HostCom® IV Cx Installation & Operator's Guide

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1 Introduction

Note: This manual covers both the HostCom IV Cx installed with an IPDS license and the non-IPDS version (SCS) of HostCom IV Cx.

The HostCom IV Cx is an external high performance interface for laser printers providing full support for all types of distributed printing from IBM mainframe systems. All major laser printer manufacturers are supported.

The advanced SCS features include barcode generation, font and paper tray selection as well as support for multiple transparent formats. With the additional IPDS feature installed, HostCom IV Cx handles both AFP/IPDS and SCS data streams. The IPDS feature supports all AFP/IPDS functions, including Downloaded Fonts, Graphics, Images, Duplex, Colour and DBCS fonts.

Low resolution IPDS printing resources are automatically scaled to 300 dpi using a high quality algorithm.

Easy installation is provided by automatic configuration of key printer functions and local configuration via Windows based set-up program. Remote configuration and firmware download from IBM systems provide an efficient method of managing large, distributed printer installations with minimal cost.

The interface provides direct S/370-390 coax connection to the parallel, USB or LAN connection of the printer without effecting the printer's normal operation.

It is assumed that the reader has a basic knowledge and understanding of IBM computer systems, especially the IBM 3270 Information Display System. It is also assumed that the reader has adequate knowledge of the printer that is going to be connected to the HostCom IV Cx.

The HostCom IV Cx can be used with most ASCII printers.

1.1 Related manuals

"IBM 3268 Printer Models 2 and 2C Description"
IBM Order No. GA27-3268

Contains information on the IBM 3268 printer emulated by HostCom IV Cx.

2 Installation requirements

This chapter provides a short description of the HostCom IV Cx and its installation requirements.

2.1 Introduction to HostCom IV Cx

The HostCom IV Cx is a protocol converter that enables any printer (or other output device) to be connected to an IBM computer system.

The printer or device should either have an USB, a Centronics parallel connector or a LAN network connection in order to be connected to the HostCom IV Cx protocol converter.

The IBM system should use the 3270 type terminals. See section 2.2 HostCom IV Cx Features - Supported Control Units, for information on the IBM systems to which the HostCom IV Cx connects.

2.1.1 PCL or FSL output driver

The internal configuration of the box allows you to select between the following two drivers:

The PCL driver (Default Driver)
If you wish to operate in PCL mode, the box is ready to operate as it is when delivered. When used with certain older IBM controllers, the FSL function Y8 may have to be set to obtain the correct SCS printer language. For further programming of the box, you are referred to the PCL 3270 Programmer's Guide; document no 62030.

The FSL driver
To use a non-PCL printer, you have to select FSL/alternate using the FSL setup. For this, you must follow the instructions in section 3.1.1 Changing the Printer Driver. The HostCom IV Cx box is compatible with the ida 3270 box (firmware S10 12.200). For programming the internal set-up of the box you must refer to the PCL 3270 Programmer's Guide; document no 62071.

2.2 HostCom IV Cx Features

The HostCom IV Cx protocol converter gives you the following features:

- Auto-configuration of printers with minimum PCL4 and PJL, supporting IEE1284, Bidirectional Centronics Communication.
  This automatically configures
  - Paper size
  - Paper tray
  - Duplex (IPDS)
  - Memory (IPDS)

To enable the automatic configuration, use function 119.

2.3 Setup and configuration

Setup and configuration of the HostCom IV Cx is performed using either the MPI Tech tool 'PrintGuide' or is controlled directly via the coax line using FSL functions.

Setup and configuration using PrintGuide requires that the HostCom IV Cx is connected to an Ethernet network via the LAN connector and is configured with an IP address.

Any IPDS parameter and general HostCom IV Cx parameters are handled using PrintGuide. PrintGuide is available on the supplied CD or UCB memory stick or can be downloaded from:
https://www.mpitech.com/mpitech.nsf/pages/utility-software_en.html

SCS parameters are controlled via FSL sequences and are defined from the host system via the coax line of the HostCom IV Cx box.

Non-IPDS (SCS)

- IBM 3287, 3268(factory default)/4214 emulations
- Support of the SCS (LU1) and 3270 data stream (LU0 or LU3) modes including FMH data streams as required by the host system.
- All IBM RPQs
- Parallel, USB and LAN output
- Up to 8 user strings of variable length can be transmitted to the printer from the HostCom IV Cx - automatically at power on and before and after Local Copy from the host system.
- Coax FSL set-up
- Firmware update via LAN connection using PrintGuide.
- Support of PSS
- Direct connection to IBM cabling system via dbs.

IPDS

- IPDS support - IBM IP40, 4028, 3812 or 3816 emulation.
- Non-IPDS support with full emulation of IBM 3268/3287/4214.
- Support of the PSS software package
- Parallel, USB and LAN output
- Support of the Function Selection via the Line (FSL) facility in non-IPDS mode.
- Firmware update via LAN connection using PrintGuide.
- Multiple VPA (Valid Printable Area) check options available.
- IM Smoothing (3812 and 3816 emulations).

Supported Control Units

The HostCom IV Cx connects to the following control units:

- IBM 3174 — All models
- IBM 3274 — All models (A-adapter)
- IBM 3276 — All models
- IBM 4321/31/41/61 — All models
- IBM 81XX — Via 327x controllers or 8775 terminals
- IBM 4701/4702 — Through the Device Cluster Adapter
- IBM 8775 — Through 3287 attachment RPQ

All equivalent 3274/76 PCM controllers, subject to validation by MPI Tech. Contact your MPI Tech dealer for more information.

2.4 Items Supplied

Please verify that you have received the following items:

HostCom IV Cx

- HostCom IV Cx converter
- Parallel printer cable
- USB printer cable
- Wall plug power supply
- CD or USB memory stick w/utility software

HostCom IV Cx IPDS

- Same contents as above except that the converter is installed with an IPDS license

In addition, the following MPI Tech accessories can be used:

- Parallel printer cable (Order no. 999 023-030)

IPDS upgrade

- IPDS upgrade via license key. Contact your point of sales for details.

2.5 Operating Environment

The HostCom IV Cx protocol converter can be installed in the following environment:

- Temperature range from 10° to 40° Centigrade
- Humidity between 8% to 80% non-condensing
- Power supply: 120 and 230 volt version: max. 21.5 VA.

3 Installation and Connections

This chapter starts with an overview of the functionality of the rear panel. Then follows a description of how you connect the HostCom IV Cx box to the printer and the system.

3.1 The rear panel

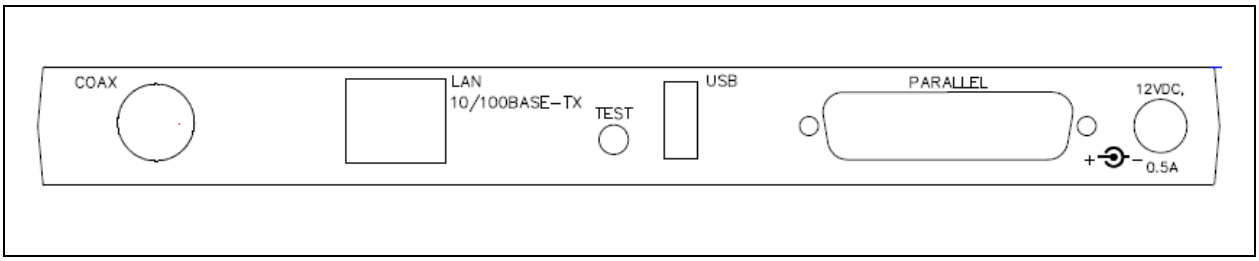

Fig 2-1 HostCom IV Cx rear panel

COAX
The coax cable is connected to the host, which communicates in accordance with the 3270 protocol.

PARALLEL
The parallel output port is connected to the parallel/Centronics input port on the target printer (standard parallel out cable supplied with HostCom IV Cx should be used).

USB
The USB output port is connected to the USB input port on the target printer (standard USB cable supplied with printer should be used).

LAN 10/100BASE-TX
The LAN connection is used in various ways:

- Connection to the local network for configuration using PrintGuide
- Connected to the local network for output to a remote printer using the existing network connection of the printer.

12VDC
Connection for power supply to the HostCom IV Cx.
Only use the power supply provided with the product.
The output is rated 12VDC @ 0.5A.

3.1.1 Changing the Printer Driver

The output data (Printer Language) from HostCom IV Cx may be chanced to match the connected printer.
Default language setting is PCL output.

Important:
Please ensure that the language settings of the HostCom IV match a supported and active language emulation of the target printer.

Use PrintGuide to select the appropriate driver from within the SCS or IPDS tab.

Possible selections are:

SCS:

- PostScript
- PCL
- Matrix:
  - Non-specific (Null Driver)
  - IBM Pro (IBM ProPrinter)
  - Epson FX
  - Epson LQ
  - IBM Pro XL24 (IBM ProPrinter 24 pin)
  - PCL II

IPDS: (Optional)

- PostScript
- PCL

3.1.2 Changing Paper Size

When you receive the HostCom IV Cx, the interface is ready to connect to the system and to the printer. During the power-up sequence, the HostCom IV Cx interface will perform an automatic configuration of the paper options of the target printer.
In case an automatic configuration is not successful or possible, you may use PrintGuide for setting up the available paper options of the printer.

3.1.3 Changing IBM Emulation of HostCom IV Cx

The IBM emulation of the HostCom IV Cx may be changed to match the host system requirements. The emulation is configured either using PrintGuide or programmed via FSL sequences.
Use PrintGuide to select the appropriate driver from within the SCS or IPDS tab.

Possible selections are:

SCS: (Programmed via FSL sequence Y37)
- 3268/4214 (default)
- 3287

IPDS: (Optional)
- IP40 (240, 300, 600 dpi)
- 4028 (300 dpi)
- 3812 (240 dpi)
- 3816 (240 dpi)

HostCom IV Cx will automatically select the appropriate font set when changing emulation (IPDS only).

3.2 Upgrading to IPDS

If you need to upgrade your HostCom IV Cx with support for IPDS, please contact your point of purchase or your local MPI Tech office for pricing and instructions. Upgrade to IPDS is performed by means of a license key.

3.3 Connecting the HostCom IV Cx to the Printer

CAUTION

All connections to the HostCom IV Cx protocol converter should be made while the power is switched OFF.

3.3.1 Connecting via Centronics or USB output

Connecting the HostCom IV Cx to the printer is simple and should cause no problems if you just follow these steps:

1. Check that printer's input port (parallel or USB) is available on printer.

2. Connect the parallel or USB cable supplied with the converter between the printer's input port and the HostCom IV Cx PARALLEL or USB port.

3. Power ON the printer and the HostCom IV Cx box.

4. Make a setting printout by pressing the 'TEST' button on the back of the HostCom IV Cx box. This will generate a settings printout. The CU indicator will start flashing for approximately 30 seconds.

When the printout is in order, you proceed to section "1.4 Connecting the HostCom IV Cx to the System"

3.3.2 Connecting via LAN output

1. HostCom IV Cx is capable of delivering the output via LAN using TCP/IP.

2. Connect the coax cable to the 'Coax' input terminal of the HostCom IV Cx and connect the network cable to the 'LAN' connection of the HostCom IV Cx box.

3. Power ON the printer and the HostCom IV Cx box.

4. Install and open PrintGuide. PrintGuide will automatically search and find the HostCom IV Cx box when connected to the network.

   - Open the configuration and select the relevant session
   - Open this session for configuration
   - Select the 'Output Driver' tab
   - Next to 'Parallel port Driver', click the drop-down menu and select 'TCP/IP Network Port Driver'
   - Type in the IP address of the target printer and select 'OK'
   - Save the configuration and allow the HostCom IV Cx to perform a restart.

5. Make a setting printout by pressing the 'TEST' button on the back of the HostCom IV Cx box. This will generate a settings printout. The CU indicator will start flashing for approximately 30 seconds

6. When the printout is in order, you proceed to section "1.4 Connecting the HostCom IV Cx to the System"

3.4 Connecting the HostCom IV Cx to the System

After a successful test printout has been generated to ensure that the connection between the HostCom IV Cx converter and the printer is working correctly (see previous section), you are now ready to connect the HostCom IV Cx to the system.

CAUTION

All connections to the HostCom IV Cx protocol converter should be made while the power is switched OFF.

1. Turn off the power and connect the HostCom IV Cx to your host system using the coax cable.

2. When the connection has been made, turn power ON and check that the CU and READY indicators turn ON. When they do, you have completed the installation procedure and are ready to operate the protocol converter as described below.

What if the CU Indicator fails to turn on?

If the CU indicator does not turn ON, this means that there is no communication with the control unit. You should check the following:

a. The coax cable connection from the control unit to the HostCom IV Cx.

b. The control unit (is it powered up etc.)

c. Is the control unit supported by the HostCom IV Cx? (See the chapter on Installation Requirements)

If all three (a. b. and c.) are in order, contact your systems support personnel or your MPI Tech dealer.

PCL driver

The default configuration of the interface will suffice for most application programs and uses. You should only change the configuration if you have special requirements.

If you should wish to change the configuration, the options may be set from the line as described in the Programmer's Guide; document no 62030

FSL Driver

With the FSL driver you have selected an un-programmed printer driver. You have to program the internal set-up of the box to suit your printing requirements. See the Programmer's Guide; document no 62071 for further details.

3.4.1 Testing

1. Power the unit ON.
2. Press the 'TEST' button. This will generate a settings printout.
3. Compare the test printout (FSL or PCL printout) with the relevant printout in the Appendix section.

> Keep the settings printout together with this manual for future reference.

4 Operation of HostCom IV Cx

The HostCom IV Cx top panel has been designed to register the operation of the box via the four following indicator LEDs:

- CU (contact to Control Unit)
- LAN (Network connection)
- PRINTER (Data to printer)
- READY (printer ready)

4.1 The indicators of the HostCom IV Cx

4.1.1 CU (Contact with Control Unit)

This indicator LED has 2 states:

State	Indication
ON	Contact with the control unit.
OFF	No contact to the control unit or contact has been broken for more than 1 minute.

4.1.2 LAN (Network connection)

The indicator LED has 4 states:

State	Indication
ON	Indicates that the box is connected to a LAN and is configured with TCP/IP network settings
Fast Blinking	Error on LAN
Slow Blinking	No TCP/IP network settings configured in the HostCom IV
OFF	NA

4.1.3 PRINTER (Data to Printer)

The indicator LED has 2 states:

State	Indication
Flickering	Data is being send to the printer.
OFF	Indicates that the box is idle.

4.1.4 READY (Printer Ready)

The indicator LED has 3 states:

State	Indication
ON	Ready and idle
Flickering	Ready, and receiving data from the Host or transmitting data to the printer
OFF	Printer not ready

5 IPDS Programming

Note: This chapter only applies to the HostCom IV Cx when licensed with the IPDS option.

PrintGuide is used for configuring any IPDS parameter of the HostCom IV Cx IPDS PrintGuide is a program developed with the purpose of setting up the wide range of MPI Tech products including IPDS protocol converters via the network port of the actual product.

For details on how to configure the IPDS parameters for the HostCom IPDS using PrintGuide, see the separate documentation for this, "**Getting started with PrintGuide**", doc. no. D60364. The manual is available on the CD or USB memory stick following the HostCom IV Cx product.

6 IRQ Handling

This section describes how to recover from various IRQ conditions.

- Paper jam
- Out-of paper
- Stacker full

The printer will recover from these conditions without loss of data as long as you do not power off the printer.

- Printer Not READY

The protocol converter will detect if the printer is NOT READY and will interrupt data transmission to the printer. If the printer is OFFLINE (i.e. not READY) there will be no data loss as long as you do not power off the printer.

- Out of toner

This condition is indicated by the printer's control panel. If printing continues, the print quality may not be acceptable. There will be no loss of data as long as you do not power off the printer.

- Door Open

This condition is indicated by the printer's control panel. There will be no loss of data as long as you do not power off the printer

- Printer Power Off

You should not power off the printer, unless you power off the box as well. If only the printer is powered off, unpredictable results may occur.

7 Non-IPDS Programming

The HostCom IV Cx works using numerous internal Set-up Functions (FSL Functions). When the protocol converter has been installed and connected to a printer, you may have to consider the use of these set-up options.

FSL set-up functions can be sent either from your IBM system or from a PC.

7.1 PCL Driver (Default)

If you have decided to run the HostCom IV Cx in PCL mode, the HostCom IV Cx is ready to operate after you have completed the installation procedure. The factory default set-up will meet the demands of most host systems and users, and special programming is therefore normally not required.

However, special circumstances may require changes in the programming of the box. For full details on this please see the "3270 Programmer's Guide; D62076, subpart D62030. In the Programmer's Guide you will find an extensive description of the FSL Functions with notes, comments and examples.

7.2 FSL Driver

If you have decided to run the HostCom IV Cx in FSL mode, you have just selected an un-programmed printer driver and you need to program any further settings of the box using FSL functions. The PCL 3270 Programmer's Guide; document no. 62071 gives you full details on how to do this.

On the following pages you will find a list of the functions available in PCL mode and FSL mode respectively.

7.3 Set-up Functions Supported in PCL Mode

Y1	Set IBM Buffer Size
Y2	Set Default LPI
Y3	Set Default CPI
Y4	Set Default Line Spacing
Y5	Set Default Page Length (MPL)
Y6	Set Default Max. Print Position (MPP)
Y7	Set Case (Mono, Dual)
Y8	Set LU1 Language
Y10	Set Page Format
Y11	Set Default Paper Path
Y12	Set Default Paper Size
Y13	Line Overflow Condition
Y19	Set Simplex/Duplex
Y22	Printer Driver Selection
Y25	FF Before Local Copy
Y26	FF After Local Copy
Y27	NON-SCS Print Image
Y28	NON-SCS, CR at MPP+1
Y29	NON-SCS, NL at MPP+1

Y30	NON-SCS, Valid FF Followed by data
Y31	NON-SCS, Valid FF at end of buffer
Y32	NON-SCS, FF Valid
Y33	NON-SCS, Automatic Func. at end of job
Y34	Last LF on page sent as FF
Y35	FF from system sent as FF or LF's
Y36	Suppress IBM control codes (parameters 0 and 1)
Y37	IBM Printer Emulation Select (parameters 0,1,2 & 4)
Y38	IBM Communication Feature (Query, EAB)
Y39	Suppress Empty Forms
Y44	Suppress CR and SP
Y47	ESC Mode Selection
Y48	Set Permanent ESC Character
Y51	User-defined string(s) at Power-on
Y59	Bar Code Type Definition
Y60	Font Link
Y61	Set-up for user-defined strings (parameters 0 - 7)
Y62	Set-up for IBM defined strings
Y72	Reset Translate Table
Y73	Select Translate Table
Y74	Printer Symbol Set Definition Strings
Y75	Overwrite Translate Table
Y77	Reset APL Translate Table
Y78	Select APL Translate Table
Y80	Overwrite APL Translate Table
Y88	Margin Definition
Y89	Enable Margin Definition
Y90	Define User Escape String
Y91	Font Definition
Y92	Font Point Size Definition Strings
Y93	Font Attribute Definition
Y94	Font Typeface Definition
Y96	Font Change Simulation
Y98	Automatic Page Orientation

7.3.1 ESC features

%% Special transparent feature (Multiple paired Hex transparent).
e.g.: %%1B45%
where % is the defined ESC character.

% Special transparent feature (Single paired Hex transparent).
where % is the defined ESC character.

7.3.2 TEST functions (T-Functions)

T4 Print out Settings
T5 Printout Character Set

7.3.3 User settings functions (X-Functions)

X1 Store Settings in Permanent Storage
X2 Restore Settings from Permanent Storage
X3 Restore Factory Default Settings
X4 Restore Settings from Permanent Storage

7.3.4 Engineering functions

Y249 Enable Engineering Mode

7.3.5 Z functions

Zn Send user-defined string

7.3.6 W functions

Wn Printing Barcodes (defined in Y 59)

7.4 Set-up Functions Supported in FSL Mode

Y1	Set IBM Buffer Size (parameters 2,3,4 & 5)
Y2	Set Default LPI (parameters 6 & 8)
Y3	Set Default CPI (parameters: 10, 12, 15 & 16)
Y5	Set Default Page Length (MPL)
Y6	Set Default Max. Print Position (MPP)
Y7	Set Case (Mono, Dual)
Y8	Set LU1 Language
Y9	Set Default Print Quality (parameters 2 & 3)
Y11	Set Default Paper Path (parameters 1, 2 & 3)
Y22	Printer Driver Selection
Y25	FF Before Local Copy
Y26	FF After Local Copy
Y27	NON-SCS Print Image
Y28	NON-SCS, CR at MPP+1
Y29	NON-SCS, NL at MPP+1
Y30	NON-SCS, Valid FF Followed by data
Y31	NON-SCS, Valid FF at end of buffer
Y32	NON-SCS, FF Valid
Y33	NON-SCS, Automatic Func. at end of job
Y34	Last LF on page sent as FF
Y35	FF from system sent as FF or LF's
Y36	Suppress IBM control codes
Y37	IBM Printer Emulation Select
Y38	IBM Communication Feature (Query, EAB)
Y39	Suppress Empty Forms
Y44	Suppress CR and SP
Y48	Set Permanent ESC Character
Y51	User-defined string(s) at Power-on
Y61	Set-up for user-defined strings
Y62	Set-up for IBM defined strings
Y71	Create Translate Table
Y72	Reset Translate Table
Y73	Select Translate Table
Y75	Overwrite Translate Table
Y76	Create APL Translate Table
Y77	Reset APL Translate Table
Y78	Select APL Translate Table
Y80	Overwrite APL Translate Table
Y90	Define User Escape String

7.4.1 ESC features

%% Special transparent feature (Multiple paired Hex transparent).
e.g.: %%1B45%
where % is the defined ESC character.

% Special transparent feature (Single paired Hex transparent).
where % is the defined ESC character.

7.4.2 TEST functions (T-Functions)

T4 Print out Settings
T5 Printout Character Set

7.4.3 User settings functions (X-Functions)

X1 Store Settings in Permanent Storage
X2 Restore Settings from Permanent Storage
X3 Restore Factory Default Settings
X4 Restore Settings from Permanent Storage

7.4.4 Engineering functions

Y249 Enable Engineering Mode

7.4.5 Z functions

Zn Send user-defined string

8 Updating Firmware

The HostCom IV Cx firmware may be updated using PrintGuide via the Network port of the HostCom IV Cx product. For further information please contact your MPI Tech office or local dealer.

If errors are detected, the downloading will be terminated and an error message will be printed if possible. If serious errors occur during programming, it may be required to return the HostCom IV Cx to your MPI Tech office or to your local dealer.

Procedure:

- Receive and save the updated firmware on your PC
- Install PrintGuide from the MPI Tech web:
  https://www.mpitech.com/mpitech.nsf/pages/utility-software_en.html

- Connect HostCom IV Cx to a network using the LAN connection
- Allow the box to start up and receive an IP address from the networks DHCP server
- Start PrintGuide
- Mark the HostCom IV Cx box
- Select the menu: 'PrintServer' -> 'Update Firmware' Locate the firmware and follow the instructions.
- Have patience .. Updating firmware will take a few minutes
- Allow the HostCom IV Cx to perform a restart
- Wait for 'Ready'
- Turn off the power and unplug the LAN connection and re-insert into the Coax environment.

Appendix A: FSL Functions

- = Factory Default

No.	Name	Syntax	Parameters	Deviations
1	Buffer Size	%Y1,<n1>%	1 = 960 characters 2 = 1920 characters 3 = 2560 characters *4 = 3440 characters 5 = 3564 characters	FSL: N/S
2	LPI	%Y2,<n1>%	0 = USER: No LPI AUTO: Ignored 3 = 3 LPI 4 = 4 LPI *6 = 6 LPI 8 = 8 LPI For an explanation of USER and AUTO modes, see the "3270 Programmer's Guide"	FSL: N/S FSL: N/S FSL: N/S
3	CPI	%Y3,<n1>%	0 = USER: No CPI AUTO: Prop. spacing *10 = 10 CPI 12 = 12 CPI 15 = 15 CPI 16 = 16.7 CPI 20 = 20 CPI 27 = 27 CPI	FSL: N/S FSL: N/S FSL: N/S
4	Line Spacing	%Y4,<n1>%	*1 = Single Space 2 = Double space	Y4: PCL only
5	Form Length	%Y5,<n1>%	0 = Disable vertical formatting 001 to 255 = Set FL in no. of lines	*72 FSL *66 PCL **66 FSL **62 PCL
6	Maximum Print Position	%Y6,<n1>%	0 = No NLs will be generated by the interface 001 to 255 = Set MPP in no. of characters *132	

No.	Name	Syntax	Parameters	Deviations
7	Case	%Y7,<n1>%	0 = Mono case (left to right) *1 = Dual case (left to right) 2 = Right to left (dual case) 3 = Left to right (dual case)	
8	Language	%Y8,<n1>%	37 = Engl. US EBCDIC 256 = International 273 = Austrian/ German 274 = Belgian 275 = Brazilian 276 = Canadian French 277 = Danish/ Norwegian 278 = Finnish/ Swedish 280 = Italian 281 = Japanese (Latin) 282 = Portuguese 283 = Spanish 284 = Spanish Speaking 285 = English (UK) 297 = French *500 = Multinational 871 = Iceland	
9	Print Quality	%Y9,<n1>%	*1 = Draft Print Quality 2 = Near Letter Quality 3 = Correspondence	Y9: FSL only

No.	Name	Syntax	Parameters	Deviations
10	Page Format	%Y10,<n1>[,n2]%	n1 *0 = Portrait 1 = Landscape 2 = COR 1 3 = Fit to page in Portrait 4 = 8" x 11" Portrait 5 = 8" x 12" Portrait 6 = 13.2" x 8.5" Landscape 7 = Landscape 13.2" 8 = Portrait 10 cpi x 11" 9 = Portrait 10 cpi z 12" n2 1 = Tractor (Upper) 2 = Drawer 1 (Upper) 3 = Drawer 2 (Lower) 4 = Manual feeder 5 = Envelope feeder 6 = Drawer 3 (Lower)	Y10: PCL only
11	Paper Path	%Y11,<n1>%	0 = Ignore PPM and select tray from printer front panel 1 = Tractor (Upper) *2 = Drawer 1 3 = Drawer 2 4 = Manual feeder 5 = Envelope feeder 6 = Drawer 3	FSL: N/S 1=FSL 2=PCL FSL: N/S FSL: N/S FSL: N/S
12	Paper Size	%Y12,<n1>[,n2]%	n1 *1 = A4 2 = Legal 3 = Letter 4 = Executive 5 = Letter (Monarch) 6 = Business (Com 10) 7 = International DL 8 = International C5 10 = A3 n2 1 = Tractor (Upper) 2 = Drawer 1 (Upper) 3 = Drawer 2 (Lower) 4 = Manual feeder 5 = Envelope feeder 6 = Drawer 3 (Lower)	Y12: PCL only

No.	Name	Syntax	Parameters	Deviations
13	Line Overflow Option	%Y13,<n1>[,n2]%	n1 0 = Lines longer than print line are wrapped. Overflow data on next line. *1 = Lines longer than print line are cut. Overflow data is not printed. n2 1 = Tractor (Upper) 2 = Drawer 1 (Upper) 3 = Drawer 2 (Lower) 4 = Manual feeder 5 = Envelope feeder 6 = Drawer 3 (Lower)	Y13: PCL only
19	Duplex Printing	%Y19,<n1>%	*0 = Simplex 1 = Long-edge duplex 2 = Short-edge duplex	Y19: PCL only
22	Printer Driver Selection	%Y22,<n1>%	*5 = PCL 5 driver. Disable ida AFP query. 15 = PCL 5E driver Enable ida AFP query.	Y22: PCL only
24	Interface Selection	%Y24,<n1>%	*0 = Port 0 1 = Port 1	
25	FF before Local Copy	%Y25,<n1>%	*0 = No FF 1 = FF	
26	FF after Local Copy	%Y26,<n1>%	0 = No FF *1 = FF	0=FSL 1=PCL

No.	Name	Syntax	Parameters	Deviations
27	Non-SCS Print Image	%Y27,<n1>%	*0 = Null line suppression in Local Copy and non-SCS print. 1 = Null line suppression in non-SCS print and true screen image in Local Copy 2 = True screen image in non-SCS print and null line suppression in Local Copy 3 = True screen image in non-SCS print and Local Copy 4 = Null line suppression and formatted print in LU3 print and in Local Copy 5 = Null line suppression and formatted print in LU3 print. Null line suppression and unformatted print in Local Copy. 6 = Null line suppression and unformatted print in LU3 print. Null line suppression and formatted print in local copy. 7 = Null line suppression and unformatted print in LU3 print and in local copy.	
28	CR at MPP +1	%Y28,<n1>%	*0 = 1st PP of next line 1 = 1st PP of current line	
29	NL at MPP +1	%Y29,<n1>%	*0 = 1st PP of current line + 2 lines 1 = 1st PP of next line	

No.	Name	Syntax	Parameters	Deviations
30	Valid FF Followed by Data	%Y30,<n1>%	0 = 2nd of 1st line of next form *1 = 1st PP of 1st line of next form	0=FSL 1=PCL
31	Valid FF at End of Print Buffer	%Y31,<n1>%	0 = 1st PP of 2nd line of next form *1 = 1st PP of 1st line of next form	0=FSL 1=PCL
32	FF Valid	%Y32,<n1>%	*0 = FF valid only at 1st PP in line or MPP+1 1 = FF valid anywhere	
33	Automatic Function at End of Job	%Y33,<n1>%	*0 = NL at 1st PP of next line 1 = 1st PP at 1st line of next form	
34	Last LF on Page Sent as FF	%Y34,<n1>%	0 = No *1 = Yes, count lines in FSL 5 and send FF	*0: FSL *1: PCL
35	FF Usage	%Y35,<n1>%	*0 = Pass FF from Host 1 = Count the lines in function 5	Y35: FSL only
36	Suppress IBM Control Codes	%Y36,<n1>%	*0 = Respect all IBM codes 1 = Suppress all IBM codes	

No.	Name	Syntax	Parameters	Deviations
37	IBM Printer Emulation Select	%Y37,<n1>%	0 = 3287 Emulation *1 = 3268/4214 Emulation 2 = HEX 00-3F sent transparently except valid SCS codes. TRN sent non-transparently 4 = HEX 00-3F sent as blanks except valid SCS codes. TRN sent trans-parently 6 = HEX 00-3F sent transparently except valid SCS codes. TRN sent transpar-ently 8 = Unprintable characters are suppressed ex-cept certain SCS codes (see 3270 Pro-grammer's Guide for further de-tails.	
38	IBM Communi-cation Feature	%Y38,<n1>%	0 = No query reply, but EAB *1 = Query reply and EAB 2 = No query reply and no EAB	
39	Suppress Empty Forms	%Y39,<n1>%	*0 = No forms suppressed 1 = Empty forms suppressed	Y39: FSL only
41	Generation of New Line at End of Message	%Y41,<n1>%	*0 = Disable 1 = Enable	Y41: PCL only
44	Suppress CR and Spaces to Obtain Same Position	%Y44,<n1>%	0 = No suppression *1 = Suppression	0 = FSL *1 = PCL
47	ESC Mode Selection	%Y47,<n1>%	*1 = ESC xx sent as "xx" HEX 2 = Tel-A-Graf support 3 = Double escape feature	Y47: PCL only

No.	Name	Syntax	Parameters	Deviations
48	Permanent ESC Character Selection	%Y48,<n1>[;n2 [;n3]]% or %Y48,<xx>%	'char.' = character selected from the current IBM char. table in apostrophe notation xx = HEX value of the character selected from the LU3 table n2 max. of 5 characters to introduce transparency (string must not begin w. '&' or char. defined in n1) lead-in sequence n3 max. of 5 characters to end transparency invalid values: (0-9 and A-F)lead-out sequence *00	
51	User-Defined String(s) at Power-Up	%Y51,<n1>%	0-7 = One or more strings defined in FSL 61 first	

No.	Name	Syntax	Parameters	Deviations
59	Bar Code Type Definition	%Y59,<n1>,<n2>, <n3>,<n4>%	n1 1-8 = Bar code def. no. n2 22-39 = Bar code type n3 1-255 = Height in inches n4 1-32 = Horizontal expansion *1	Y59: PCL only
60	Font Link	%Y60,<n1>,<n2>%	n1 0,10,12,13,15,16,20,27 , CPI = pitch n2 1-65535 = GFID No.	Y60: PCL only
61	Setup for User Defined Strings	%Y61,<n1>,<n2>%	n1 0-7 = User String no. n2 00-FF = String contents in HEX or in apostrophe notation	
62	Setup for IBM Defined Strings	%Y62,<n1>,<n2>%	Please refer to the "ida 270x PCL Platform, Programmer's Guide" doc. no. D62030 and the "3270 Programmer's Guide" doc. no. D62076 for further information	
71	Select Tranlate Table	%Y71,<n1>%	1-8 = Number of the translate table to be selected	Y71: FSL only
72	Reset Translate Table	%Y72,<n1>%	1-8 = Delete the indicated table	
73	Select Translate Table	%Y73,<n1>%	1-8 = Select the indicated table	

No.	Name	Syntax	Parameters	Deviations
74	Define Printer Symbol Set Strings	%Y74,<n1>,<n2>%	n1 1-8 = Symbol set no. n2 00-FF = String contents in HEX	Y74: PCL only
75	Overwrite Translate Table	PCL: %Y75,<n1>[,n2], <data>[:n1,n2, <data>]% ---------- FSL: %Y75,n1,n2[;n2]| [:n1,n2]%	n1 00-BF = LU3 position in HEX of character to be trans-lated n2 1-8 = Symbol set defined in FSL 74 n3 00-FF = Data in ASCII HEX required to print the character ---------- n1 LU3 char.00-BF = Specifies which LU3 characters to be translated to parameter n2 n2(data) 00-FF = ASCII code as the LU3 value shall be translated to. Can be defined as paired HEX up to 12 bytes, separated with commas.	PCL mode ---------- FSL mode
76	Create APL Translate Table	%Y76,<n1>%	1-8 = Create an APL Translate Table	Y76: FSL only
77	Reset APL Translate Table	%Y77,<n1>%	1-8 = Reset the indicated APL table	
78	Select APL Translate Table	%Y78,<n1>%	1-8 = Select the indicated APL table	

No.	Name	Syntax	Parameters	Deviations
80	Overwrite APL Translate Table	%Y80,<n1>[,n2], <n3>%	n1 30-BF = The position in HEX of the APL character to be trans-lated n2 1-8 = Symbol set defined in FSL 74 n3 00-FF = Data in ASCII HEX required to print the character	
88	Physical Margins	%Y88,<n1>,<n2> [,n3]%	n1 0 to 32000 = Horizontal margin compensation in 1/1440"*0 n2 0 to 32000 = Vertical margin compensation in 1/1440" *0 n3 0-9 = Page format as defined in FSL 10	
89	Physical Margin Compensation	%Y89,<n1>[,n2]%	n1 *0 = No compensation 1 = Compensation as defined in FSL 88 n2 1 = Drawer 1 (Upper) 2 = Drawer 1 (Upper) 3 = Drawer 2 (Lower) 4 = Manual feeder 5 = Envelope feeder 6 = Drawer 3 (Lower)	

No.	Name	Syntax	Parameters	Deviations
90	Define User ESC String Definition	%Y90,<n1>,<n2>%	n1 0 = Erase strings 00-FF = String no. in HEX n2 '<string>' = String contents in apostrophe notation	
91	Font Definition	%Y91,<n1>,<n2>,<n3>,<n4>,<n5>[,n6]%	n1 (IBM GFID) 1-65535 = IBM GFID no. n2 (Typeface) 0-255 = Pre-programmed typeface value n3 (Attribute) 0 = No attributes 1 = Bold 2 = Italic 3 = Bold and Italic 4 = Proportional 5 = Prop. Bold 6 = Prop. Italic 7 = Prop. Bold and Italic n4 (Symbol Set) 0-7 n5 (Point Size) 1-65535 = Point size n6 (Translate Table)1-8 Optional	Y91: PCL only
92	Font Point Size Definition String	%Y92,<n1>,<n2>%	n1 10-255 = String no. in decimal n2 00-FF = String contents in HEX	Y92: PCL only
93	Font Attribute Definition String	%Y93,<n1>,<n2>%	n1 10-255 = String no. in decimal n2 00-FF = String contents in HEX	Y93: PCL only

No.	Name	Syntax	Parameters	Deviations
94	Font Typeface Definition String	%Y93,<n1>,<n2>%	n1 10-255 = String no. in decimal n2 00-FF = String contents in HEX	Y94: PCL only
96	Simulate Font Change	%Y96,<n1>%	1-65535 = GFID No. in deci-mals *11	Y96: PCL only
98	Automatic Page Orientation APO)	%Y98,<n1>*,n2*%	n1 0 = Activate APO *1 = Deactivate APO 2 = Validate physical page n2 1 = Drawer 1 (Upper) 2 = Drawer 1 (Upper) 3 = Drawer 2 (Lower) 4 = Manual feeder 5 = Envelope feeder 6 = Drawer 3 (Lower)	Y98: PCL only
115	idaAFP Misc.	%Y115,<n1>%	n1 0 = No features covered by this FSL available *1 = Support for Unit selection In printer	Y115: PCL only
118	Expanded Printable Area	%Y118,<n1>%	IPDS Non-IPDS *0= Disabled Disabled 1= Enabled Disabled 2= Disabled Enabled 3= Enabled Enabled	Y118: PCL only
119	Auto-Configuration select	%Y119,<n1>%	n1 *0 = Disable Auto-configuration 2 = Auto-configuration via PJL	Y119: PCL only

No.	Name	Syntax	Parameters	Deviations
120	Settings Print-Out at Power On	%Y120,<n1>%	n1 *0 = Disable settings print-out at power on 1 = Enable settings printout at power on	
249	Enter Engineering Mode	%Y249,<n1>%	n1 password(contact your local distributor)	
T	Initiate Tests	%T#	4= Printout settings 5= Printout translate table	
X	Save/Overwrite Settings	%X#	1= Store RAM in EEPROM 2= Restore default 3= Factory default to RAM 4= Restore settings to power up defaults	
Z	Send User String	%Z#	0-7 = User strings defined in FSL 61	
W	Send Bar Code	%W,n1,data%	n1 Numeric value from 1-8 indicating the defined bar code number Data Data must not exceed one line	W: PCL only

Appendix B: Test Printouts

Various test print out are available from the HostCom IV

Common HostCom IV parameters (including network settings):

- Press the 'TEST' button momentarily

See page 40 for example

SCS FSL settings (Printout is depending on the 'Language' defined in SCS Settings as set via PrintGuide)

- Send the following to the HostCom IV via the Coax input:
  &&??##T4

SCS 'Language' setting via PrintGuide:

A 'Language' setting of 'PostScript' or 'PCL' will cause the PCL settings to be printed.
See page 42 for example

A 'Language' setting of 'Matrix – Non-specific' will cause the FSL settings to be printed.
See page 43 for example

HostCom IV Coax

General Information

MPI Tech A/S
Vadstrupvej 35, DK-2880 Bagsvaerd
Phone: +45 4436 6000 Fax: +45 4436 6111
MPI Tech, North America
East: Phone: +1 703 243 3322 Fax: +1 703 243 3305
West: Phone: +1 714 840 8077 Fax: +1 714 840 2176
www-site: www.mpitech.com
Note: To reset factory defaults,
press test button for 8 sec.

Base Product version	: S80 240.720/01479.451
Boot Product version	: S40240.310/81479.145
Coax Front End	: S12 240.020
CPLD Hardware version	: 1.5
IPDS font version	: S92 102.071/00176022

Device Settings

Installed RAM	: 64 MB
RAM Status	: OK
Installed FLASH	: 16384 kB AMD
IEEE 1284 Mode	: Compatibility
Ethernet port	: 100 Mbps / Full Duplex, Link is Up
Universal MAC address	: 00036E22D829 (selected)
Local MAC address	: 020000000000
Timeout (secs.) (Share,Hold,IRQ)	: (0,600,60)
PS Name	: HostCom IV Coax
PS Contact	:
PS Location	:
Features	: H2N, DCA/SCS, IPDS
Max-PPM (BW,Color)	: (55,N/A)

TCP/IP Settings

TCP/IP	: Enabled
FTP	: Enabled
Host Name	:
IP Lookup Method	: Automatic, (DHCP BOOTP RAR P)
DHCP Server	: 172.16.1.39
HTTP Timeout	: 600
HTTP Port	: 80
IP Address	: 172.16.11.13
Subnet Mask	: 255.255.240.0
Gateway	: 172.16.1.254
WINS	: Enabled
Status	: Not started
Primary WINS Server	: 172.16.1.10
Secondary WINS Server	: 172.16.1.18
Scope ID	:
DNS Servers	: 172.16.1.18
	: 172.16.1.10

SNMP Settings

Authentication Traps	: Enabled
Trap Destinations	
(1) Community Name	:
Host Address	: 0.0.0.0
UDP Port #	: 162
Access Authorizations	
(1) Community Name	: public
Access Rights	: Read and Write
(2) Community Name	: internal
Access Rights	: Read and Write

SMTP Settings

Server	: 0.0.0.0	
Reply	: HostCom@domain.com	
Service	:	
Key user	:	
Notify	: Service	Key user
Need paper	: NO	YES
Offline	: NO	YES
Intervention required	: NO	YES
Online	: NO	YES

PORT Settings

PAR1	: CENTRONICS, STANDARD, Bidirectional: YES

PRINTER 1

Port type	: PAR1
Autoconfig	: YES
Printername	: HP LaserJet 4050 Series
Duplex	: NO
Memory (PCL)	: (19222 kB, 1024 kB)
Tray 1	
PaperType,Descrip	: (A4,Upper tray)
PaperSrc,Input Prio	: (1,0)
Tray 2	
PaperType,Descrip	: (LETTER,Lower tray)
PaperSrc,Input Prio	: (4,1)
Tray 3	
PaperType,Descrip	: (LETTER,Manual tray)
PaperSrc,Input Prio	: (2,2)
Tray 5	
PaperType,Descrip	: (A4,Optional tray)
PaperSrc,Input Prio	: (5,4)

HostCom IV Coax

Description		**Session**	**Status**
Coax Input	: IPDS	(DPRAMIN 2)	Registered
Memory limit	: 53723 kB	(IPDS 4)	
Output destination	: PAR1	(ICDS 4)	
		(PRINTER 1)	
Coax Input	: RAW	(DPRAMIN 1)	Registered
Output destination	: PAR1	(PRINTER 1)	
Coax Input	: SCS	(DPRAMIN 3)	Registered
Memory limit	: 20 kB	(SCS 4)	
Output destination	: PAR1	(ICDS 7)	
CPI,LPI,MPP,MPL	: (10,6,132,66)	(PRINTER 1)	

-- Page 2 --

PCL test printout

```
------------
SCS FSL settings

4096 bytes available in dynamic area.
188 bytes are used, and 3908 bytes are free.

Y01 = 4
Y02 = 6
Y03 = 10
Y05 = 66
Y06 = 132
Y07 = 1
Y08 = 500
Y09 = 1
Y010 = 0,0,0,0,0,0,0,0,0,0
Y011 = 1
Y022 = PCL 5
Y025 = 0
Y026 = 1
Y027 = 0
Y028 = 0
Y029 = 0
Y030 = 1
Y031 = 1
Y032 = 0
Y033 = 0
Y034 = 1
Y035 = 1
Y036 = 0
Y037 = 1
Y038 = 1
Y039 = 0
Y047 = 1
Y048 = 00
Y051 =

Y059 =

Y060 =   10 : 11
         12 : 80
         13 : 204
         15 : 223
         16 : 253
         20 : 281
         27 : 290

Y061 =
Y062 =   130:1b,28,73,33,42
         131:1b,28,73,30,42
         132:1b,26,64,30,44
         133:1b,26,64,40

Y073 = 1
Y074 =

Y078 = 1
Y090 =

Y098 = 1,1,1,1,1,1,1,1,1,1
```

FSL test printout

```
------------
SCS FSL settings

4096 bytes available in dynamic area.
52 bytes are used, and 4044 bytes are free.

Y01 = 4
Y02 = 6
Y03 = 10
Y05 = 66
Y06 = 132
Y07 = 1
Y08 = 500
Y09 = 1
Y010 = 0
Y011 = 1
Y022 = Box 3270
Y025 = 0
Y026 = 1
Y027 = 0
Y028 = 0
Y029 = 0
Y030 = 1
Y031 = 1
Y032 = 0
Y033 = 0
Y034 = 0
Y035 = 0
Y036 = 0
Y037 = 1
Y038 = 1
Y039 = 0
Y047 = 1
Y048 = 00
Y051 =

Y059 =
Y061 =
Y062 =

Y073 = 1
Y074 =

Y078 = 1
Y090 =
```

About MPI Tech

MPI Tech is a global vendor of workflow and output management solutions with distribution worldwide. MPI Tech develops and markets a world-leading portfolio of technologies and products for unique document managing and printing solutions.

For more than two decades MPI Tech has specialized in providing high quality solutions for IBM printing in Coax/Twinax and mixed host/LAN environments. The portfolio includes mainframe software and server software for Windows, UNIX and LINUX environments, as well as hardware solutions for both external and internal installations. For LAN printing, MPI Tech is a leader in wireless printing via Bluetooth™ and offers a vide range of print servers.

MPI Tech also develops and markets software and hardware solutions for capturing, distributing and printing documents over the enterprise. Our solutions increase the productivity of professional document management systems through just-in-time process control, quality management and speed. Our technology is offered in our user-based products as well as incorporated into many other world class products via our developer tool kits.

With our headquarters located in Paris, France, MPI Tech operates in most of the world through sales and support offices and partners. Our partners include Hewlett-Packard, IBM, Xerox, Konica, Tally, Lexmark, Toshiba, and many more.