Preface

Thank you for purchasing the AXIS AFP MIO Printer Interface. Our goal in developing this product is to enable you to connect your HP printer to your IBM IPDS environment, allowing you to take full advantage of both the IPDS functions and your HP printer capabilities.

About Axis

Axis Communications, founded in 1984, is one of the world's fastest growing companies in the printer interface and network print server market. The head quarters are located in Lund, Sweden, with subsidiaries in Boston, Tokyo, and Hong Kong.

Axis Communications has a distributor network operating in more than 60 countries world-wide, marketing three product lines:

Network CD-ROM Servers

CD-ROM servers provide a flexible and cost-efficient solution for sharing CD-ROMs across the network. They are available in Ethernet (AXIS 850/851) and Token Ring (AXIS 950/951) versions, with or without built in drive option.

Network Print Servers

These intelligent Ethernet and Token Ring print servers support a wide range of LAN protocols. The AXIS NPS 530, 532, 550 and AXIS 150 are Ethernet print servers, and the AXIS NPS 630, 632 and 650 are Token Ring print servers.

IBM Mainframe and S/3x – AS/400 Printer Interfaces

These products include a wide range of plug-in interfaces and free standing box products such as the Cobra+ and the AFP IPDS-to-PostScript converter.

AXIS AFP MIO (Twinax) User's Manual **Revision 1.0**
Part No: 14362 Dated: October 1995

About this manual

This manual will guide you through a simple step-by-step installation and setup procedure. It is divided into three sections:

General Information — About the AXIS AFP MIO Printer Interface, how it works, where to use it, and its main features.

Installation and Configuration — How to install your AXIS AFP MIO into your printer, and how to configure it in your AFP printing environment.

Front Panel Operation — How to operate the HP printer's front panel when the AXIS AFP MIO is installed.

The manual applies to the AXIS AFP MIO with firmware release 1.00 and subsequent releases until otherwise notified.

Every care has been taken in the preparation of this manual; if you detect any inaccuracies or omissions, please inform us at the address on the back cover. Axis Communications AB cannot be held responsible for any technical or typographical errors and reserves the right to make changes to the product and manuals without prior notice.

Emission notices

USA This equipment generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the instruction manual, may cause interference to radio communications. It has been tested and found to comply with the limits for a Class A computing device pursuant to Subpart B of Part 15 of FCC rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference in which case the user at his own expense will be required to take whatever measures may be required to correct the interference. Shielded cables should be used with this unit to ensure compliance with the Class A limits.

Europe This digital equipment fulfils the requirements for radiated emission according to limit B of EN55022/1987, and the requirements for immunity according to EN50082-1/1992 residential, commercial, and light industry. (Compliance is not valid for unshielded network and printer cables.)

Trademark acknowledgements

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Section 1

General Information

Introduction

The AXIS AFP MIO provides true IBM AFP/IPDS capability on your HP printer, without the loss of the PC connectivity. It consists of a high speed RISC based printer controller and a 1 MByte FLASH memory card containing micro code and the resident fonts and an auto terminating T-cable assembly. The interface should be installed in the Modular I/O accessory slot of the HP printer.

This unique solution gives you high speed AFP/IPDS printing independent of the complexity of the printjob, provided that the communication lines are fast enough.

IPDS

The Intelligent Printer Data Stream (IPDS) is the host-to-printer data stream for Advanced Function Printing (AFP) subsystems. It is part of IBM's System Application Architecture (SAA).

The IPDS architecture is functionally divided into eight towers of command sets, each representing a major printer capability. Five data towers: Text, IM Image, IO Image, Graphics and Bar Code; and three resource towers: Page Segment, Overlay and Loaded Font.

With IPDS it is possible to:

- use the all-points-addressable printing capability of the page printer to print text, graphics, images or bar codes at any point on the page.
- use images and vector graphics to print line drawings, pie charts, bar charts, graphics, logos, signatures etc.
- combine all kinds of data on the same page.
- print in all rotations either on separate pages or on the same page.
- electronically store and later print forms and letterheads.
- electronically store and later print host fonts.

IBM Printer Emulation

The AXIS AFP MIO solution is plug compatible with either the IBM 4028 AS1 (3912/16, 3112/16) page printer or the IBM 3816 page printer (IPDS only). An IPDS option selects the IBM model to be emulated (Refer to *IPDS Options*).

PC Sharing Feature

When using the AXIS AFP MIO interface your HP printer can automatically be shared between an IBM host and a PC.

The PC has to be connected to the RS-232C input port on the AXIS AFP MIO interface or to the standard Centronics parallel and/or the serial input of the HP printer. The printer will switch between host and PC mode on a timeshare basis. When the RS-232C port on the AXIS AFP MIO is active the red indicator on the back panel will be lit.

To prevent a possible timeout on the parallel printer port of your PC, while waiting for the printer to finish IBM host printing and switch to PC mode, use the following DOS command to set the timeout value to infinite on your PC:

```
MODE LPT1:,,P
```

Printer Memory Requirements

A total of minimum 2 Mbytes of memory is required in the HP printer. 4 Mbytes memory is recommended to get good performance. 4 Mbytes is recommended as minimum memory resource for duplex printing.

Any additional upgrade to the memory will increase the performance of your printer.

Interface Memory Requirements

A total of minimum 4 Mbytes of memory is installed on the AXIS AFP MIO card. The memory is used for software, resident fonts and IPDS resources. This should be sufficient for most applications. If you encounter a speed drop due to major IPDS resource downloading (fonts, overlays) it can propably be solved by adding more memory to the AXIS AFP MIO. The added memory can be allocated for resource memory or interface output buffer by the *Resource Memory Size* option.

Note, that for instance duplex printing uses the printer memory and not the AXIS AFP MIO memory. In most cases adding memory to the printer it self has the greatest effect.

Note: The memory SIMM modules used for the AXIS AFP MIO is the same as for the printer it self. Order the memory SIMM modules at your local HP dealer.

Media Sizes When using your HP printer as an AFP printer the following paper sizes are supported, for the paper cassettes:

A4 (210 × 297 mm)
Letter (8.5 × 11 inches)
Legal (8.5 × 14 inches)
Executive (7.25 × 10.5 inches)
A3 (297 × 420 mm)
ANSI B-size (11 x 17 inches)

The HP printers have physical limitations, i.e. the actual printable area is approx. 4 mm inside the edges of the paper.

Fonts The FLASH memory card contains a total of 67 resident fonts; 32 IBM 4028 fonts and 35 IBM 3816 fonts. The fonts are functionally equivalent to the standard IBM 4028 AS1 and the IBM 3816 fonts. (Refer to *Appendix B Resident Fonts* for a full listing of the resident fonts).

Section 2

Installation and Configuration

Contents of This Delivery

The AXIS AFP MIO interface package consists of these parts.

1 x AXIS AFP MIO Twinax interface main board (Part no: 0055-2).

1 x AXIS AFP MIO Twinax User's Manual (Part no: 14362).

1 x 1 Mbyte PCMCIA Flash Card (Part no: 14357).

1 x Twinax DB9 Twinax T-bar cable AFP MIO (Part no: 14382).

Optional 1 x 3,5" floppy disk (Part no: 14356).

The disk contains a PC-based software download program.

Optional 1 x PC-Host/Download Serial link cable (Part no: 14408).

Installation

To install the AXIS AFP MIO interface:

Important

1. Try to take antistatic precautions. If a wristwrap is not available, then touch something grounded (a radiator or a PC cabinet) before handling the PCB board.
2. Power off the printer and unplug the power cord.

Caution Failure to power off the printer before installation may permanently damage parts of the AXIS AFP MIO product or printer.

3. Locate the MIO interface slot.
4. Remove the plate covering the slot or the current interface in the slot.
5. Install the AXIS AFP MIO interface in the empty slot.
6. Secure the board using the screws.
7. Insert the FLASH memory card in the slot of the AXIS AFP MIO interface.
8. Make sure that the printer has the desired Device Address (see page 32) before connecting to the AS/400 or S/3X. (Consult your system administrator)
9. Connect the communication cables (The autotermination T-cable and the Twinax cable) and the power cord.
10. Power on the printer.

The green indicator on the back panel will be lit if the connection with the host was succesful.

Your printer is now ready for AFP/IPDS printing.

Note: Cables are not included in the AXIS AFP MIO package, they have to be ordered separately.

Configuring the AFP Printer

To customize the AFP printer to your applications, the AXIS AFP MIO has five sets of options: Twinax options, IPDS options, Printer options and Serial options.

Note: ***Changes to any of the options described will only take effect at the next printer Power on.***

The options are split into two groups. Group A (Printer and Serial options) includes the printer dependent options. These options are related to the specific printer and the connecting environment. This group of options can be changed from the front panel only (Refer to *Changing the IPDS, Twinax, Serial and Printer Serial Options*). Group B (Twinax and IPDS options) is used to modify the function of the basic emulation. These options are related to the host system environment. This group of options can be changed from the front panel or loaded from the AXIS AFP MIO FLASH memory card. (Refer to *Changing the IPDS, Twinax, Serial and Printer Serial Options* or *Resetting to Default Option Values*).

Twinax Options The following *Twinax options* are available for configuration:

Country Code
Device Address
Timeout

Note: If cassette linking is required, use the LOCK=NONE option in the PCL PRINT MENU.

IPDS Options The IPDS options change the way IPDS operates. These options are not available on the IBM 4028 AS1 or the IBM 3816 printer.

The following *IPDS options* are available for configuration:

Emulation	Stacked Page Counter
Code Page Version	Resource Memory Size
IPDS Exception Control	Duplex Enable

Printer options

The Printer options are used to change printer related items in the configuration. An example of a printer related item is margins.

The following *Printer options* are available for configuration:

Top Margin for Front	Third Cassette
Left Margin for Front	MAIN Cassette Paper Size
Top Margin for Back *(duplex only)*	ALT (Alternate) Cassette Paper Size
Left Margin for Back *(duplex only)*	OPT (Optional) Paper Size
Top Margin for Envelope	ENV (Envelope) Cassette Paper Size
Left Margin for Envelope	MAN (Manual Feed) Paper Size
Primary Cassette	Output Tray

Serial options

The Serial options are used to set up the RS-232C port of the AXIS AFP MIO interface.

The following *Serial options* are available for configuration:

Enable Serial	DTR Polarity
Timeout	Data Bits
Baud Rate	Parity
Protocol	Stop Bits

IPDS Options [CFG=IPDS OPT]

The valid values for each option are listed and the default settings are indicated by a bullet (•).

Note: ***Changes to any of the options described will only take effect at the next printer Power on.***

Emulation

Emulation.....[IPDS EMUL]

This option selects the IBM printer to be emulated.

Value	Emulation
• 3816	IBM 3816
4028	IBM 4028 AS1
3916	IBM 3812/16 (3112/16)

Codepage Version

Codepage Version..... [CP VERSION]

This option selects between the old and the new version of some of the codepages.

Value	Codepage Version
• 0	Use version 1 (New)
1	Use version 0

IPDS Exception Control

IPDS Exception Control.....[EXCEPTION]

It is often practical to suppress exception reporting on undefined characters and position errors (printing outside valid printable area).

Value	IPDS Exception Control
• 0	No suppression of exceptions
1	Exception reporting for position errors is suppressed.
2	Exception reporting, when an undefined character is found, is suppressed.
3	Both position errors and undefined character exceptions are suppressed.

This option overrides the EHC control in the IPDS data stream.

Stacked Page Counter

Stacked Page Counter ..... [CNT UPDATE]

Used to select maximum printing speed (early update) or maximum security concerning recovery, if the printer is powered off while printing a job.

Value	Stacked Page Counter
• 0	Early updating of page counters in the IPDS replies.
1	Late updating.

Resource Memory Size

Resource Memory Size .....[RESOURCE]

Determines how much memory is used for resources.

Value	Resource Memory Size
• NORM	Normal split between resource and output buffer memory.
LESS	Allocate less memory to resources. This frees more memory for output buffers.
MORE	Allocate more memory to resources at the expense of output buffer memory.

Duplex Enable

Duplex Enable .....[DUPLEX PRT]

When the printer has the duplex option installed, this option is used to enable duplex in the IPDS emulation.

Value	Duplex Enable
YES	Reply to host system indicates support for duplex printing.
• NO	Duplex not supported.

Print Area

Print Area.....[PRINT AREA]

This option controls what Printable Area is reported in the 0b Printer Characteristics reply in the 4028 emulation.

Value	Print Area
• 3816	Printable Area and the paper size is the same.
4028	Printable Area is smaller than the paper size.
PRTP	Supports 4028 Print Page option. This option causes the upper left corner (0,0) of the Logical page to be forced inside the 4028 Printable area.

Note: This option has no effect in the 3812/16 emulations

Twinax Options [CFG=TWIN OPT]

The valid values for each option are listed and the default settings are indicated by a bullet (•).

Note: ***Changes to any of the options described will only take effect at the next printer Power on.***

Country Code Country Code.....[COUNTRY]

Use this option to select the default code page in IPDS mode.

Value	CP	Country	Value	CP	Country
0	500	International Set 5	21	97	France
• 1	37	USA/Canada - English	22	500	Reserved
2	500	Reserved	23	361	International Typographic
3	500	Reserved	24	437	Personal Computer
4	260	Canadian French	25	037	Alternate Portugal
5	273	Austria/Germany	26	871	Iceland
6	274	Belgium	27	892	OCR-A
7	275	Brazil	28	893	OCR-B
8	277	Denmark/Norway	29	500	Reserved
9	278	Finland/Sweden	30	500	Reserved
10	280	Italy	31	037	Canadian Bilingual
11	281	Japan-English	32	500	Swiss Bilingual
12	282	Portugal	33	284	Spanish
13	284	Spanish-Speaking	34	500	Reserved
14	285	United Kingdom	35	500	Reserved
15	286	Alt. Austria/Germany	36	500	Reserved
16	287	Alt. Denmark/Norway	37	1026	Turkish
17	288	Alternate Finland/Sweden	38	500	Reserved
18	289	Alternate Spain	39	905	Turkish
19	290	Japan-Katakana	40	-	Reserved
20	293	APL			

Device Address

Device Address.....[DEV ADDR]

Use this option to select the station address you wish to assign to your IPDS printer.

Value	Device Address
0 - 6	Valid values.
• 0	Default Device Address.

Important: ***Make sure that the printer has the desired Device Address before connecting to the host system. Please consult your system administrator.***

Twinax Timeout

Twinax Timeout.....[T TIMEOUT]

This option specifies for how long the AXIS AFP MIO interface will be waiting for more data on the twinax port before it will change printer access.

Value	Twinax Timeout
15s	15 seconds.
20s	20 seconds.
• 30s	30 seconds.
45s	45 seconds.
60s	60 seconds.
90s	90 seconds.
2min	2 minutes.
3min	3 minutes.
5min	5 minutes.

Printer Options [CFG=PRT OPT]

The valid values for each option are listed and the default settings are indicated by a bullet (•).

Note: ***Changes to any of the options described will only take effect at the next printer Power on.***

Top Margin for Front

Top Margin for Front .....[FMARG TOP]

Used for simplex pages and duplex front pages. Top Margin can be used to adjust the top margin if the normal setting does not fit the printer, or if a special requirement is needed. The top margin is located at the leading edge of the paper.

Value	Top Margin for Front
-99 - 155	Valid values.
• 0	Default Top Margin for Front.

Left Margin for Front

Left Margin for Front..... [FMARG LEFT]

Used for simplex pages and duplex front pages. Left Margin can be used to adjust the left margin if the normal setting does not fit the printer, or if a special requirement is needed. The left margin is located at the edge of the paper to the left of the leading edge.

Value	Left Margin for Front
-99 - 155	Valid values.
• 0	Default Left Margin for Front.

Top Margin for Back

Top Margin for Back ..... [BMARG TOP]

Used for duplex back pages. Refer to *Top Margin for Front* for a description.

Left Margin for Back

Left Margin for Back.....[BMARG LEFT]

Used for duplex back pages. Refer to *Left Margin for Front* for a description.

Top Margin for Envelope

Top Margin for Envelope..... [EMARG TOP]

Refer to *Top Margin for Front* for a description.

Left Margin for Emvelope

Left Margin for Envelope ..... [EMARG LEFT]

Refer to *Left Margin for Front* for a description.

Primary Cassette

Primary Cassette .....[PRIM CASS]

Selects paper source for the primary cassette.

Value	Primary Cassette
• MAIN	The main paper source <ESC>&l1H.
ALT	The alternate cassette source <ESC>&l4H
OPT	The optional large source <ESC>&l5H.
ENV	The envelope feeder will be used as primary cassette.
MAN	The manual feed will be used as primary cassette.

Alternate Cassette

Alternate Cassette.....[ALTER CASS]

Selects paper source for the alternate cassette.

Value	Alternate Cassette
• ALT	The alternate cassette source <ESC>&l4H
MAIN	The main paper source <ESC>&l1H.
OPT	The optional large source <ESC>&l5H.
ENV	The envelope feeder will be used as primary cassette.
MAN	The manual feed will be used as primary cassette.

Note: On the HP LaserJet 4 the MP tray will be the bottom cassette if the optional lower cassette is not installed.

Third Cassette

Third Cassette..... [THIRD CASS]

Selects paper source for the third cassette.

Value	Third Cassette
• NONE	No third cassette.
MAIN	The main paper source <ESC>&l1H.
ALT	The alternate cassette source <ESC>&l4H
OPT	The optional large source <ESC>&l5H.
ENV	The envelope feeder will be used as primary cassette.
MAN	The manual feed will be used as primary cassette.

MAIN Cassette Paper Size

Main Cassette Paper Size..... [PAPER MAIN]

Selects paper size for the main cassette.

Value	MAIN Cassette Paper Size
• A4	Paper size for top cassette is A4.
LET	Paper size for top cassette is Letter.
LEG	Paper size for top cassette is Legal.
EXEC	Paper size for top cassette is Executive.
A3	Paper size for top cassette is A3.
Bsiz	Paper size for top cassette is ANSI B-size

ALT (Alternate) Cassette Paper Size

Alternate Cassette Paper Size..... [PAPER ALT]

Selects paper size for the alternate cassette.

Value	ALT Cassette Paper Size
• A4	Paper size for alternate cassette is A4.
LET	Paper size for alternate cassette is Letter.
LEG	Paper size for alternate cassette is Legal.
EXEC	Paper size for alternate cassette is Executive.
A3	Paper size for alternate cassette is A3.
Bsiz	Paper size for alternate cassette is ANSI B-size

OPT (Optional) Cassette Paper Size

Optional Cassette Paper Size.....[PAPER OPT]

Selects paper size for the optional cassette.

Value	OPT Cassette Paper Size
• A4	Paper size for optional cassette is A4.
LET	Paper size for optional cassette is Letter.
LEG	Paper size for optional cassette is Legal.
EXEC	Paper size for optional cassette is Executive.
A3	Paper size for optional cassette is A3.
Bsiz	Paper size for optional cassette is ANSI B-size

ENV (Envelope) Cassette Paper Size

Envelope Cassette Paper Size.....[PAPER ENV]

Selects paper size for the envelope cassette.

Value	ENV Cassette Paper Size
• NONE	Envelope feeder not installed.
MON	Paper size for envelope feeder is Monarch.
COM	Paper size for envelope feeder is COM-10.
DL	Paper size for envelope feeder is DL.
C5	Paper size for envelope feeder is C5.

MAN (Manual Feed) Paper Size

Manual Feed Paper Size ..... [PAPER MAN]

Selects paper size for the manual feed.

Value	MAN Cassette Paper Size
• NONE	Manual paper feed not used.
A4	Paper size for manual paper is A4.
LET	Paper size for manual paper is Letter.
LEG	Paper size for manual paper is Legal.
EXEC	Paper size for manual paper is Executive.
A3	Paper size for manual paper is A3.
Bsiz	Paper size for manual paper is ANSI B-size
MON	Paper size for manual paper is Monarch.
COM	Paper size for manual paper is COM-10.
DL	Paper size for manual paper is DL.
C5	Paper size for manual paper is C5.
cA4	Paper size A4 with auto continuation.
cLET	Paper size Letter with auto continuation.
cLEG	Paper size Legal with auto continuation.
cEXE	Paper size Executive with auto continuation.
cA3	Paper size A3 with auto continuation..
cBsz	Paper size ANSI B-size with auto continuation.

Note: Auto continue means that the HP LaserJet 4 printer will NOT stop and wait for the On Line key to be pressed when using manual feed. Recommended settings for the HP4 printer are:

```
MP TRAY=CASS
LOCK=MP
MANUALFEED=OFF
```

Output Tray

Output Tray .....[OUT TRAY]

Output tray options.

Value	Output Tray
• DEF	Use output tray selected from the front panel.
TOP	Face down output.
SIDE	Face up output.

Error Beep Error Beep.....[ERROR BEEP]

Acoustic warning when error (Intervention Required).

Value	Error Beep
• NO	No acoustic alarm when printer error.
ONE	6 beeps one time.
CONT	6 beeps continuosly.

Serial Options [CFG=SER OPT]

The valid values for each option are listed and the default settings are indicated by a bullet (•).

Note: ***Changes to any of the options described will only take effect at the next printer Power on.***

Enable Serial Enable Serial .....[SER ENABLE]

Enables or disables the serial port.

Value	Enable Serial
YES	RS-232C/RS-422 input enabled.
• NO	RS-232C/RS-422 input disabled

Timeout Timeout.....[S TIMEOUT]

This option specifies for how long the AXIS AFP MIO interface will be waiting for more data on the serial port before it will change printer access.

Value	Timeout
15s	15 seconds.
20s	20 seconds.
• 30s	30 seconds.
45s	45 seconds.
60s	60 seconds.
90s	90 seconds.
2min	2 minutes.
3min	3 minutes.
5min	5 minutes.

Baud Rate Baudrate..... [BAUDRATE]

Sets the baud rate for the serial port.

Value	Baud Rate
300	300 baud
600	600 baud
1200	1200 baud
2400	2400 baud
4800	4800 baud
• 9600	9600 baud
19200	19200 baud

Protocol Protocol .....[PROTOCOL]

Selects the handshake protocol.

Value	Protocol
• Robust	Robust handshake.
Xon	Xon/Xoff handshake.
H/W	Hardware handshake.

DTR Polarity DTR Polarity ..... [DTR POLARI]

Sets the DTR polarity for the serial port.

Value	DTR Polarity
• HIGH	DTR active high.
LOW	DTR active high.

Data Bits Data Bits..... [DATA BITS]

Sets the number of data bits (word length) for the serial port.

Value	Data Bits
7	Use seven data bits.
• 8	Use eight data bits.

Parity Parity ..... [PARITY]

Sets the parity for the serial port.

Value	Parity
• None	No parity.
Even	Even parity.
Odd	Odd parity.
Mark	Mark parity.
Space	Space parity.

Stop Bits Stop Bits ..... [STOP BITS]

Sets the number of stop bits for the serial port.

Value	Stop Bits
• 1	Use one stop bit.
2	Use two stop bits.

Section 3

Front Panel Operation

Front Panel Keys and Indicators

The installation of the AXIS AFP MIO interface adds new functions to the front panel of your HP printer. This chapter describes how to operate the front panel when the interface is installed in an HP LaserJet 4 printer.

The front panel of the HP LaserJet 4 consists of a 16 character Plasma display, eight function keys and three indicator lights. The following explains how to use the front panel to customize the AXIS AFP MIO interface. A schematic overview can be found in *Appendix C Front Panel Menu*.

On Line

The <On Line> function key is used to take the printer off line or return it to the on line setting. The <On Line> light indicator lights when the printer is on line.The printer will not print any pages when off line.

Setting the Twinax Address

Menu ***Reset***	With the printer off line, press the <Menu> key several times until "MIO MENU" or "AUX IO MENU" is displayed.
Item ***Continue***	Press the <Item> key and "CFG=NO*" is displayed.
+ ***-***	Press the <+> key until "CFG=TWIN OPT" is displayed.
Enter	Press the <Enter> key until "COUNTRY=XXX" is displayed.
Item ***Continue***	Press the <Item> key until "DEV ADDR=<X>*" is displayed.

Now you have the following possibilities to change the Device Address:

+ ***-***	The <+> key will get you the next valid value. The <-> key will get you the previous valid value.
Enter	The <Enter> key will store the displayed address. An asterisk (*) indicates that this value is now stored.

Use the following key to leave the configuration menu:

On Line	Press the <On Line> key anytime you want to leave the configuration menu.

Important: Changing the Device Address will have no effect until the next Power on.

Changing the IPDS, Twinax, Serial or Printer Options

Menu ***Reset***	With the printer off line, press the <Menu> key several times until "MIO MENU" or "AUX IO MENU" is displayed.
Item ***Continue***	Press the <Item> key and "CFG=NO*" is displayed.
+ ***-***	Use the <+> or <-> function key to select between IPDS, Twinax, Serial and Printer options.
Enter	Press the <Enter> key to select the desired option.
Item ***Continue***	Press the <Item> key to select the IPDS, Twinax, Serial or Printer option you want to change.
	Now you have the following possibilities to change the selected option:
+ ***-***	The <+> key will get you the next valid value. The <-> key will get you the previous valid value.
Enter	The <Enter> key will store the displayed value. An asterisk (*) indicates that this value is now stored.
Item ***Continue***	Use the <Item> key to select the next option.
	Use the following key to leave the configuration menu:
On Line	Press the <On Line> key anytime you want to leave the configuration menu.

Important: Changing the options will have no effect until the next Power on.

Resetting to Default Option Values

Menu ***Reset***	With the printer off line, press the <Menu> key several times until "MIO MENU" or "AUX IO MENU" is displayed.
Item ***Continue***	Press the <Item> key and "CFG=NO*" is displayed.
+ ***-***	Press the <+> function key until "CFG=CARD DFLT" is displayed.
Enter	Press the <Enter> function key to restore the default option values.
On Line	Press the <On Line> key to leave the configuration menu.

Important: Changing the options will have no effect until the next Power on.

Printing a Printer Self Test Page

Menu ***Reset***	With the printer off line, press the <Menu> key several times until "TEST MENU" is displayed.
Item ***Continue***	Press the <Item> key and "SELF TEST" is displayed.
Enter	Press the <Enter> function key to print the printer self test page.

Load New Software via the RS-232C Interface

The software of AXIS AFP MIO interface can either be updated by replacing the original FLASH memory card with a new preloaded card or by loading the new software from a standard DOS PC using serial (RS-232C) communication. The AXIS AFP MIO interface then erases and reprograms the original FLASH memory card.

The software is distributed on a floppy disk containing two files:

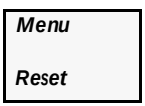
R60-xxxx.BIN — The binary compressed software file. xxxx indicates the version.

AFPMLOAD.EXE — Load utility program. Please use the following command to get information on how to use the program.

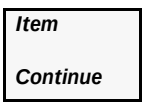
```
A:>AFPMLOAD /H
```

(Refer to *Appendix D RS-232C Interface* for pin assignment of the serial connector).

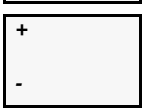
To load the new software to the AXIS AFP MIO interface:



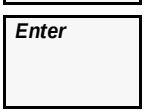
With the printer off line, press the <Menu> key several times until "MIO MENU" or "AUX IO MENU" is displayed.



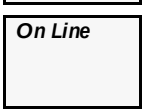
Press the <Item> key and "CFG=NO*" is displayed.



Press the <+> function key until "CFG=FLASH LD" is displayed.



Press the <Enter> function key to start the load procedure.



Press the <On Line> key anytime to terminate the load procedure.

The following messages will appear in the display:

Important: The display will only be updated every time you press the <Enter> key.

Display	Action
"WAITING SER "	Start load from the PC by entering AFPMLOAD with the required parameters.
"BLOCKS nnnnn "	nnnnn indicates the number of 192 bytes blocks transmitted.
"REMOVE CARD "	Remove the FLASH memory card.
"INSERT CARD "	Insert a FLASH memory card. It is recommended *not* to use the original FLASH memory card in case of failing load of the new software.
"ERASING "	Erasing the FLASH memory card.
"PROGRAMMING "	Programming the FLASH memory card.
"RESULT OK "	FLASH memory card programmed. Turn the printer OFF/ON to activate the new software.

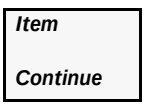
Display	Error Indication
"NO CARD "	No FLASH memory card in the slot.
"MEM IN USE "	The AXIS AFP MIO is using the RAM to prepare pages for printing.
"ERASE ERR "	Error erasing the FLASH memory card.
"PROGRAM ERR "	Error programming the FLASH memory card.
"WRT PROTECT "	The FLASH memory card is write protected.

Copy the FLASH Memory Card

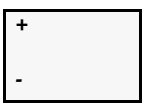
The AXIS AFP MIO interface can be used to copy the FLASH memory card. This is very useful in an organisation with more than one AXIS AFP MIO printer to distribute software updates to all the printers.

To copy the FLASH memory card:

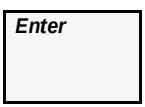
With the printer off line, press the <Menu> key several times until "MIO MENU" or "AUX IO MENU" is displayed.



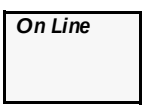
Press the <Item> key and "CFG=NO*" is displayed.



Press the <+> function key until "CFG=FLASH CPY" is displayed.



Press the <Enter> function key to start the FLASH memory card copy procedure.



Press the <On Line> key anytime to terminate the Copy procedure.

The following messages will appear in the display:

Important: The display will only be updated every time you press the <Enter> key.

Display	Action
"CHECKING "	Checking that a FLASH memory card is inserted.
"READING CARD"	Reading the FLASH memory card.
"REMOVE CARD "	Remove the FLASH memory card.
"INSERT COPY "	Insert the FLASH memory card that you want to copy to.
"ERASING "	Erasing the FLASH memory card.
"PROGRAMMING"	Programming the FLASH memory card.
"RESULT OK "	FLASH memory card programmed.

Display	Error Indication
"NO CARD "	No FLASH memory card in the slot.
"SAME CARD "	The software on the inserted FLASH memory card is identical to the original.
"MEM IN USE "	The AXIS AFP MIO is using the RAM to prepare pages for printing.
"ERASE ERR "	Error erasing the FLASH memory card.
"PROGRAM ERR "	Error programming the FLASH memory card.
"WRT PROTECT "	The FLASH memory card is write protected.

Printer Status Messages

Refer to the User's manual of the specific HP printer for printer error or service messages.

A "80 SERVICE [XXXX]" indicates that the AXIS AFP MIO has a fatal error. Try to power off the printer, wait for at least 3 seconds, and then power on the printer again. If the error reappears, please remember the error code and refer to *Appendix F Customer Support*.

Appendix A

Technical Specifications

Hardware

A RISC based printer controller including a 1 Mbyte PCMCIA Flash Card to be installed in the Modular I/O accessory slot of the new generation of printers from Hewlett-Packard and an auto-termination T-cable assembly.

The FLASH memory card contains software and the resident fonts.

Compatible Printers

- HP LaserJet 4, 4Si, 4+, 4V and IIISi
- HP PaintJet XL300
- HP DesignJet 600 and 650C
- HP Color LaserJet
- HP DeskJet 1200C/1600 C

Printer Memory Requirements

A total of minimum 2 Mbytes of memory is required in the HP printer. 4 Mbytes memory is recommended to get optimal performance.

5250 Attachment

- IBM AS/400
- IBM S/3X
- IBM 5294 remote controller
- IBM 5394 remote controller.
- IBM 5494 remote controller

Physical Attachment

Twinax cable.

Host/PC Sharing

Dynamic sharing between an IBM host and a standard PC using RS-232C interface.

Emulation	Either IBM 3816 compatible, including the standard 35 resident fonts functional equivalent to the IBM fonts, or IBM 4028 AS1 (3912/16, 3112/16) compatible, including the standard 32 resident fonts functional equivalent to the IBM fonts. All IPDS towers supported. Duplex is available in both emulations.
Resource Memory Size	More than 1 Mbyte of IPDS resource memory dependent on the configuration, i.e. paper size. Upgradable with standard SIMM memory module (1, 2, 4 or 8 Mbytes).
Configuration	Configured from the printer front panel.
Examples of IBM Host Software Supporting IPDS	• System/36 Release 5.1 or later • System/38 Release 8 or later • AS/400 Release 2 or later
Product Certifications	CE: EN50082-1, EN55022/1987 FCC Class A Safety: All safety regulations according to HP printer specifications.
Environment	Temperature: 5 - 40 °C / 40 - 105 °F Humidity: 10-90% RGH non-condensing.

Technical specification information is subject to change without notice.

Appendix B

IPDS Font Summary

IBM 3812 Emulation Fonts

no.	IBM font ID	subs/bold ID	Equivalent IBM font
1	3		OCR-B
2	5		Orator 10
3	11		Courier 10
	12	s 11	Prestige 10
	13	s 11	Artisan 10
4	18		Courier Italic 10
5	19		OCR-A
	20	s 12	Pica 10
	26	s 40	Matrix Gothic 10
	30	s 11	Math-symbol 10
	38	b 5	Orator bold 10
	39	b 40	Gothic-text bold 10
6	40		Gothic-text 10
	41	s 40	Roman-text 10
	42	s 40	Serif-text 10
	43	s 68	Serif-text Italic 10
7	44		Katakana-gothic 10
8	45		APL 10
	46	b 11	Courier bold 10
	60	b 12	Prestige bold 10
9	66		Gothic-text 12
10	68		Gothic-text Italic 12
	69	b 66	Gothic-text bold 12
	70	s 66	Serif-text 12
	71	s 68	Serif-text Italic 12
	72	s 69	Serif-text bold 12
	80	s 86	Math-symbol 12
11	84		Script 12
12	85		Courier 12
13	86		Prestige 12
14	87		Letter-gothic 12
	91	s 112	Light-Italic 12

no.	IBM font ID	subs/bold ID	Equivalent IBM font
	107	s 85	12 Pitch
	108	b 85	Courier bold 12
	110	b 87	Letter-gothic bold 12
	111	b 86	Prestige bold 12
15	112		Prestige Italic 12
16	155		Boldface Italic
	158	s 175	Modern
	159	b 175	Boldface
17	160		Essay
18	162		Essay Italic
	163	b 160	Essay bold
19	173		Essay light
20	175		Document
	176	s 159	Boldface
	177	s 155	Boldface Italic
21	204		Gothic-text 13
	221	s 230	Prestige 15
	222	s 230	Gothic 15
	223	s 230	Courier 15
	225	s 86	Math-symbol 15
	229	s 230	Serif 15
22	230		Gothic-text 15
23	244		Courier 5
	245	b 244	Courier bold 5
24	252		Courier 17
	253	b 252	Courier bold 17
25	254		Courier 17ss
26	280		APL 20
27	281		Gothic-text 20
28	290		Gothic-text 27
29	751(4407/54)		Sonoran serif 8pt
30	1051(4407/66)		Sonoran serif 10pt
31	1053(4427/66)		Sonoran serif bold 10pt
32	1056(4535/66)		Sonoran serif Italic10pt
33	1351(4407/78)		Sonoran serif 12pt
34	1653(4427/108)		Sonoran serif bold 16pt
35	2103(4427/162)		Sonoran serif bold 24pt

b - created by bolding algorithm, s - simulated by substitution

IBM 4028 Emulation Fonts

Axis font	IBM font ID	CPI	Point Size	Equivalent IBM font
OCR-B	3	10	12	OCR-B
Courier	11	10	12	Courier
Prestige Pica	12	10	12	Prestige Pica
Courier Italic	18	10	12	Courier Italic
OCR-A	19	10	12	OCR-A
Courier Bold	46	10	12	Courier Bold
APL	76	12	10	APL
Courier	85	12	10	Courier
Prestige Elite	86	12	10	Prestige Elite
Courier Italic	92	12	10	Courier Italic
Prestige Elite Bold	111	12	10	Prestige Elite Bold
Prestige Elite Italic	112	12	10	Prestige Elite Italic
Boldface	159	PS	12	Boldface
Prestige	164	PS	12	Prestige
Prestige	221	15	9	Prestige
Courier	223	15	9	Courier
Courier	254	17.1	8.5	Courier
Prestige	256	17.1	8.5	Prestige
Letter Gothic	281	20	7.5	LetterGothic
Nimbus Roman	5687	Typo	6	Times Roman
Nimbus Roman	5687	Typo	8	Times Roman
Nimbus Roman	5687	Typo	10	Times Roman
Nimbus Roman	5687	Typo	12	Times Roman
Nimbus Roman Bold	5707	Typo	10	Times Roman Bold
Nimbus Roman Bold	5707	Typo	12	Times Roman Bold
Nimbus Roman Bold	5707	Typo	14	Times Roman Bold
Nimbus Roman Bold	5707	Typo	18	Times Roman Bold
Nimbus Roman Bold	5707	Typo	24	Times Roman Bold
Nimbus Roman Italic	5815	Typo	10	Times Roman Italic
Nimbus Roman Italic	5815	Typo	12	Times Roman Italic
Nimbus Roman Bold Italic	5835	Typo	10	Times Roman Bold Ital.
OCR-B	3	10	12	OCR-B

PS - Proportional Spaced Typeface, Typo - Typographical Typeface

Times Roman is a registered trademark of Linotype AG and/or its subsidiaries. Nimbus Roman is a functional equivalent of Times Roman.

Appendix C

Front Panel Menu

All AXIS AFP MIO options are found under the "MIO MENU" or "AUX IO MENU".

With the printer off line, press the <Menu> key several times until "MIO MENU" or "AUX IO MENU" is displayed.

AUX IO Options

When "MIO MENU" or "AUX IO MENU" is displayed, press the <Item> key to get to the top level of the AXIS HP-MIO options.

`CFG =NO *`	<+> for next, <Item> for MIO MENU or AUX IO MENU
`CFG =PRT OPT`	<+> for next, <Item> for Printer Options
`CFG =TWIN OPT`	<+> for next, <Item> for Twinax Options
`CFG =IPDS OPT`	<+> for next, <Enter> for IPDS Options
`CFG =SER OPT`	<+> for next, <Enter> for Serial Options
`CFG =CARD DFLT`	<+> for next, <Enter> for Default Option Values (see page 34)
`CFG =FLASH CPY`	<+> for next, <Enter> to copy the Flash Card (see page 37)
`CFG =FLASH LD`	<+> for next, <Enter> to load new Micro Code (see page 35)

Twinax Options

Press <+>/<-> to change value, <Enter> to save, <Item> for next.

`COUNTRY =001 *`	Country Code (see page 19)
`DEV ADDR =000 *`	Device Address (see page 20)
`T TIMEOUT =30s *`	Twinax Timeout (see page 20)

Printer Options Press <+>/<-> to change value, <Enter> to save, <Item> for next.

`FMARG TOP =000 *`	Top Margin for Front (see page 21)
`FMARG LEFT=000 *`	Left Margin for Front (see page 21)
`BMARG TOP =000 *`	Top Margin for Back (see page 21)
`BMARG LEFT=000 *`	Left Margin for Back (see page 21)
`EMARG TOP =000 *`	Top Margin for Envelope (see page 22)
`EMARG LEFT=000 *`	Left Margin for Envelope (see page 22)
`PRIM CASS =MAIN*`	Primary Cassette (see page 22)
`ALTER CASS=ALT *`	Alternate Cassette (see page 22)
`THIRD CASS=NONE*`	Third Cassette (see page 23)
`PAPER MAIN=A4 *`	MAIN Cassette Paper Size (see page 23)
`PAPER ALT =A4 *`	ALT Cassette Paper Size (see page 23)
`PAPER OPT =A4 *`	OPT Cassette Paper Size (see page 24)
`PAPER ENV =NONE*`	ENV Cassette Paper Size (see page 24)
`PAPER MAN =NONE*`	MAN Cassette Paper Size (see page 25)
`OUT TRAY =DEF *`	Output Tray (see page 25)
`ERROR BEEP=NO *`	Error Beep (see page 26)

IPDS Options Press <+>/<-> to change value, <Enter> to save, <Item> for next.

`IPDS EMUL =3816*`	Emulation (see page 17)
`CP VERSION=0 *`	Codepage Version (see page 17)
`EXCEPTION =0 *`	IPDS Exception Control (see page 17)
`CNT UPDATE=0 *`	Stacked Page Counter (see page 18)
`RESOURCE =NORM*`	Resource Memory Size (see page 18)
`DUPLEX PRT=NO *`	Duplex Enable (see page 18)
`PRINT AREA=3816*`	Print Area (see page 18)

Serial Options Press <+>/<-> to change value, <Enter> to save, <Item> for next.

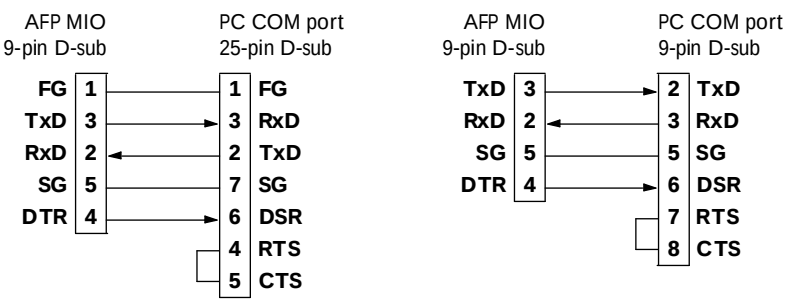
`SER ENABLE=NO *`	Enable Serial (see page 27)
`S TIMEOUT =30s *`	Timeout (see page 27)
`BAUDRATE =9600 *`	Baud Rate (see page 28)
`PROTOCOL =ROBU*`	Protocol (see page 28)
`DTR POLARI=HIGH*`	DTR Polarity (see page 28)
`DATA BITS =8 *`	Data Bits (see page 28)
`PARITY =NONE*`	Parity (see page 29)
`STOP BITS =1 *`	Stop Bits (see page 29)

Appendix D

RS-232C Interface

The AXIS AFP MIO serial (RS-232C) interface has the following pin configuration:

Pin no.	Description	Direction
2	Received data (RxD)	In
3	Transmitted data (TxD)	Out
4	Data Terminal Ready (DTR)	Out
5	Signal Ground (SG)	-
6	Data Set Ready (DSR)	In (not used)
7	Request To Send (RTS)	Out (pulled high)



Appendix E

IBM Cabling System

When using the AXIS AFP MIO on an IBM cabling system, the twinax lines are terminated in the cross field. In this case you will need a dummy twinax plug so that the auto-termination T-cable will not terminate.

This plug is available from your local dealer/distributor.

Appendix F

How to contact Axis

If you need technical support, please contact your dealer. If they can't help you, they will forward your request through the appropriate channels.

Internet and World Wide Web

If you are connected to Internet, have a look at the Axis WWW Home Page at http://www.axis.se/. Here you can find information about the company and our products. You can also down-load on-line manuals, tools such as the Acrobat Reader for different platforms, and the latest versions of the software utilities.

You can also get files and information through anonymous ftp: log in to ftp.axis.se and go to the /pub/axis directory.

The Axis offices

If you want to contact an Axis office, choose the one nearest to your region:

Europe, Middle East, South America, Africa, Australia

Axis Communications AB
Scheelevägen 16
S-223 70 Lund, Sweden
Phone: +46 46 19 18 00
Fax: +46 46 13 61 30
Email: info@axis.se

North & Central America
Axis Communications Inc.
4 Constitution Way, Woburn, MA 01801-1030, USA
Phone: 1-800-444-AXIS, (617) 938-1188
Fax: (617) 938-6161
Email: info@axisinc.com

Japan
Axis Communications KK
8th Center Plaza 5F, 1-10-16 Nihombashi Horidome-cho,
Chuo-ku, Tokyo 103, Japan
Phone: +8 13 3663 8801
Fax: +8 13 3663 8802
Email: info@axiscom.co.jp

Hong Kong, Asia (except Japan & Middle East)
Axis Communications LTD
Room 602 Asian House, 1 Hennessy Road, Wanchai, Hong Kong
Phone: +852 2836 0813
Fax: +852 2573 5935
Email: info@axis.com.hk

Appendix G

Related Publications

For additional information please refer to the following publications:

Title	Part no.
IBM Intelligent Printer Data Stream Reference	S544-3417
Using the IBM LaserPrinter 4028 Model AS/1 with the Application AS/400 and System/36	S544-4262
IBM LaserPrinter 4028 Model AS/1 IPDS Handbook	S544-4260
Using the IBM Pageprinter 3812 with an IBM System/36 or S/38	S544-3343
IBM Pageprinter 3812 IPDS Handbook	S544-3102
IBM 3812 and 3816 Page Printers Font Reference	GA34-2111
HP LaserJet 4 User's Manual	
HP Paint Jet XL300 Color Printer User's Guide	

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