

3 Port Wireless Multiprotocol Print Server

Hardware User's Guide

Rev. 02 (August, 2001)

Wichtige Sicherheitshinweise

1. Bitte lesen Sie sich diese Hinweise sorgfältig durch.
2. Heben Sie diese Anleitung für den spätern Gebrauch auf.
3. Vor jedem Reinigen ist das Gerät vom Stromnetz zu trennen. Verwenden Sie keine Flüssig- oder Aerosolreiniger. Am besten dient ein angefeuchtetes Tuch zur Reinigung.
4. Um eine Beschädigung des Gerätes zu vermeiden sollten Sie nur Zubehörteile verwenden, die vom Hersteller zugelassen sind.
5. Das Gerät ist vor Feuchtigkeit zu schützen.
6. Bei der Aufstellung des Gerätes ist auf sichern Stand zu achten. Ein Kippen oder Fallen könnte Verletzungen hervorrufen. Verwenden Sie nur sichere Standorte und beachten Sie die Aufstellhinweise des Herstellers.
7. Die Belüftungsöffnungen dienen zur Luftzirkulation die das Gerät vor Überhitzung schützt. Sorgen Sie dafür, daß diese Öffnungen nicht abgedeckt werden.
8. Beachten Sie beim Anschluß an das Stromnetz die Anschlußwerte.
9. Die Netzanschlußsteckdose muß aus Gründen der elektrischen Sicherheit einen Schutzleiterkontakt haben.
10. Verlegen Sie die Netzanschlußleitung so, daß niemand darüber fallen kann. Es sollte auch nichts auf der Leitung abgestellt werden.
11. Alle Hinweise und Warnungen die sich am Geräten befinden sind zu beachten.
12. Wird das Gerät über einen längeren Zeitraum nicht benutzt, sollten Sie es vom Stromnetz trennen. Somit wird im Falle einer Überspannung eine Beschädigung vermieden.
13. Durch die Lüftungsöffnungen dürfen niemals Gegenstände oder Flüssigkeiten in das Gerät gelangen. Dies könnte einen Brand bzw. Elektrischen Schlag auslösen.
14. Öffnen Sie niemals das Gerät. Das Gerät darf aus Gründen der elektrischen Sicherheit nur von autorisiertem Servicepersonal geöffnet werden.
15. Wenn folgende Situationen auftreten ist das Gerät vom Stromnetz zu trennen und von einer qualifizierten Servicestelle zu überprüfen:
 - a- Netzkabel oder Netzstecker sind beschädigt.
 - b- Flüssigkeit ist in das Gerät eingedrungen.
 - c- Das Gerät war Feuchtigkeit ausgesetzt.
 - d- Wenn das Gerät nicht der Bedienungsanleitung entsprechend funktioniert oder Sie mit Hilfe dieser Anleitung keine Verbesserung erzielen.
 - e- Das Gerät ist gefallen und/oder das Gehäuse ist beschädigt.
 - f- Wenn das Gerät deutliche Anzeichen eines Defektes aufweist.
16. Bei Reparaturen dürfen nur Originalersatzteile bzw. den Originalteilen entsprechende Teile verwendet werden. Der Einsatz von ungeeigneten Ersatzteilen kann eine weitere Beschädigung hervorrufen.
17. Wenden Sie sich mit allen Fragen die Service und Reparatur betreffen an Ihren Servicepartner. Somit stellen Sie die Betriebssicherheit des Gerätes sicher.
18. Zum Netzanschluß dieses Gerätes ist eine geprüfte Leitung zu verwenden, Für einen Nennstrom bis 6A und einem Gerätegewicht größer 3kg ist eine Leitung nicht leichter als H05VV-F, 3G, 0.75mm² einzusetzen.

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This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with this user's guide, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

CE Mark Warning

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

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ABOUT THIS GUIDE

This manual describes the 3 Parallel Port Multiprotocol Wireless Print Server, including a description of the print server's features, as well as the print server installation procedures and troubleshooting self-test results.

For information about software configuration of the Print Server to allow it to be used with your network, consult the *PS Admin User's Guide* included with your Print Server.

1

INTRODUCTION

The Print Server is a compact wireless print server which connects to your network through an access point under the infrastructure mode or can be used in ad-hoc mode for direct communication between PC/Notebook and print server anywhere you wish to locate wireless printer services. It manages the flow of print files from your workstations or file servers to its connected printers, delivering print jobs to high-performance printers much faster than a file server or a PC acting as a print server can.

Print Server Features

The Print Server improve network printing services in three ways:

- ◆ The Print Server picks up the workload of managing print file traffic to its connected printers. This provides workload relief to your file servers, and allows the file servers' full capacity to be used for file access or other direct services to network users. On peer-to-peer networks, workstations can print directly to the Print Server without increasing the load of another workstation or server.

- ◆ The Print Server's parallel printer ports are IEEE 1284 compliant high-speed bi-directional ports, which can transmit to high-speed laser printers much faster than a PC's parallel printer port. High-speed laser printers connected to the Print Server's parallel ports can be operated at their full capacity.
- ◆ Because the Print Server is very portable and inexpensive compared to a PC-based print server, and because the Print Server connects to your file servers through the network, printers can be deployed to locations of maximum convenience to users.

The Print Server offers extraordinary flexibility, operating with all major network operating systems and protocols:

◆ **IPX/SPX**

Novell NetWare 3.x, 4.x, 5.x (Using either bindery emulation or native NDS)

◆ **TCP/IP**

UNIX lpr/lpd (HP-UX, SunOS, Solaris, SCO, UnixWare, IBM AIX)

Windows NT, Windows 2000/98/95/Me

◆ **NetBEUI**

Windows NT, Windows 2000/98/95/Me, Windows for Workgroups, Microsoft LAN Manager, IBM LAN Server

◆ **AppleTalk**

MacOS EtherTalk

Windows-based setup and administration software, *PS Admin*, is supplied with the Print Server, making configuration and management quick and easy. The Print Server also supports

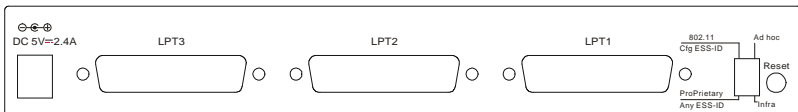
configuration and management via the `telnet` protocol for networks without Windows-compatible machines.

External Features

This section describes the externally visible features of the Print Server.

Port Connectors

The Print Server's three printer ports are located on its rear panel. Three identical parallel ports are labeled LPT1, LPT2 and LPT3. These printer ports are independently configurable using the *PS Admin* program or the print server's `telnet` interface. (See the *PS Admin User's Guide* for information about configuring the print server's ports.)



Rear Panel

Wireless DIP Switch

The Print Server's rear panel features a DIP switch allowing two different modes of ad-hoc and infrastructure. In ad-hoc mode there are 2 types of settings, 802.11 ad-hoc mode and Proprietary ad-hoc mode where there is direct communication between PC/Notebook and print server.

Under infrastructure mode there are 2 types of settings, Cfg ESS-ID mode and Any ESS-ID mode where communication between PC/Notebook and print server is through the Access Point acting as a bridge between wired and wireless network.

Cfg ESS-ID (Configured ESS-ID)

- Connect to Access Point with ESS-ID
- Default ESS-ID is 'default'

Any ESS-ID

- Connect to Access Point with any ESS-ID close to the unit

Reset Button

Reset will be initiated when the reset button is pressed once and the LPT1, LPT2 & LPT3 begins to flash.

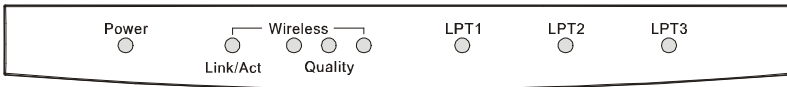
Factory Reset will be initiated when the reset button is pressed for three seconds or when the LPT1, LPT2 & LPT3 begins to light up. Release the reset button and LPT1, LPT2 & LPT3 will begin to flash indicating the print server is changing to factory reset. When factory reset is completed the print server will be set to default on channel 11 and EES-ID is set as 'default'.

DC Power Connector

The DC power input connector is located on the Print Server's rear panel and is labeled DC 5V/2.4A.

LED Indicators

The front panel of the Print Server features several LED indicators:



Front Panel LED Indicators

◆ **Power**

- ◇ Steady green confirms that the Print Server is powered on.

◆ **Link/Act**

- ◇ In infrastructure mode steady or flashing green confirms the Print Server has a good connection to the Access Point.
- ◇ In ad-hoc mode steady or flashing green confirms connection to other PC/Notebook.
- ◇ The indicator blinks off briefly to indicate that the Print Server is receiving/transceiving from/to the wireless network.

◆ **Wireless Quality**

- ◇ These LED indicators light is to show that the Print Server has wireless quality connections to the network in either ad-hoc or infrastructure mode.
- ◇ The first indicator lights up only shows poor wireless quality connection.
- ◇ The first & second indicator lights up simultaneously shows moderate wireless quality connection.

- ◇ All three indicator lights up simultaneously shows high wireless quality connection.

◆ **LPT1, LPT2, LPT3**

- ◇ These LED indicators light to show that the Print Server is transferring print data through the appropriate parallel port.

These three indicators are also used by the print server's power-on self test (POST) to indicate any hardware failures.

2

UNPACKING AND INSTALLATION

This chapter explains how to install your Print Server and connect it to the network. It also describes the print server self test indications.

Unpacking and Inspecting the Print Server

Carefully remove all items from the package. In addition to this *Hardware User's Guide*, be certain that you have:

- ◆ One 3 Parallel Port wireless print server
- ◆ One AC power adapter suitable for your country's electric power
- ◆ One *Wireless Print Server Installation CD-ROM*
- ◆ One *Quick Installation Guide*

If any item is missing, or if you find any damage or mismatch, promptly contact your dealer for assistance.

Installing the Print Server

WARNING: *Configuration problems may result if the Print Server is powered up without first establishing its network connection. Follow this procedure to avoid complications at the configuration stage.*

1. Confirm proper operation of each of the printers to be connected to the Print Server.
2. When you have confirmed proper operation of each printer, switch its power off.
3. Confirm that your wireless network is operating normally.
4. (a) **Ad-Hoc Mode**
 - ◆ Before initiating set-up procedure for the print server make sure your wireless PCMCIA card on your PC/Notebook is set to channel 11 with ESS-ID set as 'default' in ad-hoc mode.
 - ◆ Make sure the DIP switch on the print server is positioned in the ad-hoc mode.
 - ◆ Press the Reset button on the print server for three seconds until the LPT begins to light up initiating the factory reset.
 - ◆ When factory reset is completed the print server will be set to default on channel 11 and ESS-ID is set as 'default'.

Note 1:

When changes are made on the print server's wireless channel and ESS-ID it must correspond to the PC/Notebook channel and ESS-ID for direct wireless communication.

Note 2:

The print server's ad-hoc mode supports two modes (802.11 ad-hoc mode and proprietary ad-hoc mode). You can position the DIP switch on the print server to the mode you want to operate. Which option of the ad-hoc mode is required depends on the operation of your print server. It depends on which ad-hoc mode is supported by your wireless card driver on the PC/Notebook. Some driver supports both modes, however, some driver support only one of the modes. The names of each ad-hoc mode may not be consistent between each wireless card vendor therefore you may need to try each of the ad-hoc mode (802.11 mode and proprietary mode) and select the mode that can communicate with each other.

4. (b) **Infrastructure Mode**

- ◆ Before initiating set-up procedure for the print server make sure your wireless PCMCIA card on your PC/Notebook is set to channel 11 with ESS-ID set as 'default' in ad-hoc mode.
- ◆ Make sure the DIP switch on the print server is positioned in the ad-hoc mode.
- ◆ Press the Reset button on the print server for three seconds until the LPT begins to light up initiating the factory reset.
- ◆ When factory reset is completed the print server will be set to default on channel 11 and ESS-ID is set as 'default'.
- ◆ Start-up PS Admin to modify the print server's ESS-ID to match with the Access Point's ESS-ID and this will link the print server to the Access Point. The ESS-ID uses "default" as the factory setting.
- ◆ From the DIP switch on the print server alter to infrastructure mode and the print server will reset.

Note 1:

Please make sure to change your PC/Notebook to infrastructure mode. The ESS-ID on PC/Notebook and print server must match with the Access Point's ESS-ID.

Note 2:

The print server supports two infrastructure operations ('Cfg ESS-ID' mode and 'Any ESS-ID' mode).

'Cfg ESS-ID' mode: The print server will connect to the access point that have the same ESS-ID with the print server's configured ESS-ID.

'Any ESS-ID' mode: The print server will connect to any access point that print server finds first, however, the ESS-ID may not be the same with each other. This is an easier way to connect to the access point if you only have one access point, but be careful, it may connect to your neighbor's access point.

5. While each printer is powered off, install a printer cable to connect its parallel port to the printer port of the Print Server.
6. Switch on each connected printer.
7. Plug the AC power adapter's DC output plug into the DC 5V power socket on the rear panel of the Print Server.
8. Plug the power adapter into an electric service outlet. This will supply power to the Print Server, as it has no external power switch. The Power LED on the Print Server's front panel should light steady green, and the Print Server's self-test will proceed.

Power On Self-Test

When the Print Server is powered on, it automatically performs a self-test on each of its major components. The final result of the self-test is signaled by the state of the LPT1, LPT2, and LPT3 LED indicators following the self-test. Preliminary to the actual component tests, the three LED indicators are tested to confirm their steady and flashing operation.

Immediately after power-up, all of the LED's should show steady green for several seconds. Then the LPT1, LPT2, and LPT3 LEDs should flash on simultaneously three times. Irregularity of any of the three LEDs during these LED tests may mean there is a problem with the LEDs themselves. Contact your dealer for correction of any LED problems before proceeding.

The actual component tests immediately follow the LED tests. A normal (no fault) result is signaled by a series of three cycles of sequential flashing of the three LEDs, followed by a quiescent state with all three LEDs dark.

If the self-test routine traps any component error, then following the LED tests the self-test will halt and the LED's will continuously signal the error according to the following table. In the event of any such error signal, contact your dealer for correction of the faulty unit.

LED Name			Faulty Component
LPT1	LPT2	LPT3	
off	off	on/steady	LPT3 error
off	off	Flashing	Parallel-3 Controller error
off	on/steady	Off	LPT2 error
off	flashing	Off	Parallel-2 Controller error
off	flashing	Flashing	Flash Protected
on/steady	off	Off	LPT1 error
on/steady	off	on/steady	Timer INT error
on/steady	on/steady	Off	RAM error
flashing	off	Off	Parallel-1 Controller error
flashing	flashing	Off	Flash erase/program error
flashing	flashing	Flashing	Need to reload firmware

Testing Your Print Server

The *PS Admin* software includes a Print Test function for confirmation of printer cable connections and functions. That operational test can be completed after you have installed the *PS Admin* software, and have configured your Print Server and its ports. See the *Testing Your Print Server* section of the *PS Admin User's Guide*.

A

PRODUCT SPECIFICATIONS

Printer Connection

Standards: IEEE 1284 bi-directional parallel interface

Ports: Bi-directional 25-pin parallel ports × 3

Parallel Port Bi-directional Communication: Hewlett-Packard PJP (Printer Job Language) supported

Wireless Network Connection

Network Standards: Wireless LAN standard IEEE 802.11b

Network Data Transfer Rate: 11Mbps with fallback to 5.5Mbps, 2Mbps and 1Mbps.

Network Mode: Through either ad-hoc or infrastructure mode.

Network Protocols

Transport Protocols: IPX/SPX, TCP/IP, NetBEUI, AppleTalk/EtherTalk

TCP/IP Protocols Supported: BOOTP, SNMP, Telnet, TFTP, FTP, lpd, RARP, DHCP

Management and Diagnostics

Standard: SNMP

MIBs: MIB-II (RFC 1213)

Diagnostic LED Indicators: Power, Link/Act, Wireless Quality LPT1, LPT2, LPT3

Environmental and Physical

Power Supply: External power supply providing 5VDC/2.4A input

Dimensions: 223.3mm × 131.7mm × 35mm

Weight: approx. 460g

Operating Temperature: 0 to 50°C

Storage Temperature: -25 to 55°C

Humidity: 5% to 95% non-condensing

Emissions: FCC Class A, CISPR 22 Class A, VCCI Class 1,

Safety: UL (UL 1950), CSA (CSA950), TUV/GS (EN60950)

PORT PINOUTS

This appendix shows the pinouts of the Print Server parallel port connector.

Parallel Ports

The following table lists the pinouts of the print server's 25-pin parallel port connector (identical to the connector used on most personal computers), as well as the 36-pin Centronics connector used on most printers.

Signal names beginning with *n* are active-low signals.

25-pin	Centronics	Signal	Source
1	1	Nstrobe	Host
2	2	Data 1	Bi-directional
3	3	Data 2	Bi-directional
4	4	Data 3	Bi-directional
5	5	Data 4	Bi-directional
6	6	Data 5	Bi-directional
7	7	Data 6	Bi-directional
8	8	Data 7	Bi-directional
9	9	Data 8	Bi-directional
10	10	Nack	Printer
11	11	Busy	Printer

25-pin	Centronics	Signal	Source
12	12	Perror	Printer
13	13	Select	Printer
14	14	NautoFd	Host
15	32	nFault	Printer
16	31	Ninit	Host
17	36	nSelectIn	Host
18-25	16, 17, 19-30	Ground	

