LaserShare device for the Brother HL8e is referred to as LaserShare 4CB. This device is available only with four (4) serial computer ports and a fixed buffer size of 256 KB.

**Rearview of  
HP LaserJet  
Series III**

**BayTech  
LaserShare**

**FIGURE 1.0**

## 2.0 SPECIFICATIONS

**INTERFACE: Serial ports and the HP LaserJet port:** EIA-232 (CCITT V.24), -5V mark, +5V space.  
**Parallel ports:** Centronics compatible.

### STANDARD FACTORY-SET POWER-UP DEFAULT CONFIGURATION:

#### Serial Ports:

**Baud rate:** 9600.

**Word size:** 8.

**Stop bits:** 1.

**Parity:** None.

**XON/XOFF:** Off.

**Input inactivity time-out:** 20 seconds.

**Header Page:** Off.

**Header Page Message:** "Print job for Port X" (X = 1 to 4)

**Form feed:** No Form Feed.

### USER-PROGRAMMABLE CONFIGURATION:

*(Reconfigurable in menu-driven mode for ports 1 through 4 **ONLY**.  
Saved in non-volatile memory to become the new power-up default  
configuration.)*

#### Serial Ports:

**Baud rate:** 600, 1200, 2400, 4800, 9600, 19200  
Other rates optional.

**Parity:** Even, odd or none.

**Stop bits:** 1 or 2.

**XON/XOFF:** On or off.

**Input inactivity timeout:** 2 to 200 seconds.

**Header Page:** On or Off per port.

**Header Page Message:** Programmable to 20 characters per port.

**Form Feed:** No form feed, at end, at beginning, or at beginning and end.

**BUFFER:** 256 KB to 4.0 MB RAM; LaserShare 4CB (for Brother HL8e) is available with 256K only.

**POWER:** 5 VDC, 400 ma.

**ENVIRONMENT:** 0 degrees to 50 degrees C temperature;  
5% to 95% humidity.

**DIMENSIONS:**

**Front Panel:** 9.19w x 0.44d x 1.31h inches.

**Main PC Board:** 2.95w x 6.35d inches.

**I/O Slot Connector:** 1.75w x 0.60d inches.

**Overall:** 9.38w x 1.31h x 6.35d inches.

**WEIGHT:** 8.5 oz.

**INTERFACE:** LaserShare 4A - 4 DB-25 male connectors (Centronics compatible); LaserShare 4E - 2 DB-25 female DTE type connectors, 2 DB-25 male connectors (Centronics compatible); LaserShare 4C - 4 DB-25 female DTE type connectors.

**HANDSHAKING:** Serial ports - CTS/DTR and selectable XON/XOFF;  
Parallel ports - Busy (Pin 11) and ACK (Pin 10).

**MOUNTING:** Optional I/O Card Slot in HP LaserJet.

**CABLE INFORMATION:** Please refer to the brochure on LaserShare.

**WARRANTY:** One full year.

## **3.0           INSTALLATION**

Installation and setup of the LaserShare requires:

1.       Connecting the LaserShare to the optional I/O slot of the laser printer (*Section 3.3*).
2.       Configuring and installing the correct cables from the computers to the LaserShare (*Section 4.0*).
3.       Programming the operational features of the LaserShare (*Sections 6.1 and 6.2*).
4.       Configuring the laser printer to communicate with optional I/O.

## **3.1           UNPACKING**

After opening the box, check the packing list that comes with the LaserShare and make sure you have received the correct components. Also check the unit to make certain it did not receive damage during shipping. You should receive with your LaserShare an operator's manual and a software utility diskette.

## **3.2           POWER**

LaserShare draws its power from the laser printer once it is installed. LaserShare operates from +5 VDC, 400 mA provided by the laser printer.

When installed, LaserShare powers up when the laser printer is powered up.

## 3.3 INSTALLING THE LASERSHARE

### 3.3.1 PHYSICAL INSTALLATION

The LaserShare card will be inserted into the optional I/O slot of the HP Laser Printer. This slot is located to the left of the Laser Printer's serial and parallel input ports. Please refer to *Figure 3.3.1*.

***CAUTION: Make sure that the LaserJet is turned off and unplugged BEFORE proceeding with the installation.***

Installation Procedure:

1. Remove any cables still connected to the Laser Printer's input ports.
2. Locate the optional I/O interface slot on the printer lower back panel. This slot will be left of the serial and parallel input ports (See *Figure 3.3.1a*).
3. Remove the two screws and cover from the optional I/O slot of the laser printer. Store the screws and cover in a safe place for future use.

**FIGURE 3.3.1a**

4. **IMPORTANT:** Remove the two clips on the parallel port of the laser printer by pinching the clips and pulling them out. It may be necessary to remove the two screws on either side of the parallel port in order to remove the clips. Replace the screws after removing the clips (See *Figure 3.3.1b*).

**FIGURE 3.3.1b**

5. Take the LaserShare card and, using the card guides inside the slot, slide it into the optional I/O slot. When the card is fully inserted press firmly assuring the connection.
6. Using the screws supplied, secure the LaserShare to the Laser Printer. Do not overtighten the screws.
7. Plug your laser printer back into the AC outlet and apply power to your laser printer.

### 3.3.2 LASER PRINTER CONFIGURATION

Below are the steps required to configure the LaserJet to work with LaserShare once LaserShare has been physically installed. Your laser printer owner's manual will also contain this information. Please refer to the HP LaserJet Series II Configuration Panel (*Figure 3.3.2a*) below or the HP LaserJet Series III Configuration Panel (*Figure 3.3.2b*) on page 9.

1. Put the printer offline by pressing the <ON LINE> key to turn its display light **off**.
2. The <MENU> key must be pressed and held down for several seconds (approximately 5) and release the <MENU> key. The message "AUTO CONT = ON" should appear.
3. Press the <MENU> key to display "I/O = OPTIONAL" and then press the <ENTER> key to save this message. If the LCD reads "I/O = PARALLEL" or "I/O = SERIAL", first press <+> until the message "I/O = OPTIONAL", then press <ENTER> to save. The LCD will read "I/O = OPTIONAL \*" when properly saved.
4. Press the <ON LINE> key to turn the its display light on. The printer is now on line.

**Figure 3.3.2a: HP LaserJet Series II Configuration Panel**

**Figure 3.3.2b: HP LaserJet Series III Configuration Panel**

### **3.4 FACTORY DEFAULTS**

LaserShare 4C has four serial computer ports, LaserShare 4E has two serial and two parallel computer ports, and LaserShare 4A has four parallel ports.

From the factory, the input inactivity time-out is set to 20 seconds. The form feed mode and the header page message are disabled. The serial ports power up from the factory at 9600 baud rate, 8 bit word size, 1 stop bit, no parity and XON/XOFF disabled.

If your application does not match the factory setup of the LaserShare, you must first reconfigure the LaserShare by entering configuration mode (*See Section 6.0.*). If your application does match, you may proceed with operation (i.e., cabling; *see Section 4.0.*).

**NOTE:** Users of IBM compatible computers may utilize the BayTech LaserShare Support Software Diskette that is supplied with this unit; refer to Appendix B for instructions.

## 4.0 CABLING

### 4.1 PARALLEL PORTS

A straight DB-25 male-to-female cable is required between each IBM PC computer (or compatible) and LaserShare.

**CAUTION:** Some standard EIA-232 DB-25 cables may have pin 1 grounded to connector shell. Since this is a strobe line in Centronics protocol, Pin 1 must not be used as a ground line, but must be connected to Pin 1 as a strobe line.

The pin layout for the DB-25 connector is similar to IBM PC parallel connector and uses the following signals:

#### STANDARD TTL LEVELS

SIGNAL NAME	DB-25 PIN NO.
- Strobe	1
+ Data Bit 0	2
+ Data Bit 1	3
+ Data Bit 2	4
+ Data Bit 3	5
+ Data Bit 4	6
+ Data Bit 5	7
+ Data Bit 6	8
+ Data Bit 7	9
- Acknowledge	10
+ Busy	11
+ P. End (Out of Paper)	12
+ Select	13
- Auto Feed	14
- Error	15
- Initialize Printer	16
- Select Input	17
Ground	18-25

## 4.2 SERIAL PORTS

If you are already using the HP Laser Printer, and the communications type is serial EIA-232, the cable currently connected to your computer *should* work connected directly to the LaserShare. You may want to consult your HP Laser Printer Owner's Manual for the communications type you are using.

If you need to make the cabling for your computer to LaserShare connection, refer to *Appendix A* for your cabling pin assignment. If your computer is not listed in *Appendix A*, the LaserShare serial port description below may help you configure your cable.

The serial communications ports on the LaserShare are female DTE ports. The table below explains the pin assignments of these ports.

<u>PIN#</u>	<u>EIA-232</u>	<u>DIRECTION</u>	<u>DESCRIPTION</u>
1	PGN	----	Protective Ground
2	DTx	Output	Data Out
3	Rx	Input	Data In
4	RTS	Output	+5 Volts When LaserShare Powers-Up
5	CTS	Input	LaserShare Transmit Enabled When positive voltage greater than +3 Volts. Internally Enabled If No Wire Connected.
6	DSR	Input	Not Used
7	SGN	----	Signal Ground
20	D	Output	Input Hardware flow control
	DTR		-5 Volts When LaserShare Buffer Full

**IMPORTANT:** Before you proceed with cabling, you must know whether the devices to which you will connect LaserShare are DTE (Data Terminal Equipment) or DCE (Data Communication Equipment). The following devices are generally DTE: terminals, printers, computers like the IBM PC. The following devices are DCE: modems and some computers.

If you are interfacing a DCE device to LaserShare, you must use a one-to-one straight cable, as shown in Figure 4.2.1 on page 13. If you are interfacing a DTE device to LaserShare, you must use a crossed cable, as shown in Figure 4.2.2 on page 13.

When using XON/XOFF handshaking protocol, it may be desirable to configure cables that only use the Tx, Rx and signal ground pins. All other pins on LaserShare are in an enabled state when left open. However, unused pins on other equipment, such as input handshake lines on IBM or compatible PCs, may not be satisfied and should be satisfied by jumpering these pins appropriately (See *Appendix A*).

**FIGURE 4.2.1**

LASERSHARE - DTE  
MALE DB-25

DCE DEVICE  
MALE DB-25

**FIGURE 4.2.2**

LASERSHARE - DTE  
MALE DB-25

DTE DEVICE  
FEMALE DB-25

## **5.0 OPERATION**

### **5.1 OPERATING PROCEDURE**

LaserShare allows up to four individual users to share a single laser printer. From a user's point of view, it appears that each individual user is connected directly to the laser printer.

Once LaserShare has been installed and configured for your application (or if LaserShare's factory default configuration suits your application) and all computers have been cabled to LaserShare, users print in a normal fashion.

A print job begins when LaserShare receives three (3) or more characters from a particular computer. A print job ends when there are no characters sent from the computer for the specified inactivity time-out value (See *Section 5.2.2.*).

The buffering capability of LaserShare allows the multiple users to send jobs to the laser printer simultaneously, therefore freeing up each user to go on to other tasks. LaserShare will send print jobs to the laser printer in a first-come-first-serve basis as they are received. The buffer size of the LaserShare ranges from 256 KB to 4.0 MB.

## 5.2 USER-PROGRAMMABLE OPERATIONS

### 5.2.1 THE SERIAL PORT CONFIGURATION

**NOTE:** Not applicable to LaserShare 4A.

You may set the baud rate, stop bits, and XON/XOFF for each individual serial computer port.

**Factory default configuration on all serial ports is 9600 baud rate, 8 bit word size, 1 stop bit, and XON/OFF handshaking disabled.**

### 5.2.2 THE INPUT INACTIVITY TIME-OUT

The input inactivity time-out allows LaserShare to distinguish between print jobs from individual users. If no characters are received from an individual computer port for the specified timeout value, LaserShare will disconnect that particular computer port from the LaserShare buffer, and then send the next print job in the buffer to the laser printer.

The input inactivity timeout value can be set from 2 to 200 seconds.

**Factory default is 20 seconds.**

### 5.2.3 THE FORM FEED MODE

LaserShare has four form feed modes allowing you to select when form feed occurs: at the beginning of printing, at the end of printing, at the beginning and end of printing, and no form feed.

**Factory default is no form feed.**

## 5.2.4 THE HEADER PAGE MESSAGE

You can print a programmable message on a separate sheet of paper before printing any other data to identify which user sent the print job. The header page message can be enabled or disabled for any individual port.

**Factory default:** *Print job is for port X (X = 1 to 4), with the header page message disabled for all ports.*

## 5.3 HP LASERJET OPERATION

The installer of LaserShare may benefit from a review of the following HP LaserJet Series II or Series III documentation:

Getting Started With LaserJet Series II is shipped with the printer and contains configuration and set-up documentation.

The LaserJet Series II User's Manual is also shipped with the printer and contains a comprehensive guide to its features.

If you are an experienced user and would like more technical information in addition to the above manuals, The LaserJet Series II Technical Reference Manual (HP part number 33440-90905) may be ordered directly from the Hewlett-Packard Direct Marketing Division.

**NOTE:** The HP LaserJet Series III has similar documentation.

## 6.0 CONFIGURATION

Once LaserShare has been installed, it is virtually an integrated part of your laser printer. However, LaserShare and the laser printer must be configured individually to function as an individual system. Therefore the configuration process will be described in two separate sections pertaining to each subsystem, i.e., LaserShare configuration procedure (See *Sections 6.1 and 6.2.*) and the laser printer configuration procedure (See *Section 3.3.2.*).

### 6.1 LASERSHARE 4A CONFIGURATION

All configuration changes must be made through Port 4, the configuration port.

All ports on LaserShare 4A must be inactive (i.e., the *ON LINE* and the *READY* LED's on the laser printer should be illuminated and not flashing).

Connect a computer with a parallel port, such as an IBM PC or compatible to Port 4 of LaserShare 4A.

Since configuration must be performed through a parallel port, and since communication is only one-way, configuration menus must be sent out of the printer port to the laser printer.

The computer must be in a mode that allows characters to be sent from the keyboard to the parallel port. To assist you in this, BayTech supplies terminal emulator support software (Parsend) for IBM PC and compatibles (see *Appendix B*).

**NOTE:** Make sure the keyboard of your computer is in the CAPS LOCK position.

Send from the keyboard of the computer Control-T followed by ASCII **capital C**. These characters will not appear at the printer, but the LaserShare 4A will respond with the main configuration menu.

From this point on, configuration of LaserShare 4A will be accomplished by following the menus that will prompt you.

## 6.1.1 MAIN CONFIGURATION MENU

LaserShare 4A will respond to the receiving of *Control-T* and capital C by sending to the laser printer an identification block and a menu of the configuration options available, similar to the following:

```
Bay Technical Associates, Inc.  
LaserShare 4A  
Configuration Menu  
Version 2. 01  
(C) Copyright 1990  
Total Memory : 0256K Bytes
```

```
Port 1 input inactivity time-out is...020  
Port 2 input inactivity time-out is...020  
Port 3 input inactivity time-out is...020  
Port 4 input inactivity time-out is...020
```

```
Port 1 form feed mode is.....0  
Port 2 form feed mode is.....0  
Port 3 form feed mode is.....0  
Port 4 form feed mode is.....0  
Press any key to continue
```

```
Header page message for port 1 (OFF)  
Print job for port 1
```

```
Header page message for port 2 (OFF)  
Print job for port 2
```

```
Header page message for port 3 (OFF)  
Print job for port 3
```

```
Header page message for port 4 (OFF)  
Print job for port 4  
Press any key to continue
```

```
Status.....1  
Set input inactivity time-out.....2  
Set form feed mode.....3  
Program header page message.....4  
Exit.....X
```

```
Enter request:
```

**NOTE:** Menu selection is case sensitive. It is recommended that your keyboard be in the CAPS LOCK position.

You may now make whatever changes are necessary by responding to the above series of menus. The *Exit* selection (send **CAPITAL X**) will return you to operations mode.

## 6.1.2 STATUS

By responding to the *Enter request:* prompt at the end of the main configuration menu with "1" (Status), LaserShare 4A will respond with a status menu. This menu contains the status of all the programmable features of LaserShare 4A.

LaserShare 4A will respond with a menu similar to:

```
Port 1 input inactivity time-out is...020
Port 2 input inactivity time-out is...020
Port 3 input inactivity time-out is...020
Port 4 input inactivity time-out is...020

Port 1 form feed mode is.....0
Port 2 form feed mode is.....0
Port 3 form feed mode is.....0
Port 4 form feed mode is.....0
Press any key to continue

Header page message for port 1 (OFF)
Print job for port 1

Header page message for port 2 (OFF)
Print job for port 2

Header page message for port 3 (OFF)
Print job for port 3

Header page message for port 4 (OFF)
Print job for port 4
Press any key to continue
```

You may now review the current configuration status of your LaserShare 4A to determine if there are any changes that are necessary for your particular application.

LaserShare 4A will now return to the main configuration menu (*See Section 6.1.1.*) after entering any key once the header page message status has been displayed.

### 6.1.3 SET INPUT INACTIVITY TIME-OUT

By responding to the *Enter Request*: prompt at the end of the main configuration menu with "2" (Set Input Inactivity Time-out), you may set the input inactivity time-out. LaserShare 4A will automatically disconnect the computer if no characters are received from the computer for the specified time-out period.

LaserShare 4A will respond with:

Enter port number(1-4):

You should then enter the port number of the device whose inactivity time-out you wish to change.

For example, if you enter "1", LaserShare 4A will respond with:

```
Inactivity timeout for Port 1
Current timeout is 020
Enter new timeout length(2-200):
```

You should now enter the time-out length that you desire, from 2 to 200 seconds. By entering just a carriage return, the time-out will remain the same as it was before.

**NOTE:** If you enter a time-out value *less than* 100 seconds, then you must follow your entry by a carriage return.

LaserShare 4A will save the new time-out value for the selected port permanently in non-volatile memory once you exit the configuration mode (see Section 6.1.6).

LaserShare 4A will now return to the main configuration menu (See Section 6.1.1.).

## 6.1.4 SET FORM FEED MODE

By responding to the *Enter Request:* prompt at the end of the main configuration menu with "3" (Set Form Feed Mode), you may select one of four form feed modes.

LaserShare 4A will respond with:

Enter port number(1-4):

You should then enter the port number of the device whose form feed option you wish to change.

LaserShare 4A will respond with:

```
0 = No form feed
1 = Form feed at end
2 = Form feed at beginning
3 = Form feed at beginning and end
```

Enter Request:

You should then enter the number corresponding to the form feed you want for the selected port.

LaserShare 4A will save the new form feed mode permanently in non-volatile memory once you exit the configuration mode (*See Section 6.1.6.*).

LaserShare 4A will now return to the main configuration menu (*See Section 6.1.1.*).

## 6.1.5 PROGRAM HEADER PAGE MESSAGE

By responding to the *Enter Request*: prompt at the end of the main configuration menu with "4" (Program Header Page Message), you may enable or disable this message and program its content.

LaserShare 4A will respond with:

```
Enter port number (1-4):
```

You should then enter the number of the port whose header page message you wish to program or enable or disable.

The LaserShare will respond with:

```
Enter Header Page Message  
(0 to 20 Chrs, Ctrl-C to terminate):
```

Enter the new message up to 20 characters followed by *Control-C*.

**NOTE:** The message will print exactly as it is placed on the CRT screen. The message may appear on one line or several lines. If several lines are desired, each line must be ended by *Carriage Return (Control-M)* and *Line Feed (Control-J)*.

If no change in the message is desired, send *Control-C* only, and the current message will be retained.

LaserShare 4A will respond with:

```
Print header Message? (Y/N)
```

If you enter "Y" (yes), the new header page message will be stored permanently in non-volatile memory after you exit the configuration mode and will print on all subsequent print jobs.

If you enter "N" (no), the header page message disabled and will not print. The new message, however, will be stored permanently in non-volatile memory after you exit the main configuration mode.

LaserShare 4A will now return to the main configuration menu (See *Section 6.1.1.*).

## **6.1.6 EXIT**

By responding to the *Enter Request:* prompt at the end of the main configuration menu with **CAPITAL X** (Exit), the LaserShare will return to the operation mode.

**NOTE:** Any changes made while in configuration mode will be stored permanently in non-volatile memory automatically once you exit configuration mode.

## 6.2 LASERSHARE 4C AND 4E CONFIGURATION

All configuration changes must be made through port 4, the configuration port.

**NOTE:** Before attempting to access the configuration mode of LaserShare, make sure the laser printer is powered on and in a ready mode. All ports on LaserShare must be inactive (i.e., the *FORM FEED* indicator on the HP LaserJet should not be illuminated and the *READY* indicator on the HP LaserJet should be illuminated, but not flashing).

To access the configuration mode of LaserShare 4C or LaserShare 4E, connect a dumb terminal (or a PC running a terminal emulation program) to the configuration port, port 4, which is preset at 9600 baud rate, 8 bit word size, 1 stop bit, no parity and XON/XOFF handshaking disabled.

If you do not have a dumb terminal or a terminal emulation program, BayTech supplies support software which includes instructions to put an IBM PC or compatible into a dumb terminal mode (See *Appendix B.*).

Make sure the keyboard of your computer is in the CAPS LOCK position. Send from the keyboard of the terminal or the PC *Control-T* followed by ASCII capital C. These characters will not appear on the CRT screen, but LaserShare will respond with the main configuration menu.

If the *FORM FEED* indicator on the laser printer illuminates when *Control-T* and ASCII capital C are sent, this indicates that an incorrect character sequence has been received. If this happens, wait for timeout to occur and then resend *Control-T* and ASCII capital C.

From this point on, configuration process of LaserShare 4C and LaserShare 4E will be accomplished via the menus described in the remainder of *Section 6.2.*

## 6.2.1 MAIN CONFIGURATION MENU

LaserShare will respond to the receiving of *Control-T* and capital C with an identification block and a menu of the configuration options available, similar to the following:

```
LaserShare 4C
Configuration Menu
Version 2. 01
(C) Copyright 1989, 1990
Bay Technical Associates, Inc.
Total Memory : 0256K Bytes

Status.....1
Set serial port configuration.....2
Set input inactivity time-out.....3
Set form feed mode.....4
Program header page message.....5
Exit.....X

Enter request:
```

**NOTE:** Menu selection is case sensitive. It is recommended that your keyboard be in the CAPS LOCK position.

You may now make whatever changes are necessary by responding to the above series of menus. The *Exit* selection (send **CAPITAL X**) will return you to operations mode.

## 6.2.2 STATUS

By responding to the *Enter request:* prompt at the end of the main configuration menu with "1" (Status), LaserShare will respond with a status menu. This menu contains the status of all the programmable features of LaserShare.

LaserShare will respond with a menu similar to:

```
Current computer port configuration
+-----+-----+-----+-----+-----+-----+
! Port ! Baud ! Word ! Stop !Parity!Xon/!
!      ! Rate ! Size ! Bits !      !Xoff!
+-----+-----+-----+-----+-----+-----+
!  1  ! 9600 !  8  !  1  ! None ! OFF!
!  2  ! 9600 !  8  !  1  ! None ! OFF!
!  3  ! 9600 !  8  !  1  ! None ! OFF!
!  4  ! 9600 !  8  !  1  ! None ! OFF!
+-----+-----+-----+-----+-----+-----+
Press any key to continue
```

```
Port 1 input inactivity time-out is...020
Port 2 input inactivity time-out is...020
Port 3 input inactivity time-out is...020
Port 4 input inactivity time-out is...020
```

```
Port 1 form feed mode is.....0
Port 2 form feed mode is.....0
Port 3 form feed mode is.....0
Port 4 form feed mode is.....0
Press any key to continue
```

```
Header page message for port 1 (OFF)
Print job for port 1
```

```
Header page message for port 2 (OFF)
Print job for port 2
```

```
Header page message for port 3 (OFF)
Print job for port 3
```

```
Header page message for port 4 (OFF)
Print job for port 4
Press any key to continue
```

You may now review the current configuration status of LaserShare to determine if there are any changes that are necessary for your particular application.

LaserShare will now return to the main configuration menu (See *Section 6.2.1.*) after entering any key once the header page message status has been displayed.

### 6.2.3 SET SERIAL PORT CONFIGURATION

By responding to the *Enter request:* prompt at the end of the main configuration menu with "2" (Set Serial Port Configuration), you may change the serial configuration of each port (i.e., baud rate, stop bits, and XON/XOFF). Each port may be configured individually from port 4.

The serial port configuration allows the user to mix-and-match computers of different configurations without the need to reconfigure the HP LaserJet (i.e., LaserShare will translate for devices using different configurations).

LaserShare will respond with:

Enter Port Number (1 to 4)

You should then enter the number of the port that you wish to reconfigure. For example, if you entered 2, LaserShare will respond with the current status of Port 2 and a menu of available options.

```
+-----+-----+-----+-----+-----+-----+
! Port ! Baud ! Word ! Stop !Parity!Xon/!
!      ! Rate ! Size ! Bits !      !Xoff!
+-----+-----+-----+-----+-----+-----+
!  2   ! 9600 !  8   !  1   ! None ! OFF!
+-----+-----+-----+-----+-----+-----+
Exit.....1      Set stop bits.....3
Set baud rate..2  Set Xon/Xoff.....4
```

Enter request:

You may now reconfigure port 2 by selecting the appropriate option (1 to 5) from the menu. For example, to change the baud rate to 2400 baud, select "2" (Set baud rate) at the *Enter request* prompt. LaserShare will respond with this menu:

```
1 = 19200
2 = 9600
3 = 4800
4 = 2400
5 = 1200
6 = 600
Enter request:
```

Select "4" for 2400 baud rate. LaserShare will respond with the reconfigured status of the port.

```
+-----+-----+-----+-----+-----+-----+
! Port ! Baud ! Word ! Stop !Parity!Xon/!
!      ! Rate ! Size ! Bits !      !Xoff!
+-----+-----+-----+-----+-----+-----+
!  2   ! 2400 !  8   !  1   ! None ! OFF!
+-----+-----+-----+-----+-----+-----+
Exit.....1   Set stop bits.....3
Set baud rate..2   Set Xon/Xoff.....4
```

```
Enter request:
```

If there are no other changes for this port, enter "1" (Exit) at the *Enter request* prompt to exit "*Set Serial Port Configuration*". LaserShare will return to the main configuration menu (See *Section 6.2.1.*).

**NOTE:** When changing the configuration of the configuration port, Port 4, LaserShare will respond with:

Change host device to match new configuration!

This reminds you to change the configuration of the host device *after* you exit from configuration mode (See *Section 6.2.7.*).

**CAUTION:** It is recommended that you write down any serial port parameter change made to the configuration port, Port 4, *before* the exiting configuration mode. This will serve as a reminder as to what changes you made to Port 4 while in configuration mode. This will prevent you from being

*locked out* of configuration mode in the event you forget what changes you made to the configuration port, Port 4.

**NOTE:** Changes in serial port configuration for any port on LaserShare *do not* take effect until you exit from configuration mode (See *Section 6.2.7*). After you exit from configuration mode, any changes made are automatically stored in non-volatile memory and LaserShare will subsequently power-up in the new configuration.

## 6.2.4 SET INPUT INACTIVITY TIME-OUT

By responding to the *Enter Request*: prompt at the end of the main configuration menu with "3" (Set Input Inactivity Time-out), you may set the input inactivity time-out. LaserShare will automatically disconnect the computer if no characters are received from the computer for the specified time-out period.

LaserShare will respond with:

Enter port number(1-4):

You should then enter the port number of the device whose inactivity time-out you wish to change.

For example, if you enter "1", LaserShare will respond with:

Inactivity time-out for Port 1  
Current time-out is 020  
Enter new time-out length(2-200):

You should now enter the time-out length that you desire, from 2 to 200 seconds. By entering just a carriage return, the time-out will remain the same as it was before.

**NOTE:** If you enter a time-out value *less than* 100 seconds, then you must follow your entry by a carriage return.

LaserShare will save the new time-out value for the selected port permanently in non-volatile memory once you exit the configuration mode (See *Section 6.2.7.*).

The LaserShare will now return to the main configuration menu (See *Section 6.2.1.*).

## **6.2.5 SET FORM FEED MODE**

By responding to the *Enter Request:* prompt at the end of the main configuration menu with "4" (Set Form Feed Mode), you may select one of four form feed modes.

LaserShare will respond with:

Enter port number(1-4):

You should then enter the port number of the device whose form feed option you wish to change.

LaserShare will respond with:

- 0 = No form feed
- 1 = Form feed at end
- 2 = Form feed at beginning
- 3 = Form feed at beginning and end

Enter Request:

You should then enter the number corresponding to the form feed you want for the selected port.

LaserShare will save the new form feed mode permanently in non-volatile memory once you exit the configuration mode (See *Section 6.2.7.*).

LaserShare will now return to the main configuration menu (See *Section 6.2.1.*).

## **6.2.6 PROGRAM HEADER PAGE MESSAGE**

By responding to the *Enter Request*: prompt at the end of the main configuration menu with "5" (Program Header Page Message), you may enable or disable this message and program its content.

LaserShare will respond with:

```
Enter port number (1-4):
```

You should then enter the number of the port whose header page message you wish to program or enable or disable.

LaserShare will respond with:

```
Enter Header Page Message  
(0 to 20 Chrs, Ctrl-C to terminate):
```

Enter the new message up to 20 characters followed by *Control-C*.

**NOTE:** The message will print exactly as it is placed on the CRT screen. The message may appear on one line or several lines. If several lines are desired, each line must be ended by *Carriage Return (Control-M)* and *Line Feed (Control-J)*.

If no change in the message is desired, send *Control-C* only, and the current message will be retained.

LaserShare will respond with:

```
Print header Message? (Y/N)
```

If you enter "Y" (yes), the new header page message will be stored permanently in non-volatile memory after you exit the configuration mode (See *Section 6.2.7.*) and will print on all subsequent print jobs.

If you enter "N" (no), the header page message disabled and will not print. The new message, however, will be stored permanently in non-volatile memory after you exit the main configuration mode (See *Section 6.2.7.*).

LaserShare will now return to the main configuration menu (See *Section 6.2.1.*).

## 6.2.7 EXIT

By responding to the *Enter Request:* prompt at the end of the main configuration menu with **CAPITAL X** (Exit), LaserShare will return to the operation mode.

**NOTE:** Any changes made while in configuration mode will be stored permanently in non-volatile memory automatically once you exit configuration mode.

## **7.0 MAINTENANCE**

Since there are no adjustments and moving parts on LaserShare, preventative maintenance is unnecessary.

If you find it necessary to return your LaserShare to the factory for warranty work or factory-set changes, follow the procedure listed in *Section 8.0* for Repackaging for Shipping.

Before you ship your unit, please call BayTech to get a Return Authorization number. BayTech cannot accept warranty or no-charge returns without this number (See *Section 9.0.*).

Ship your unit to the address listed in *Section 9.0.*

## **8.0 REPACKING FOR SHIPPING**

If you need to repack your unit for shipping, please choose a heavy cardboard box for packing. Surround your unit with sufficient insulation (a minimum of 2-inches) to withstand the rigors of transport. Be sure to seal the box securely with strapping or packing tape. Masking or cellophane tape is not recommended.

If you are returning your unit for warranty work or repair, please call BayTech to get a Return Authorization number (*See Section 9.0.*). BayTech cannot accept no-charge returns without this number.

## 9.0 TECHNICAL SUPPORT

In the event that you have problems or questions with your BayTech device, BayTech has a staff of applications engineers on duty to assist you from 7 a.m. to 6 p.m. (CST or CDT), Monday through Friday.

**IMPORTANT: Before you call BayTech Tech Support, please make sure you check the Troubleshooting section of the manual (See *Appendix E.*).**

When you call BayTech Tech Support, please have the following information available to help the applications engineer answer your questions more accurately and more quickly:

1. Identify which LaserShare you are using and have the serial number handy.
2. Identify what computers you have connected to the LaserShare.
3. Identify any special equipment you are using (for example, in-line spoolers, networks, software drivers, etc.).
4. Identify the pinout and the lengths of the cables you are using.
5. Identify the software packages you are using.
6. If possible, have a print-out of the LaserShare's configuration status.

**IMPORTANT: Always call BayTech before dismantling your equipment. Always call BayTech before returning the LaserShare to BayTech for repair.**

If you have questions that are not answered in this manual, please contact BayTech Technical Support for assistance.

**Bay Technical Associates, Inc.**  
**200 N. Second Street, P.O. Box 387**  
**Bay Saint Louis, Mississippi 39520 U.S.A.**

**Phone: 228/467-8231 or**  
**800/523-2702 (outside Mississippi)**  
**FAX: 228/467-4551**  
**Web Page: [WWW.BAYTECHDCD.COM](http://WWW.BAYTECHDCD.COM)**

## **10.0 FEDERAL COMMUNICATIONS COMMISSION RADIO FREQUENCY INTERFACE STATEMENT\***

This equipment generates and uses 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 and television reception. The equipment has been type-tested and found to comply within 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 in a business environment. However, there is no guarantee that interference to radio or television reception 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 off and on, the user is encouraged to try to correct the interference by one or more of the following measures.

1. Reorient the receiving antenna.
2. Relocate the computer equipment with respect to the receiver.
3. Move the computer away from the receiver.
4. Plug the computer into a different outlet so that computer and receiver are on different branch circuits.

If necessary, the user should consult the dealer or an experienced radio/television technician for additional suggestions.

The Federal Communications Commission has prepared a booklet entitled "How to Identify and Resolve Radio - TV Interference Problems" which may be helpful to you. This booklet (stock #004- 000-00345-4) may be purchased from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

\*Use of a shielded interface cable is required to comply within the Class A limits in Subpart J of Part 15 of FCC rules.

## **APPENDIX A**

### **RECOMMENDED CABLING**

#### **A.1 CABLING TO LASERSHARE DTE IBM PC, IBM PC/XT OR IBM PS/2**

**RECOMMENDED CABLING USING HARDWARE  
OR XON/XOFF HANDSHAKING**

**MINIMUM CABLING USING XON/XOFF HANDSHAKING**

# MINIMUM CABLING USING HARDWARE HANDSHAKING

**A.2 LASERSHARE DTE AND  
IBM PC/AT**

**RECOMMENDED CABLING USING  
HARDWARE OR XON/XOFF HANDSHAKING**

**MINIMUM CABLING USING XON/XOFF HANDSHAKING**

**MINIMUM CABLING USING HARDWARE HANDSHAKING**

## **A.3**

## **LASERSHARE AND PARALLEL IBM PC**

## APPENDIX B

### INSTRUCTIONS FOR USE OF LASERSHARE SUPPORT SOFTWARE

(For use with IBM-DOS or MS-DOS on IBM PC, IBM PC/AT, IBM PC/XT and compatibles. In this appendix, the term "PC" refers to any of these computers or their compatibles.)

The diskette supplied by BayTech contains five programs. They are README, TERM, SETUP, RAMEXEC and PARSEND.

LaserShare 4C and LaserShare 4E use only the TERM program. LaserShare 4A uses only the PARSEND program.

**IMPORTANT:** Copy the supplied master utility diskette onto a blank diskette, and store the original in a safe place. Read your operating systems manual for copying instructions.

The README program contains instructions for the latest version of BayTech Print Master support software. Since BayTech is constantly upgrading this software it may differ slightly from the information contained in this manual.

To access README at the system prompt enter TYPE README. The README program will appear on your CRT screen. If you wish to print a copy of the README program, enter COPY README LPT1:. Your PC will scroll through the following information except that the subheadings **B.1, B.2, etc.**, will not appear as part of the README file on your PC's screen as shown in this manual.

## B.1 TERMINAL EMULATION PROGRAM (TERM)

**NOTE:** For use with IBM-DOS or MS-DOS on IBM PC, AT, XT and compatibles. The TERM program is used with LaserShare 4C and LaserShare 4E only.

The TERM program is supplied only as an aid for initial setup of the LaserShare 4C and LaserShare 4E and is not used in operations. This short program simply allows a PC to emulate a dumb terminal (in the event that you do not have your own terminal emulation software), thus allowing you to communicate with the configuration mode of the LaserShare. Once setup has been completed, this program is no longer used or needed unless further configuration changes of the unit are required at a later date.

### TERMINAL EMULATION INSTRUCTIONS

Connect a cable between the COMX port of the PC (X = 1 or 2) and Port 4, the configuration port of the LaserShare. For pinout and recommended cabling, see figure below.

LaserShare	PC
MALE DB-25	FEMALE DB-25
2 TXD	RXD 3
3 RXD	TXD 2
4 RTS	DSR 6
5 CTS	DTR 20
6 DSR	RTS 4
7 SGND	SGND 7
20 DTR	CTS 5

Load DOS into system. Place the BayTech software diskette into a disk drive. Type TERM and depress the Enter key.

The program will respond with an identification block and then a configuration menu for the PC COM port (Refer to Figure B.1 on page 44.). You are now in the dumb terminal mode.

## Figure B.1: TERM Configuration Menu

**NOTE:** LaserShare 4C and LaserShare 4E power up from the factory at 9600 baud rate, 8 word size, 1 stop bit, no parity and XON/XOFF disabled. If the PC COM port does not match this configuration, you may reconfigure the COM port by entering Alt-C and following the menu. This will set the port to match the baud rates, word size, stop bits, parity and handshaking of LaserShare. COM1 or COM2 may be selected. If no COM2 card is installed, the terminal emulation program will prevent you from selecting COM2. Once configuration of the PC COM port is complete, depress the Enter key, and you will return to the dumb terminal mode.

Handshaking lines - RTS, CTS, DSR, DTR - between the PC and LaserShare should be high. (Refer to upper right hand corner of the CRT for interface line status.) If these signals are not high at this point, check the cable. The DCD line is not looked at by the terminal emulation program.

You are now in a dumb terminal or terminal emulation mode with full duplex communication. Any characters you type from the keyboard will be transmitted out of the PC COM port to LaserShare. They will not appear on the CRT screen.

Any characters received by the PC COM port from LaserShare will be displayed on the CRT screen.

You may now reconfigure LaserShare from the keyboard of the PC. This is accomplished by sending Control-T followed by capital C.

**NOTE:** Depressing the F1 key will automatically send this two-character sequence to the LaserShare. Control-T and Capital C will not appear on the CRT screen, but LaserShare will respond with a configuration menu.

Please refer to *Section 6.0* for LaserShare configuration information and instructions.

## **B.2 PARALLEL TERMINAL EMULATION PROGRAM (PARSEND)**

(For use with IBM-DOS or MS-DOS on IBM PC, AT, XT and compatibles.)

**IMPORTANT NOTE:** The PARSEND program is supplied only as an aid for initial setup of LaserShare 4A and is not used in operations.

Connect a computer such as an IBM PC or compatible to Port 4 of LaserShare 4A.

Since configuration must be performed through a parallel port and since communication is only one-way, configuration menus must be sent to the laser printer.

All configuration changes must be made through the computer connected to Port 4. The computer must be in a mode that allows characters to be sent from the keyboard to the parallel port. There are two methods of accomplishing this for an IBM PC or compatible - one for use with MS DOS (See *Section B.2.1.*) and one for MS BASIC (See *Section B.2.2.*).

## B.2.1 METHOD FOR USE WITH MS DOS

Load the MS DOS program.

Load the support software diskette supplied by BayTech.

Type PARSEND in response to system prompt.

You are now in a mode where anything typed from the keyboard will go through the parallel port of the PC.

The program will respond with:

```
+-----+
|               |
|           BayTech           |
|               |
|   Print Master command <.>   |
|   Hit <F10> to exit          |
|               |
+-----+
```

Send from the keyboard Control-T followed by capital ASCII C. This will be echoed on the CRT screen one character at a time. The configuration mode of LaserShare 4A is now accessed. Configuration menus and responses to entries will be sent to the printer.

When configuration is complete, depress F10 function key, and you will be returned to DOS system prompt.

## B.2.2 METHOD FOR USE WITH MS BASIC

Load the MS BASIC program. Then enter this program:

```
10 A$=INKEY$:IF A$="" THEN 10
20 IF A$="!" THEN SYSTEM
30 LPRINT A$;:GOTO 10
```

Then type RUN. You are now in a mode where anything typed from the keyboard will go through the parallel port of the PC. There is no prompt from the program.

Send from the keyboard Control-T followed by ASCII capital C. The configuration mode of LaserShare 4A is now accessed. Configuration menus and responses to entries will be sent to the laser printer.

When configuration is complete, type "!" and you will be returned to MS DOS system prompt.

## APPENDIX C

### LASERSHARE EPROM UPGRADE

1. The materials you will receive with your upgrade kit are:
  - One EPROM (IC chip with label)The materials you will need to supply are:
  - Phillips-head screwdriver
  - IC DIP extractor or a pair of curved needle-nose pliers
  
2. **IMPORTANT: Make sure that the laser printer is powered off and unplugged.**
  
3. Remove LaserShare by first removing the supplied mounting screws and then slide the unit out carefully. This is the reverse of the procedure described in steps 6 and 7 in Section 3.3 on page 6 (Installing the LaserShare).
  
4. When installing the new EPROM, be careful not to bend any of the pins. Also make sure all pins fit their sockets.
  
5. Refer to the LaserShare Main Board Mechanical Layout (*Appendix D*) on page 49. Locate socket U-19.
  
6. Remove the existing EPROM from socket U-19 with IC extractor or needle-nose pliers. Gradually loosen each side of the chip, alternating from side to side, so as not to bend chip pins. Pull loosened EPROM all the way out.
  
7. Install the new EPROM with the notch of the EPROM facing as shown in Appendix D.
  
8. Install LaserShare back into the laser printer as described in Section 3.3 on page 6.

9. Power up the laser printer. The EPROM upgrade is now complete.

## **APPENDIX D**

### **MAIN BOARD MECHANICAL LAYOUT**

## **APPENDIX E**

### **TROUBLESHOOTING**

Please check this troubleshooting guide before calling BayTech Applications Engineering for Technical Support.

**NOTE:** When the LaserShare is properly installed and the laser printer is powered up, the laser printer will first do its self-test. Then the LaserShare will do a short self-test. When the LaserShare successfully completes its self-test, the laser printer will illuminate the FORM FEED LED on the front panel for about one second.

#### **PROBLEM: DATA DOES NOT PRINT**

**NOTE:** The form feed light on the LaserJet will light whenever there is page data stored in the printer's memory. Observe the status of the form feed light if the above problem occurs.

#### **SYMPTOM: FORM FEED LIGHT ON LASERJET DOES NOT FLASH OR ILLUMINATE**

POSSIBLE CAUSE: PC serial cable.

SOLUTION:

1. Check cable connection between PC and LaserShare. The cable connection can be quickly tested by using the supplied TERM program. With TERM loaded and the appropriate COM port selected, all handshake lines in upper right hand corner of the TERM screen should be "Hi". If you turn off power to the LaserJet, you will notice CTS and DSR toggle to "Lo". If these lines do not toggle, then check the PC cable pin out (see Appendix A). The transmit and receive lines of the PC cable can be checked by attempting to access configuration on the host port. If you get the main configuration menu and the handshake lines toggle as described above, then your cable is probably good.

2. Check installation procedures for your PC's serial port. COM1 must generate an interrupt on IRQ4 (COM2 on IRQ3). Also check any jumpers for defining port configuration which should be jumpered for DTE, not DCE.

POSSIBLE CAUSE: LPTX not rerouted to COMX port for PC serial communication.

SOLUTION: Reroute LPTX from the DOS prompt as follows.

```
C>MODE LPTX:=COMX: (X = 1, 2 or 3).
```

POSSIBLE CAUSE: LaserShare in configuration mode.

SOLUTION: Exit configuration mode or recycle power on LaserJet.

POSSIBLE CAUSE: LaserJet is off-line.

SOLUTION: Make sure LaserJet is on-line.

### **SYMPTOM: FORM FEED KEY ON LASERJET DOES FLASH OR ILLUMINATE**

POSSIBLE CAUSE: LaserShare's input port does not match the configuration of the PC, i.e. baud rate, word size, stop bits and parity.

SOLUTION: Make sure both device's serial port configurations match by either changing LaserShare's serial configuration or your PC's serial configuration.

POSSIBLE CAUSE: LaserJet's one-page buffer not filled (Form Feed LED will be lit).

SOLUTION: Either turn the LaserJet off-line and do a manual form feed or enable one of the form feed modes of the LaserShare.

## **PROBLEM: PRINTER PRINTS GARBAGE**

### **SYMPTOM: MISSING CHARACTERS**

POSSIBLE CAUSE: Handshaking between PC and LaserShare.

SOLUTION:

1. If using hardware handshaking, check the PC's cable with the supplied TERM program. Load TERM into the PC as described in *Appendix B*. Select the appropriate COM port using the ALT-C and arrow key combinations. Check the handshake lines in the upper right hand corner of the computer screen. The relevant handshake lines are CTS and DSR. These lines should indicate "Hi" with power applied to the LaserJet. If these lines are "Hi", then power down the LaserJet. DSR and CTS will toggle to "Lo". If either of these lines remain "Hi", then verify your PC's serial cable by comparing the actual pin out of your cable with the recommended cabling pinout given in Appendix A.

2. If using XON/XOFF handshaking, make sure that XON/XOFF is enabled on the appropriate port in LaserShare's configuration. Also be sure that the software package being used supports XON/XOFF.

**NOTE:** Keep in mind that IBM DOS does not support XON/XOFF. So if using the minimum cabling recommendation in Appendix A for XON/XOFF handshaking and printing from DOS, it is quite possible that characters will be lost.

POSSIBLE CAUSE: Serial cable length.

SOLUTION: If the interconnecting serial cable is longer than 150 feet, use a shorter cable or a slower baud rate.

**SYMPTOM: RANDOM GARBAGE CHARACTERS**

POSSIBLE CAUSE: Mismatch in serial port configuration.

SOLUTION: Make sure that the PC's serial port configuration and that of the LaserShare match exactly (i.e., baud rate, word size, stop bits and parity).

POSSIBLE CAUSE: Serial cable length.

SOLUTION: If the interconnecting serial cable is longer than 150 feet, use a shorter cable or a slower baud rate.

**PROBLEM: PRINT JOBS INTERMIX**

**SYMPTOM: PORTIONS OF TWO OR MORE PRINT JOBS PRINT ON THE SAME PAGE**

**NOTE:** LaserShare uses inactivity time-out to determine the end of a print job. If your application program happens to delay sending information to the LaserShare longer than the inactivity time-out period, then LaserShare will disconnect the user from the LaserJet and connect the next user in the buffer queue.

POSSIBLE CAUSE: Time-out period is too short.

SOLUTION: Increase the time-out period via the configuration mode.

**PROBLEM: CANNOT CONFIGURE LASERSHARE**

**SYMPTOM: CONTROL-T CAPITAL C SEQUENCE DOES NOT INVOKE CONFIGURATION MENUS**

POSSIBLE CAUSE: Cable.

SOLUTION: Use the correct serial cable between the PC and LaserShare (See *Appendix A.*). Check handshake lines with the TERM program (See *Appendix B.*).

POSSIBLE CAUSE: Port configuration mismatch.

SOLUTION: Match baud rate, word size, stop bits and parity between LaserShare and the host PC. This can be done using ALT-C and the arrow keys from the TERM program.

POSSIBLE CAUSE: PC not connected to host port.

SOLUTION: Make sure that the PC being used for configuring LaserShare is connected to port 4 of LaserShare.

POSSIBLE CAUSE: User activity.

SOLUTION: Wait until current activity between PC and printer is completed.

POSSIBLE CAUSE: Bad PC COM port.

SOLUTION: Try different COM port or PC.

POSSIBLE CAUSE: PC serial card using IRQ3 instead of IRQ4 on COM1 (or IRQ4 instead of IRQ3 on COM2).

SOLUTION: Reconfigure serial card, use different serial card or different terminal emulation program.

# **APPENDIX F**

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## OTHER PRODUCTS

We also manufacture other Data Communications sharing devices.

**Print Master** printer controllers are made in several different configurations satisfying various interface requirements. Each unit allow computers to share, select and/or contend for printers easily and economically, without switching cables. The internal buffering system allows simultaneous, high-speed input from all connected computers and output to all printers. Models come in six, eight, and ten port sizes. All have a 1.0 MB, dynamically allocated buffer and may be expanded to two megabytes.

**Print Master II** is a smart controller that connects between your computers, printers, plotters, modems and other peripherals. It allows any of your computers to access any of your peripherals -- and *talk* to other computers so files can be transferred and data shared. Plus, a built-in buffer spools output data until your peripherals can receive it, freeing your computers to go on to other tasks. Models come in four, eight, and ten port sizes with a standard buffer size of 256 KB. Eight and ten port models have an expandable buffer up 1.2 MB.

**Model 24 Data Exchange System** is a state of the art computer peripheral sharing device that can be expanded from 4 to 24 ports using 4 port modules. Any port can be configured as a input or output port. The standard 512 KB buffer can be increased to 4.5 MB by user installed memory chips. Plus, using popular communications software, this unit allow for computer to computer high speed data transfer.

**"H" Series Multiport Controllers** are stand-alone units that connect between one host computer and up to 23 peripheral devices. These models are often used in industrial process- control environments, e.g., for allowing control of multiple numerical or assembly-line machines, in exchanging data between point-of-sale devices, or for operating a number of laboratory instruments or business machines from a central computer. They are especially effective in adapting small low-cost personal computers, to these applications. Each unit may be easily configured to your application. The **500 H** series units come in 5, 9, and 18 port models. The **Model 24H** unit is expandable from 4 to 24 ports in 4-port modular increments.

**Model TX104M** is an asynchronous statistical multiplexer with built-in modem. Four individual communications channels are multiplexed into a single dial-up or leased telephone line, cutting phone line costs to a minimum. The TX104M features a V.22 bis internal modem which provides reliable communication at speeds up to 4800 bps. With MNP Classes 2-4, the TX104M provides error correction and Class 5 data compression. Compatible with most computers, printers, or peripherals, the TX104M ensures rapid throughput, and offers a variety of user-programmable features in order to meet your specific application requirements.

**Model TX108M** is an asynchronous statistical multiplexer with built-in modem. Eight individual communications channels are multiplexed into a single dial-up or leased telephone line, cutting phone line costs to a minimum. The TX108M features a V.32 internal modem with data compression, providing reliable communication at speeds up to 9600 bps. Compatible with most computers printers, or peripherals, the TX108M ensures rapid throughput and offers a variety of user-programmable features in order to meet your specific applications requirements.

**Models TX104 and TX108** are asynchronous statistical multiplexers which multiplex and demultiplex four or eight communications channels over a single telephone line via external modems or over a single cable. Programmable features include baud rate, word size, stop bits, XON/XOFF handshaking, hardware handshaking, power-up dialing string to be sent to an external modem, and a user-programmable string to be sent to an external modem. These units must be purchased in pairs.

The **BX9600** is an external synchronous/asynchronous 9600 bps modem. The BX9600 features V.32 full duplex communication, automatic or manual dialing and answering, call progress detection of dial tones and busy signals, pulse or tone dialing, and a variety of other convenient features. The BX 9600 interfaces easily to statistical multiplexers and other peripheral sharing devices to allow multiple users to share the modem. And its MNP Class 4 error correction ensures that the BX9600 provides accurate transmission.

The **BX2448** is a V.22 bis external modem which uses deal-up or leased telephone lines and comes equipped with many advantageous features, such as MNP Class 5 data compression, which enables data transmission at speeds to 4800 bps and, MNP Classes 2 - 4 error correction. A wide selection of user-programmable features allows you to customize the modem to your own individual application situation.

500 SERIES MULTIPOINT CONTROLLERS

Also included in the **500 Series** line of multipoint controllers are units intended for the following applications:

**Single Port Contention (DQ-Series):** Allows up to 17 terminals to contend for a single port on a computer system.

**Multiple Port Contention (B-Series):** Allows either 6, 8 or 12 terminals to contend for either 3, 4 or 6 computer ports respectively.

**Auto T-Switch (T-Series):** Allows a group of up to 6 terminals to switch between two computer systems.

**NOTE:** All ports on the **500 Series** are standard with EIA-232 ports. EIA-422A and Current Loop ports are optionally available.

**NOTES:**

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