

USER MANUAL

MODEL 2127 PeNet™ Miniature 10BaseFL to Parallel Print Server



PE PATTON
Electronics Co.

07M2127-A
Doc# 081031UA
Revised 8/7/96

SALES OFFICE
(301) 975-1000
TECHNICAL SUPPORT
(301) 975-1007

Table of Contents

1.0 WARRANTY INFORMATION	2
Radio and TV Interference	2
Service	2
2.0 GENERAL INFORMATION.....	3
Features	3
Description	3
3.0 INSTALLATION	4
Checking the Supplied Parts	4
Connecting to the Printer	4
Physical Connection and Operation	4
Installing UCONNECT.....	6
Using PCONSOLE	7
UCONNECT Commands	9
4.0 NOVELL OPERATION.....	10
Locating the Print Server on the Novell Network	10
Configuration using UCONNECT	14
Testing with UCONNECT	18
Printing within Novell.....	19
Upgrading within Novell	19
Troubleshooting within Novell	20
5.0 TCP/IP OPERATION.....	22
Locating the Print Server on the TCP/IP Network	22
Configuration within TCP/IP	23
Printing within TCP/IP	25
Upgrading within TCP/IP	27
Troubleshooting within TCP/IP	28
APPENDIX A - Specifications.....	29
APPENDIX B - Interface Connections	30

1.0 WARRANTY INFORMATION

Patton Electronics warrants all Model 2127 components to be free from defects, and will—at our option—repair or replace the product should it fail within one year from the first date of shipment.

This warranty is limited to defects in workmanship or materials, and does not cover customer damage, abuse or unauthorized modification. If this product fails or does not perform as warranted, your sole recourse shall be repair or replacement as described above. Under no condition shall **Patton Electronics** be liable for any damages incurred by the use of this product. These damages include, but are not limited to, the following: lost profits, lost savings and incidental or consequential damages arising from the use of or inability to use this product. **Patton Electronics** specifically disclaims all other warranties, expressed or implied, and the installation or use of this product shall be deemed an acceptance of these terms by the user.

1.1 Radio and TV Interference

The Model 2127 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 Model 2127 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 from such interference in a commercial installation. However, there is no guarantee that interference will not occur in a particular installation. If the Model 2127 does cause interference to radio or television reception, which can be determined by disconnecting the Centronics cable or twisted pair cable, the user is encouraged to try to correct the interference by one or more of the following measures: moving the computing equipment away from the receiver, re-orienting the receiving antenna and/or plugging the receiving equipment into a different AC outlet (such that the computing equipment and receiver are on different branches).

1.2 Service

All warranty and non-warranty repairs must be returned freight prepaid and insured to Patton Electronics. All returns must have a Return Materials Authorization number on the outside of the shipping container. This number may be obtained from Patton Electronics Technical Service at **(301) 975-1007**. *Packages received without an RMA number will not be accepted.*

Patton Electronics' technical staff is also available to answer any questions that might arise concerning the installation or use of your Model 2127. Hours: **8AM to 5PM EST, Monday through Friday.**

2.0 GENERAL INFORMATION

Thank you for your purchase of this Patton Electronics product. This product has been thoroughly inspected and tested and is warranted for One Year parts and labor. If any questions or problems arise during installation or use of this product, please do not hesitate to contact Patton Electronics Technical Support at (301) 975-1007.

2.1 Features

- Concurrent Novell (Versions 2.x, 3.x and 4.x) and TCP/IP support
- 802.2 and 802.3 compatible (works with Ethernet II, Ethernet SNAP frames)
- LEDs monitor Power and Link Status
- Installation and diagnostic utility tools supplied with units
- Supports the full range of Novell notify options
- Supports LPQ for Unix print queue examination
- Can Logon to up to ten (10) file servers
- Automatically detects and reconnects to "downed" file servers (Auto-relog)
- Configured using Novell compatible utility or via Telnet session
- Novell operation can be disabled for TCP/IP only sites
- Printing at 60 Kbytes per second
- Software upgrades performed by network via FLASH EPROM.

2.2 Description

The Patton Model 2127 PeNet™ Print Server supports multi-protocol printing in both Novell and TCP/IP LANs, and is fully compliant to the ANSI/IEEE 802.2 and 802.3 Standards. Able to recognize up to 250 servers, the Model 2127 can simultaneously logon to ten of them. If the network moves and changes frequently, the Model 2127 can also be configured to continuously scan and log on to new servers.

In case of power loss, the Model 2127 can restore connection to servers that are downed. It also supports all the Novell printing and print server features. The PeNet™ supports print speeds greater than 60,000 bytes per second. Configuration is accomplished using a Novell compatible utility. (For TCP/IP environments, configuration is accomplished via Telnet sessions.) FLASH EPROM allows upgrades to be done efficiently through the network.

3.0 INSTALLATION

The PeNet™ Print Server is easily installed on a Novell and/or TCP/IP network using standard Twisted Pair cabling. The following section of this manual describes the installation procedure required. It is highly recommended that you follow the instructions provided to ensure a simple and trouble free installation. Note: Please read the file named "readme.doc" on the enclosed 3.5" hard diskette.

3.1 Checking The Supplied Parts

Unpack the unit and check that the following items have been supplied:

1. PeNet™ Print Server
2. 5v DC wall mount power adapter
3. This Manual
4. Software utilities diskette (contains UCONNECT utility)

If any of these items are missing, then contact your supplier immediately.

3.2 Physical Connection and Operation

The PeNet™ Print Server is straightforward to connect and operate. As Figure 1(below) illustrates, the rear panel of the Print Server incorporates an external power supply connection, two ST-type fiber connectors, a Link Status LED and a Power LED. (The Centronics connector on the front of the Print Server plugs directly into a standard parallel printer port.)

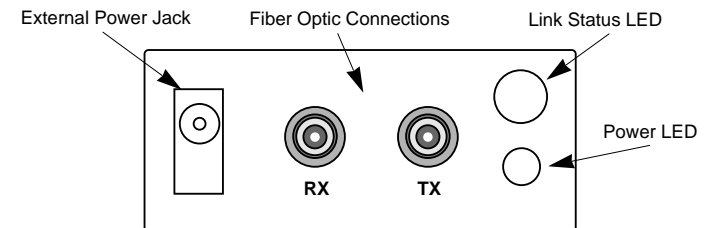


Figure 1. Print Server Rear Panel

(Continued)

Follow the steps below to connect the Print Server to the printer and network (the order is not critical):

1. Connect the required network cable (10BaseT) to the modular connector on the Print Server (The Link Status LED will not glow until power has been applied to the Print Server.)
2. Plug the power supply adapter into the jack on the rear of the Print Server and then into a (surge protected) AC wall outlet.

Note: Some printers are able to supply 5 V DC (TTL Spec.) on pin 18 of the Centronics connector. If your printer is one of these, you may not need the AC power adapter.

When sufficient power is applied to the Print Server (external or interface power), the Power LED will glow and the Print Server will boot up. The Link Status LED should also glow, since you have presumably accomplished Step 1 already.

3. Immediately after performing steps 1 & 2, connect the Print Server directly to the parallel port of the printer and turn the printer ON (if it is not already ON)

Approximately 15 - 30 seconds after booting up, the Print Server will spool a status page to the Centronics port. If you have connected the Print Server to the printer and turned the printer ON within that time frame, the status page should print. The status page shows the unit's current operating parameters and proves that a good printer connection exists.

What if a status page does not print after 15 - 30 seconds?

a) If you did not connect to (and turn ON) the printer right away, it is possible that the Print Server spooled a status page *before* the printer could respond. Disconnect and reconnect power to the Print Server. This will reboot the print server and spool another status page.

b) Is your printer set up for **Postscript**? If so, this will interfere with the *default* set-up of the Print Server. The status page may be garbled or may not print at all. See Section 4.8 on General Troubleshooting.

c) If your printer has a large buffer, the printing of the status page may depend on the timeout setting within your printer. It may take a few minutes for a large print buffer to timeout and print.

STOP! If you are connecting the Print Server to a TCP/IP network that is *not* Novell based, go immediately to **Section 5.0 TCP/IP Operation**. If you are connecting the Print Server to a Novell network, or to a Novell network running TCP/IP, continue on to Sections 3.4 and 4.0.

3.3 Installing UCONNECT on a Workstation

UCONNECT is the configuration utility that is supplied with the Print Server. UCONNECT allows the Print Server to be installed on a Novell network, and will run on any Novell compatible workstation. (Note: Both Novell and TCP/IP parameters can be configured using UCONNECT. However, you cannot run a TCP/IP session in UCONNECT. See Section 5.0 for more information.)

UCONNECT is supplied on a PC-DOS diskette. For your convenience, we recommend that you copy the utility (file name UCONNECT.EXE) to your workstation hard drive. The transaction might look something like this:

```
MD C:\UCONNECT
```

```
(insert diskette into drive A)
```

```
COPY A:\*.* C:\UCONNECT
```

Once the utility program has been copied to the hard drive, type UCONNECT at the DOS prompt and press [ENTER] to execute the utility.

(Continued)

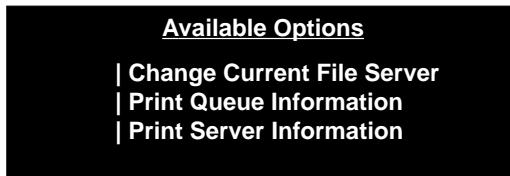
Stop! Before running UCONNECT, check the following Novell operating system parameters. If you are unfamiliar with any of them, consult your Novell manual or contact your Novell Administrator.

- 1) Check that 'Allow Unencrypted Passwords' has been set to ON
- 2) Ensure that the unit's Name and Password are as allocated in PCONSOLE
- 3) Check that there is a connection available for the Print Server (use Monitor on the Server Console)
- 4) If Selective Login is enabled, ensure correct File Server name(s) have been entered
- 5) Check that Novell Mode is not disabled

3.4 Using PCONSOLE

PCONSOLE is a Novell supplied utility for setting up Print Queues and Print Servers. Before it is possible to print using the Print Server unit, it will be necessary to use PCONSOLE to inform Novell of the presence of a new Print Server and to create/attach print queues to this Print Server. You will require Supervisor privileges to create a new Print Server and Queue.

Run PCONSOLE from the command prompt on a workstation and the following screen will appear:



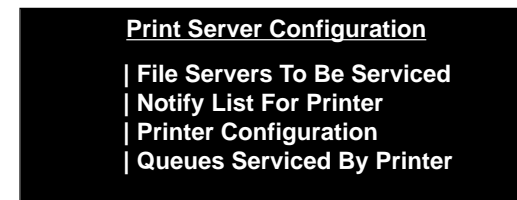
From the Available Options Menu select Print Server Information. This will display a list of currently available Print Servers. Press the INSERT key and enter the name you allocated to the PeNet™ Print Server unit (Units LOGIN Name) within the configuration procedure explained earlier. Press ENTER to inform Novell of the newly installed device. Once this new Print Server is displayed in the list of available Print Servers, select it by hi-lighting it using the cursor keys and then

pressing enter. It is now possible to enter further details about the device in question. For full details of the various options available, refer to the relevant Novell manual.

The available option fields now displayed are as follows:

- Change Password The password allocated within the configuration utility (Units PASSWORD) must be entered here.
- Full Name This field is optional. A more descriptive unit name may be entered here if required.
- Print Server Configuration This option allows more specific configuration information to be entered. See the next section for further details.
- Print Server ID displays the units Network identification.
- Operators / Users These two sections allow a list of permitted operators and users to be assigned to the interface.
- Status / Control This section displays the current status of the Print Server and allows control over the current state of the individual printers.

Selecting this option will produce the following screen:



(continued)

4.0 NOVELL OPERATION

The following briefly explains the functions of the options listed on the previous page:

- **File Servers to be Serviced** This option allows the user to specify which File Servers the Print Server will search for its queues etc.
- **Notify List for Printer** This option may be used to specify which users will be notified of Printer Problems (paper jams etc.) if and when they occur.
- **Printer Configuration** This option is used to configure printer connected to the PeNet™ Print Server. The printer must be defined as Parallel LPT1 (parallel port 1).
- **Queues Serviced by Printer** It is possible to specify which queues the connected printer will service. Up to 16 queues may be specified for each print server.

If necessary, create a new queue by selecting Print Queue Information from the Available Options menu, and use INSERT to create new print queues to be served by PeNet™ Print Server.

A test file can be printed while in PCONSOLE using the *Current Job Entries* option in the Print Queue Information menu. Press INSERT and then ENTER to obtain a list of files to print.

3.5 UCONNECT Commands

Once the UCONNECT utility has been copied to the hard drive, type UCONNECT at the DOS prompt and press [ENTER] to execute the program.

UCONNECT is a menu driven program. To work within the menus, use the **arrow keys** to scroll up and down between menu items. The **[esc] key** is a toggle switch used to select and deselect menu items to be edited. The **[ENTER] key** is used to update the file and move to another menu screen. Some screens have slightly different commands. These are noted on the screen itself.

This section tells how to use the Print Server with a Novell network. Functions described include locating the Print Server on the network, configuration, testing, printing, and FLASH EPROM upgrading. For instructions on use of the Print Server within a TCP/IP network that is *not* Novell based, please refer to Section 5.0.

Note: the appearance of many of the screens will vary based upon the configuration of your particular network. The network component names show are examples only.

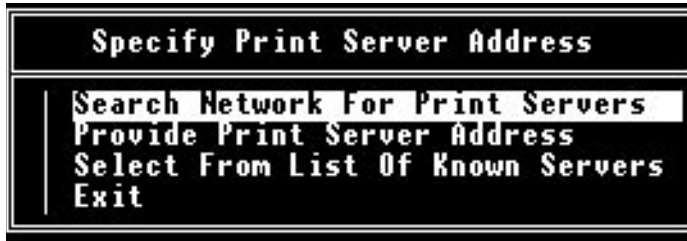
4.1 Locating the Print Server on the Network

The Print Server has a unique NIC Address that has been provided by Patton Electronics with the approval of the ISO council (this NIC Address has been marked on a label on the underside of the unit). Before the Print Server can be configured, operated, tested or upgraded, it must be located and recognized by the network. Using the UCONNECT utility, follow these steps to locate the print server:

- 1) Having completed the instructions in Section 3.0, you should see the Main Menu screen.



- 2) Select "Configuration" and press [ENTER]. This will take you to the Specify Print Server Address screen (following page).



3) In the Specify Print Server Address Screen, select “Search Network for Print Servers” and press [ENTER]. This will take you to the Selected Networks screen.



4) The Selected Networks screen allows you to choose the networks you want UCONNECT to search in order to locate the Print Server. Use the arrow keys to scroll between lines. Use the [esc] key to select and deselect networks. Press [ENTER] to update the file with your selections and go to the Select Required Search Method screen.



5) The Select Required Search Method screen allows you to specify the search path(s) that UCONNECT takes in order to locate the Print Server. The first option will route the search through the file sever your workstation is connected to. This will limit the search. The second option will search all selected networks in a “broadcast” manner. (The default is *both* methods.) Use the arrow keys to scroll between lines. Use the [esc] key to select and deselect search methods. Press [ENTER] to update the file with your selections and go to the next screen.

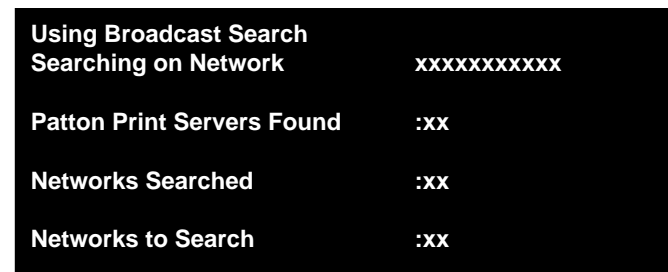


6) The Start Scan for Print Servers screen allows you to initiate the scan based upon the criteria you have chosen. Select an option using [ENTER]. Choosing “yes” will begin the search. Choosing “no” will take you back to the Main Menu.

Once your search has begun, UCONNECT will provide you with screens updating you on the progress of the search. If you have chosen to search through the local file server, you will see a display-only screen that looks like the image below:



If you have chosen the broadcast search option, you will then see a display-only screen that looks like the following image:



(continued)

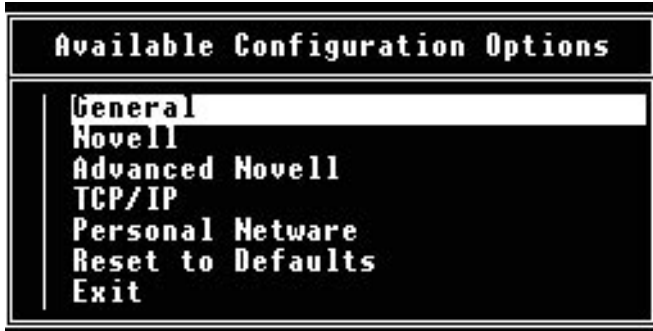
7) When the search is complete, you will see a list of the Print Servers UCONNECT has located on the Available Print Servers screen (see below). Use the arrow keys to scroll between listed servers, and the [ENTER] key to select a single print server to configure.



8) When you have selected a print server to configure, you will see the Password screen. Key in the password "PATTON" and press [ENTER] to move to the Available Configuration Options screen.



9) The Available Configuration Options screen lets you select several pathways of configuration depending upon the operating system your network is using. Section 4.3 will give you an overview of the configuration options so that you can custom-tailor the Print Server to your own requirements.



4.2 Configuration within Novell using UCONNECT

UCONNECT lets you configure the Print Server to work with several types of Novell compatible network operating systems. This section will guide you through the various configuration options.

4.2.1 General Configuration

The first option on the Available Configuration Options screen lets you key in general information that will apply to any operating system. In most cases you will need to enter information in the General Configuration Parameters screen, as well as a second screen that applies more specifically to the particular operating system you are using.



Each of the options on the General Configuration Parameters screen can be edited using the arrow and [esc] keys to scroll and select.

- 1) The Configuration Password may be altered to suit your needs.
- 2) The Upgrade Password *may* be altered, but we recommend that you leave this password unchanged.
- 3) You **must** change the Postscript Printer field to YES if your printer uses Postscript. Otherwise, the printer will not output correctly.
- 4) The Power up Status Page field may be changed to NO if you do not want a status page to appear upon power up of the Print Server.

(continued)

4.2.2 Novell Configuration

The second option on the Available Configuration Options screen lets you enter information to configure the Print Server to work in a standard Novell environment. Any of these fields may be edited.

Novell Configuration Parameters	
Login Name	PESERV00000001
Login Password	
Target Server 0	all
Target Server 1	all
Target Server 2	all
Target Server 3	all
Target Server 4	all
Target Server 5	all
Target Server 6	all
Target Server 7	all
Target Server 8	all
Target Server 9	all
Remote Printer Name	
Target Print Server	
Server Searching	no
Ethernet II Frames	yes
802.3 Frames	yes
802.2 Frames	yes
Ethernet SNAP Frames	yes

4.2.3 Advanced Novell Configuration

The third option on the Available Configuration Options screen is "Advanced Novell". This is UCONNECT's alternative to the PCONSOLE print queue utility. Advanced Novell lets you point a particular print server to specific file servers and print queues. This is done in two steps:

1) When you select the Advanced Novell option, you will be prompted to supply a print server to configure. Use the arrow and [esc] keys to scroll and select the print server you wish to configure. Then press [ENTER].

Supply Print Server To Configure
PESERV00000001

2) Once you have selected a print server to configure, you will receive the Advanced Novell Configuration screen, where you can point the print server to particular file servers and print queues.

Advanced Novell Configuration (Print Server = PESERV00000001)		
Printer Name:	Printer Type:	
File Servers Served	Print Queues Served	Notify List

Warning! Contact your Novell Administrator if you are unfamiliar with Novell setup procedures.

4.2.4 TCP/IP Configuration

The fourth option on the Available Configuration Options screen lets you configure the Print Server to work in a Novell network running TCP/IP. Remember: You cannot run a Unix session using UCONNECT. See Section 5.0 for TCP/IP operation.

TCP/IP Configuration Parameters	
Internet Address	205.136.51.38
Port Name	port1
TCP/IP Header String	
Telnet Printer Port	9010

4.2.5 Personal Netware Configuration

The fifth option on the Available Configuration Options screen lets you configure the Print Server to work with Personal Netware.

Personal Netware Configuration Parameters	
Server Name	PN_PSERVER
Workgroup	PN_GROUP
Printer Name	PN_PRINTER

4.2.6 Reset to Factory Defaults

The sixth option on the Available Configuration Options screen resets the Print Server to all Factory Defaults. If you select "Yes" on the Reset Available Configuration Options screen, UCONNECT will reset the Print Server and return you to the . If you select "no" on the Reset screen, UCONNECT will return you immediately to the Available Configuration Options screen.



Warning! If you select "Yes" you will **lose all changes** you have made in the configuration process.

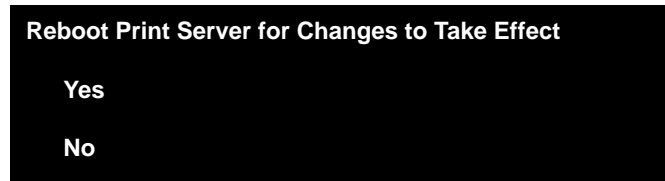
4.2.7 Exit

The seventh option on the Available Configuration Options screen exits to the Main Menu. However, you will exit directly to the Main Menu only if you have made no changes to the configuration of the unit. If you have made changes, you will be sent into the following sequence:

1) If you select Exit and you have made configuration changes, you will next see the Send Changes screen. If you select "No" on this screen, you will go immediately to the UCONNECT Main Menu and **your changes will not be saved**. If you select "Yes", you will receive a timeout at the bottom of your screen while UCONNECT sends your configuration changes to the Print Server. (Note: the changes you entered will not take effect until the Print Server is rebooted.)



2) After you have sent your configuration changes to the print server and have seen a timeout at the bottom of your screen, you will then see the Reboot screen. Selecting "Yes" on the Reboot screen immediately reboots the print server and takes you to the DOS prompt. The configuration changes you have entered will now be in effect. Selecting "No" on the Reboot screen takes you immediately to the UCONNECT Main Menu. Your configuration changes will then not take effect until the next time the Print Server is rebooted.



Warning! Do NOT remove power while the timeout message is displayed! Only after the timeout message disappears is it safe to remove power from the Print Server.

4.3 Testing within Novell using UCONNECT

The UCONNECT utility may be used to test the Print Server in a Novell environment. To access the Available Test Options screen, perform the operation described in Section 4.2, choosing Test from the Main Menu instead of Configure. When the screen appears, pressing [ENTER] will cause the Print Server to print a status page, thereby testing the setup. Choosing "Exit" will take you back to the DOS prompt.



4.4 Printing within Novell

It will be of great benefit to users who are not familiar with the Novell printing environment to obtain the Novell flip-guide entitled "Novell Quick Access Guide" before continuing with this section. Read the chapter entitled "PRINTING" to gain a clearer understanding of the Novell printing system. More information is available from Novell's *Concepts* and *Print Server* manuals.

The PeNet™ Print Server interface fully supports all common Novell print commands including CAPTURE, NPRINT and PCONSOLE.

e.g. **NPRINT testfile.doc PS=PESERV Queue=TEST**

This command prints a document called 'testfile.doc' to the print queue called TEST which is serviced by a Print Server called PESERV.

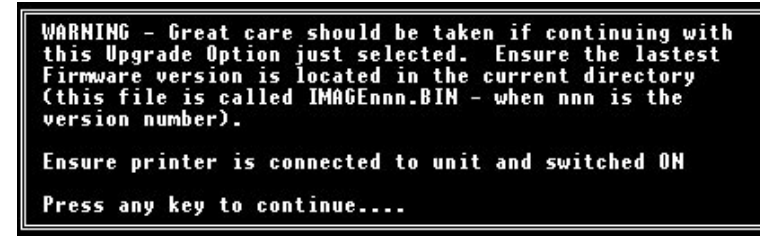
4.5 Upgrading within Novell

The PeNet™ Print Server is equipped with 128k Bytes of FLASH EPROM which is used to store the operating code and also the units configuration data. If it is necessary to upgrade the units operating system (for example if support for new protocols is added) this may be easily achieved by transmitting the new operating system to the unit over the network. Once transmission is complete, this new code will be permanently stored in the units FLASH memory.

Upgrading under Novell is achieved by selecting the UPGRADE option from the UCONNECT main menu. Ensure that the units new operating system (supplied on a single 3.5 inch diskette containing a single file called IMAGE_{nnn}.BIN) has been copied to the same directory that contains UCONNECT.EXE.

Enter the NIC and Network address of the unit to be upgraded and then enter the UPGRADE PASSWORD when prompted (rather than the CONFIGURATION PASSWORD which does not permit FLASH upgrades). Once communication to the unit in question has been achieved, a window will appear on the screen displaying the progress of the file transfer from UCONNECT to the Print Server (see following page). Once this window disappears, the FLASH upgrade is complete.

(continued)



4.6 Troubleshooting within Novell

This section describes the options available for diagnosing possible problems that may occur with the PeNet™ Print Server unit.

The Novell set up utility, UCONNECT can be used to force print a Status Page to the connected printer. Select Force Status Page from the main menu within UCONNECT.

General

No Power LED

- 1) Check that external power supply adapter is correct type and is functioning correctly.
- 2) Ensure DC connector to the Print Server is seated correctly.
- 3) If you are relying only upon interface power on pin 18 of the Centronics interface, be sure the output is 5 V DC (TTL Spec.).

Status Page Not Printed

- 1) The status page prints only within 30 seconds of power-up or when forced by software (see Test Section 4.3)
- 2) The power-on status page option may be disabled (see General Configuration Section 4.2.1)
- 3) The Postscript printer option may be set incorrectly for your printer (see General Configuration Section 4.2.1)
- 4) Your printer may have a large internal buffer, in which case the status page may have spooled to your printer but is waiting for a timeout or command in order to print. (Check your Printer manual.)

(continued)

Novell Specific

UCONNECT Can't Communicate with Print Server

- 1) Check the correct Network Number and NIC Address have been entered
- 2) Ensure PeNet™ Print Server is functioning correctly (check the power LED and status page production)

Status Page Shows No Novell Server or Queue Details

- 1) If Server shows, but no Queue details, then no Print Queues have been assigned (See PCONSOLE Section 3.4 or consult your Novell Administrator)
- 2) See section on "PeNet™ Print Server Unable To Login" (below)

Print Server Is Unable To LOGIN To Novell Servers

- 1) Check that 'Allow Unencrypted Passwords' has been set to ON
- 2) Ensure that the units Name and Password are as allocated in PCONSOLE
- 3) Check that there is a connection available for PeNet™ Print Server (use Monitor on the Server Console)
- 4) If Selective Login is enabled, ensure correct File Server name(s) have been entered
- 5) Check that Novell Mode is not disabled

5.0 TCP/IP OPERATION

This section tells how to use the Print Server with a TCP/IP network. Functions described include locating the Print Server on the network, configuration, initialization, testing, printing, and FLASH EPROM upgrading.

5.1 Locating the Print Server on the TCP/IP Network

When used in the TCP/IP environment, the Print Server has one assigned Internet Address and one printer port.

5.1.1 Assigning the Internet Address

If it is not possible to use the UCONNECT utility to configure the units Internet Address, then the following method should be followed:

1. Create an entry in the ARP table using the Unix command :

arp -S [ether] IPaddress NICaddress where...

IPaddress is the required Internet Address

NICaddress is the units NIC address

2. Use PING to send this new IP address to the NIC address of the Print Server:

PING xx.xx.xx.xx where xx.xx.xx.xx is the IP address above

NOTE: This method will only work if the units Internet Address is currently set to 0.0.0.0 and PING will only affect the unit with the NIC address entered in the ARP table.

Some versions of Unix will require the 'ether' command to be entered as shown

(continued)

5.1.2 Using PING to Verify Network Communications

PING is the standard method used on TCP/IP networks to verify that communication is possible to and from a given Internet address (NOTE: not all TPC/IP networks have the PING utility. Its use with the Print Server is optional). The Print Server will correctly respond to PING requests and hence a typical method of quickly establishing if communications are possible with the Print Server would be:

PING xx.xx.xx.xx where xx.xx.xx.xx is the unit's Internet address

PING will then report to the operator if communication was achieved. If problems exist communicating with the Print Server, carefully check that the Internet Address allocated to the unit is a valid address for the network in question. Consult the network supervisor if problems persist with PING.

5.2 Configuration within TCP/IP

Once the unit's Internet Address has been set correctly and PING has proven that network communications are possible to the unit, now is the time to use Telnet to further configure the unit if required. Here is a typical transaction used to connect to the Print Server via Telnet:

Type Unit's Address: **TELNET xx.xx.xx.xx**

Response:

Connected to (Unit's Internet Address)

Escape Character is ^]

Welcome to Patton Print Server Configuration

Please Enter Login Command: **PESETUP**

Enter Setup Password: **PATTON**

Menu Displays

Once connection to the Print Server has been achieved using the Telnet Protocol, it is then simply necessary to enter the command, PESETUP, to enter the configuration utility. The Print Server will then prompt the user to enter a password (default is Patton) and, once the entered password has been verified, a command prompt will appear.

5.2.1 Telnet Configuration Commands

The following commands may be entered from the command prompt:

GENERAL	Displays the current General parameters
NOVELL	Displays the current Novell parameters

Hint: Deleting the Novell login name will turn off Novell server search and speed up TCP/IP operations. This step is highly recommended.

TCPIP	Displays the current TCP/IP parameters
PERSONAL	Displays the current Personal Novell parameters
HELP	Displays a help screen
SET [parameter] = [value]	Sets parameter to given value
EXIT	Exits from Telnet
HELP	Displays a help screen
PORT	Displays the current port status
STATUS	Print status page to printer

The following table lists the available parameters for use in the SET command, and their corresponding abbreviations:

SP	Set-up Password	UP	Upgrade Password
PS	Postscript Support	PU	Power-UP Status Page
E2	Ethernet 2 Support	E22	Ethernet 802.2 Support
E23	Ethernet 802.3 Support	ES	Ethernet SNAP support
NL	Novell Login Name	NP	Novell Login Password
S0-S9	Novell Server Names	SS	Novell Server Searching
TA	Internet Address	PN	Port Name
TH	TCP/IP Header String		

(continued)

For example, to set the Power Up Status Page option to NO, the following would be required:

SET PU = NO

Technical Note: The Print Server unit responds to Telnet Data in accordance with RFC 854 on the standard Telnet Port, 23 (decimal).

5.3 Printing within TCP/IP

There are two main methods of printing documents to the Print Server using the TCP/IP protocol:

- PRR Berkeley remote LPR (LPD daemon)
- FTP File Transfer Protocol

NOTE: Printing from 'LP' or 'LPR' on Unix V systems, is only possible if an application program is available to re-route print data to the LPR socket.

5.3.1 Printing using LPR

The typical command line for sending a print via remote LPR to the PeNet™ Print Server would be:

LP -d *printdef* file.txt where *printdef* is the printer name defined in a printcap file, with :rm=Host Name and :rp=Port Name

The LPQ and LPSTAT commands are supported by Print Server by returning "No Entries"

5.3.2 Printing From IBM AIX

Printing from AIX using LPR is possible. The necessary setup is performed with a utility called SMIT.

(continued)

Setup the Print Server as for normal TCP/IP operation regarding Internet Address etc. and then use SMIT to add a host with the PeNet™ Print Server's Host Name. Add a remote queue and specify *Destination Host* (as above) and Queue, on Remote Printer=Pport1 (or other PeNet™ Print Server port). Set the *Remote Device To Add* to the Printer Name for this printer.

To print, use the following command: **LPR -P printer name file.txt**

5.3.3 Printing Using FTP

It is also possible to print files to the Print Server using FTP (File Transfer Protocol). Typically this would be achieved by instigating an FTP session, as the sequence of commands below shows:

```
ftp hostname where hostname is the Print Server to connect to
put filename
quit
```

5.3.4 Printing From SCO UNIX

SCO Unix no longer supports remote LPR so the FTP method of printing will need to be used. A script file can be created to automate this process as shown below:

```
TMPFILE=/tmp/ftpprint.$$
printer=laserprt $(0)
/usr/spool/lp/model/standard "$@">$TMPFILE
ftp -n $printer <<END
binary
put $TMPFILE
quit
rm $TMPFILE
exit
```

The script intercepts the print command and redirects the output to a temporary file. FTP then sends this file to the host before deleting it and exiting from the script file.

Technical Note: The Print Server unit supports the LPR protocol as defined in RFC 1179 and FTP as defined in RFC 959. The unit responds to LPR data sent to socket 515 and FTP data sent to socket 20.

5.4 Upgrading within TCP/IP

To use the FTP based method of FLASH upgrade, it is first necessary to establish an FTP connection to the Print Server in the same way as that used when printing to the unit via FTP. Typically this will be achieved as follows:

FTP xx.xx.xx.xx where xx.xx.xx.xx is the unit's Internet Address

Once connection is achieved in this way, the Print Server will respond with a prompt requesting the **USER NAME** to be supplied. When printing to the unit, this field may be ignored but when preparing to perform a FLASH upgrade, it is the response to this field that indicates an upgrade is being performed. To continue with the upgrade procedure, the user must enter:

pattonflashupdate

followed by carriage return. It is now necessary to transmit the new operating system to the Print Server. The unit's new operating system will be supplied on a single 3.5 inch diskette which will contain a single file called IMAGE_{nnn}.BIN (where nnn is the version number of the upgrade). This file is typically transmitted to the Print Server using the PUT command as shown below:

PUT IMAGE.BIN

Assuming that the file transfer was completed correctly, the Print Server will respond to the end of transfer with the message:

FILE TRANSFER COMPLETE - Upgrade continues when FTP is quit

Quitting FTP will now cause the FLASH upgrade to occur, and after a few seconds, the unit will reboot and begin operating using the newly downloaded operating system.

Warning! Do NOT remove power while the timeout message is displayed! Only after the timeout message disappears is it safe to remove power from the Print Server.

5.5 Troubleshooting within TCP/IP

The following hints should help you if trouble arises when using the Print Server. If you experience additional problems, contact Patton Technical Support M-F, 8:30 - 5:00 PM EST at (301) 975-1007.

General

No Power LED

- 1) Check that external power supply adapter is correct type and is functioning correctly.
- 2) Ensure DC connector to the Print Server is seated correctly.
- 3) If you are relying only upon interface power on pin 18 of the Centronics interface, be sure the output is 5 V DC (TTL Spec.).

Status Page Not Printed

- 1) The status page prints only within 30 seconds of power-up or when forced by software (see Section 5.2.1)
- 2) The power-on status page option may be disabled (see Section 5.2.1)
- 3) The Postscript printer option may be set incorrectly for your printer (see Section 5.2.1)
- 4) Your printer may have a large internal buffer, in which case the status page may have spooled to your printer but is waiting for a timeout or command in order to print. (Check your Printer manual.)

TCP/IP Specific

Print Server Will Not Respond To PING

- 1) Ensure the unit's Internet Address has been correctly set
Check the host's ARP table is correct

APPENDIX A SPECIFICATIONS

Operating Systems Supported:	Novell 2.15, 2.2, 3.11, 3.12 and 4.00
Utilities Supported:	LPR, FTP, TELNET and PING
Network Connection:	10BaseFL
Protocols:	IPX/SPX, TCP/IP
Frame Types:	802.3, Ethernet II, 802.2 and Ethernet SNAP
Parallel Ports:	one
Parallel Speed:	60,000 bytes /sec (printing on a Novell 3.11 network)
Connectors:	Centronics male (Parallel) ST-type female (10BaseFL) (SMA available upon request)
Cable Recommendations:	multimode, 62.5/125µm (optional: multimode, 100µ/140µm, or 50µ/125µm)
Power Supply:	External, wall mount (120V AC domestic, 220V AC international)
Temperature Range:	2-60°C (37-140°F)
Altitude:	0-10,100 feet
Humidity:	Up to 95% non-condensing
Dimensions:	4.0" x 2.1" x 0.8"
Weight:	3 oz. (max)

APPENDIX B INTERFACE CONNECTIONS

