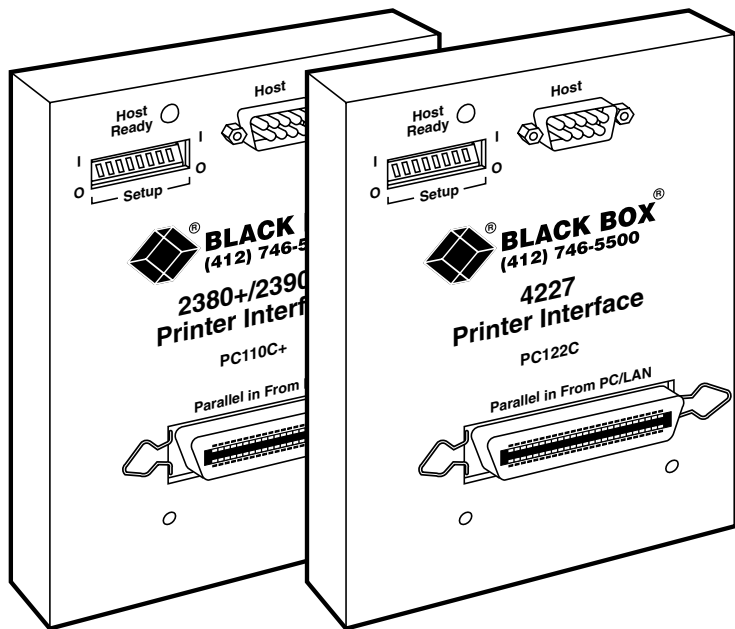




Coax 2380+/2390+ Emulation Card Coax 4227 Emulation Card



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This equipment generates, uses, and can radiate radio frequency energy and if not installed and used properly, that is, in strict accordance with the manufacturer's instructions, may cause interference to radio communication. It has been tested and found to comply with the limits for a Class A computing device in accordance with the specifications in Subpart J of Part 15 of FCC rules, which are designed to provide reasonable protection against such interference when the equipment is 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 necessary to correct the interference.

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INSTRUCCIONES DE SEGURIDAD

1. Todas las instrucciones de seguridad y operación deberán ser leídas antes de que el aparato eléctrico sea operado.
2. Las instrucciones de seguridad y operación deberán ser guardadas para referencia futura.
3. Todas las advertencias en el aparato eléctrico y en sus instrucciones de operación deben ser respetadas.
4. Todas las instrucciones de operación y uso deben ser seguidas.
5. El aparato eléctrico no deberá ser usado cerca del agua—por ejemplo, cerca de la tina de baño, lavabo, sótano mojado o cerca de una alberca, etc..
6. El aparato eléctrico debe ser usado únicamente con carritos o pedestales que sean recomendados por el fabricante.
7. El aparato eléctrico debe ser montado a la pared o al techo sólo como sea recomendado por el fabricante.
8. Servicio—El usuario no debe intentar dar servicio al equipo eléctrico más allá a lo descrito en las instrucciones de operación. Todo otro servicio deberá ser referido a personal de servicio calificado.
9. El aparato eléctrico debe ser situado de tal manera que su posición no interfiera su uso. La colocación del aparato eléctrico sobre una cama, sofá, alfombra o superficie similar puede bloquea la ventilación, no se debe colocar en libreros o gabinetes que impidan el flujo de aire por los orificios de ventilación.
10. El equipo eléctrico deber ser situado fuera del alcance de fuentes de calor como radiadores, registros de calor, estufas u otros aparatos (incluyendo amplificadores) que producen calor.

11. El aparato eléctrico deberá ser conectado a una fuente de poder sólo del tipo descrito en el instructivo de operación, o como se indique en el aparato.
12. Precaución debe ser tomada de tal manera que la tierra física y la polarización del equipo no sea eliminada.
13. Los cables de la fuente de poder deben ser guiados de tal manera que no sean pisados ni pellizcados por objetos colocados sobre o contra ellos, poniendo particular atención a los contactos y receptáculos donde salen del aparato.
14. El equipo eléctrico debe ser limpiado únicamente de acuerdo a las recomendaciones del fabricante.
15. En caso de existir, una antena externa deberá ser localizada lejos de las líneas de energía.
16. El cable de corriente deberá ser desconectado del cuando el equipo no sea usado por un largo periodo de tiempo.
17. Cuidado debe ser tomado de tal manera que objetos líquidos no sean derramados sobre la cubierta u orificios de ventilación.
18. Servicio por personal calificado deberá ser provisto cuando:
 - A: El cable de poder o el contacto ha sido dañado; u
 - B: Objetos han caído o líquido ha sido derramado dentro del aparato; o
 - C: El aparato ha sido expuesto a la lluvia; o
 - D: El aparato parece no operar normalmente o muestra un cambio en su desempeño; o
 - E: El aparato ha sido tirado o su cubierta ha sido dañada.

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1. Installation

The Coax 2380+/2390+ Emulation Card (PC110C+) is an easy-to-operate direct-attach printer interface for the Lexmark 2380/81 Plus or 2390/91 Plus series printer. The Coax 4227 Emulation Card (PC123C) attaches to the Lexmark™ 4227 dot-matrix printer in a similar manner. Both interfaces can easily be set up through on-board setup (DIP) switches and Host/PC download commands.

The Cards attach the Lexmark printer to an IBM® 30XX, 43XX, 937X host, or 3174, 3274, or 3276 controller. The interface offers reliable emulations of IBM 4214, 4224, 3287, 3263, and 3268 printers (all non-IPDS).

An auto-sharing Centronics® parallel port on the interface allows a PC or LAN to be attached at the same time as the host, and automatically changes between host and PC/LAN printing without the need to change cables or switches.

The interface features support for LU3 (DSC) and LU1 (SCS) mode printing, user-defined setup selections (including IBM RPQ options) that can be changed and stored in the interface's memory, and a Command Pass-Thru (hex transparency) feature for access to the special features of the printer directly from the host.

1.1 Unpacking

When you receive your Card, check the packaging for water or physical damage; notify the carrier immediately if any damage is evident. The package contains:

- (1) Coax Card
- (1) Coax adapter cable
- (1) Screwdriver
- (2) Mounting screws
- (1) Manual
- (1) Cable assembly (for the PC123C only)

Keep the original packaging in case the Card needs to be moved or shipped.

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1.2 Installing the Coax 2380+/2390+ Emulation Card (PC110C+)

Before connecting the Card to the printer, verify that the printer functions properly by performing a printer self-test. Consult the printer's user's guide for instructions on how to start and evaluate the self-test. If the printer functions properly, proceed with the installation.

NOTE

Electrical current from power lines and cables connecting the Card, printer, and PC can be hazardous. To minimize the danger, follow the steps listed below.

The Card does not support old 23XX model 1 printers.

1. Set the printer to IBM PPDS Code Page 850, character set 2, or Code Page 437, character set 2.
2. Power off the printer, remove the power cord and printer cable (if attached).
3. Remove the two screws and the wire clips (bails) to the left and right of the printer's parallel connector.
4. Attach the interface's ribbon cable to the printer's parallel connector.
5. Insert the interface latches into the holes of the printer.
6. Secure the interface by fastening the long mounting screws in the holes to the left and right of the printer's parallel connector.

1.3 Installing the Coax 4227 Emulation Card (PC123C)

No special training or tools are necessary to install the Coax 4227 Emulation Card. Follow the steps below to install the interface.

CAUTION

The Card is a static-sensitive device. Make sure you do not damage the card with static electricity. Take ESD (electrostatic discharge) precautions as you would with any static-sensitive device. If you can, stand on an antistatic mat or use an anti-static work surface when installing the card.

1. Power ON the printer and perform a self-test as described in the printer's manual. Do not continue until the printer passes the self-test.
2. Verify that the printer is operating in IBM mode and is using Code Page 850, character set 2.
3. Turn OFF the printer and unplug the power cord.
4. Remove the plastic back cover from the printer.
5. Remove the two screws and the wire clips (bails) to the left and right of the printer's parallel connector.
6. Locate the socket for the optional download font module on the printer's system board. Fully insert the cable assembly into the socket, making sure that the cables are facing towards the inside of the printer and the socket's notch matches the notch silkscreened to the printer's system board.
7. Ensure that the button to the left of the printer's parallel connector is *not* pushed in (that is, set for Parallel/RS-232).
8. Pull the cables of the cable assembly through the opening for the parallel connector and reattach the printer's back cover.
9. Attach the end of the cable assembly to the power connector on the Card's interface. Make sure the cables face upward.
10. Attach the interface's ribbon cable to the printer's parallel connector and insert the interface latches into the holes of the printer.
11. Secure the interface by fastening the long mounting screws in the holes to the left and right of the printer's parallel connector.

1.4 Self-Test

Perform an interface self-test:

1. Set the interface's setup switches: #1 to "0" and #8 to "|".
2. Attach the printer's power cord. Power on the printer.
3. A two-page self-test will print (see the example on the next page).
4. Power off the printer and return the setup switch #8 to the "0" position.

3270 Coax Interface for Lexmark Dot-Matrix Printers
Copyright 1996
Software Version 2.00
ROM OK
RAM OK
Software Version 2.00

Intervention Required (IR) Timeout Disabled
Output Printer Protocol IBM PPDS Dot Matrix

#01 - Buffer Size (Characters) 2 1920
#02 - Lines Density (LPI) 6
#03 - Characters Density (CPI) 10
#04 - Line Spacing 1 Single (6 or 8 LPI)
#05 - Form Length (MPL) 066
#06 - Maximum Print Position (MPP) 080
#07 - Print Case 1 Dual
#08 - LU1 Language 01 English (US)
#12 - FF Before Local Screen Copy 0 No
#13 - FF After Local Screen Copy 0 No
#14 - LU3 Print Image (Non-SCS Mode) 0 LU3 and Local Copy Null line suppress
#15 - CR at MPP+ 0 Next line
#16 - NL at MPP+1 0 Current line+2
#17 - Valid FF Followed by Data 0 2nd PP
#18 - Valid FF at End of Buffer 1 Line 1
#19 - FF Valid Location 0 FF valid at 1st PP or MPP + 1
#20 - Auto Function at End of Job 0 NL
#21 - Print Quality 0 DP = Fast Draft, Text = Draft
#25 - IBM Motion Command 0 Use FF
#26 - Suppress Empty Forms 0 No
#27 - Form Feed After Time Out 0 No
#30 - Override of Formatting Cmds 0 Disabled
#31 - Truncate/Wrap select 0 Wrap text beyond MPP
#34 - Interv Required (IR) Timeout 120 Times 5 Seconds
#36 - Suppress IBM Control Codes 0 No control codes suppressed
#37 - Vertical Channel Select (VCS) 1 3268/4224
#39 - CPT End Delimiter (ASCII) 2625 (&%)
#40 - CPT Start Delimiter (ASCII) 2625 (&%)
#41 - Command ID Char (ASCII) 5A (Z)
#45 - SCS TRN Translate 1 3287 emulation, SCS code 35
#50 - Sharing Port Timeout 08 Seconds
#51 - Host Port Timeout 08 Seconds
#65 - Character Set Selection 2 Code Page 850

#56 - Parallel Port Init String:
PP:
#57 - Host Port Init String:
HP:
#55: Custom User Strings:
U0:
U1:
U2:
U3:
U4:
U5:

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EBCDIC to ASCII Translate Table, Domain 0 SCS (LU1) EBCDIC to ASCII Translate Table

	40	50	60	70	80	90	A0	B0	C0	D0	E0	F0	
0:	20	26	2D	9B	9D	F8	E6	5E	7B	7D	5C	30	&-øø°μ^{} \0
1:	20	82	2F	90	61	6A	7E	9C	41	4A	20	31	é/Éaj~fAJ 1
2:	83	88	B6	D2	62	6B	73	BE	42	4B	53	32	âéÂÊbks¥BK\$2
3:	84	89	8E	D3	63	6C	74	FA	43	4C	54	33	âèÀÈclt·CLT3
4:	85	8A	B7	D4	64	6D	75	9F	44	4D	55	34	àèÀÈdmufDMU4
5:	A0	A1	B5	D6	65	6E	76	F5	45	4E	56	35	áíÁíenv\$ENV5
6:	C6	8C	C7	D7	66	6F	77	F4	46	4F	57	36	âíÁífow¶FOW6
7:	86	8B	8F	D8	67	70	78	AC	47	50	58	37	âíÁígp××GPX7
8:	87	8D	80	DE	68	71	79	AB	48	51	59	38	çìÇìhgy¿HGY8
9:	A4	E1	A5	60	69	72	7A	F3	49	52	5A	39	ññÑ`irz×IRZ9
A:	BD	21	7C	3A	AE	A6	AD	5B	2D	FB	FD	FC	ç!|:«ª;[-123
B:	2E	24	2C	23	AF	A7	A8	5D	93	96	E2	EA	·\$,#»º¿]óúóÛ
C:	3C	2A	25	40	D0	91	D1	EE	94	81	99	9A	<>*%@ðæÐ`öüöÛ
D:	28	29	5F	27	EC	F7	ED	F9	95	97	E3	EB	()_`ý ý`òùòÛ
E:	2B	3B	3E	3D	E8	92	E7	EF	A2	A3	E0	E9	+; >=ÞËþ'óúóÛ
F:	B3	AA	3F	22	F1	CF	A9	F2	E4	98	E5	20	|^?`±¤_ðÿð

EBCDIC to ASCII Translate Table, Domain 0 DSC (LU3) DBC to ASCII

	40	50	60	70	80	90	A0	B0	C0	D0	E0	F0	
0:	20	26	2D	9B	9D	F8	E6	5E	7B	7D	5C	30	&-øø°μ^{} \0
1:	20	82	2F	90	61	6A	7E	9C	41	4A	20	31	é/Éaj~fAJ 1
2:	83	88	B6	D2	62	6B	73	BE	42	4B	53	32	âéÂÊbks¥BK\$2
3:	84	89	8E	D3	63	6C	74	FA	43	4C	54	33	âèÀÈclt·CLT3
4:	85	8A	B7	D4	64	6D	75	9F	44	4D	55	34	àèÀÈdmufDMU4
5:	A0	A1	B5	D6	65	6E	76	F5	45	4E	56	35	áíÁíenv\$ENV5
6:	C6	8C	C7	D7	66	6F	77	F4	46	4F	57	36	âíÁífow¶FOW6
7:	86	8B	8F	D8	67	70	78	AC	47	50	58	37	âíÁígp××GPX7
8:	87	8D	80	DE	68	71	79	AB	48	51	59	38	çìÇìhgy¿HGY8
9:	A4	E1	A5	60	69	72	7A	F3	49	52	5A	39	ññÑ`irz×IRZ9
A:	BD	21	7C	3A	AE	A6	AD	5B	2D	FB	FD	FC	ç!|:«ª;[-123
B:	2E	24	2C	23	AF	A7	A8	5D	93	96	E2	EA	·\$,#»º¿]óúóÛ
C:	3C	2A	25	40	D0	91	D1	EE	94	81	99	9A	<>*%@ðæÐ`öüöÛ
D:	28	29	5F	27	EC	F7	ED	F9	95	97	E3	EB	()_`ý ý`òùòÛ
E:	2B	3B	3E	3D	E8	92	E7	EF	A2	A3	E0	E9	+; >=ÞËþ'óúóÛ
F:	B3	AA	3F	22	F1	CF	A9	F2	E4	98	E5	20	|^?`±¤_ðÿð

1.5 Connecting to the Host

Before connecting the interface to the host, you may want to change the interface's default configuration parameters. (Refer to **Chapter 2**.)

To attach the interface to the IBM host:

1. Power off the printer.
2. Attach the coax adapter cable to the interface's 9-pin port labeled "Host."
3. Attach the host's coax cable to the adapter.
4. Power on the printer.

2. Configuration

2.1 Configuring the Printer

To ensure proper functioning, verify that the printer is operating in IBM mode. Also, check to see that the printer is using Code Page 850 Character Set 2 or Code Page 437 Character Set 2. See your printer's user's guide for information on how to change this setting. Make sure the interface is also configured to use the same Code Page. To change the interfaces use Host/PC Download command #17 (later in this manual).

2.2 Setup Switches

The interface's setup switches are used to enable or disable the IR (Intervention Request) timer, to restore factory-default settings, and to perform diagnostic functions. Use a pointed object, such as small screwdriver, to change the switch settings. Except for the EBCDIC Hex Dump function, all switch settings will *only* be read when the interface is powered up. The EBCDIC Hex Dump function can only be enabled when the interface is already powered on and operating.

IR Timeout	Setup Switch #4
Enabled	0
Disabled	|

NOTE: If the IR Timer is Enabled, then Host/PC Download Command #34 can be used to set the time interval before an intervention required signal is sent to the host.

Tests/Diagnostic	SW1:1	SW1:8
Restore Factory Defaults	|	0
Self-Test	0	|
EBCDIC Hex Dump*	0	|
Operating Mode	0	0

* The EBCDIC Hex Dump function is enabled after the interface is already powered on and operating. All other functions are enabled when the interface is powered on.

2.3 Host/PC Download Commands

By sending download commands from the Host/PC to the Card, you can change all configuration parameters not already covered through the configuration switches.

Most Host/PC download commands are placed in a Host/PC document or on the screen. Regardless of whether the incoming print job is a screen print, a spreadsheet, or a word-processing document created on either the host or PC, the interface will recognize the Host/PC download command.

The command itself will not be printed if it was entered correctly. If any part of the command is printed, the interface did not recognize the command because of a problem in the format. Check the syntax of the command and send the command again.

Most Host/PC download commands sent to the Card take effect immediately and stay only in the interface's active memory. To save the changed configuration beyond a power off, Host/PC download command Z99,0 must be sent.

NOTE

Save the Host/PC download commands in a separate file. If you need to re-configure the interface at a later time, or if you need to configure more than one interface, just "print" the file containing the Host/PC download commands.

Take the following steps to enter a host download command.

1. Type the Command Pass-Thru delimiter &% (or alternate CPT beginning delimiter) in the document at the point where the command is to take effect.
2. Type an upper-case "Z" (or the alternate command ID character).
3. Type the command number for the command to be used, as shown in **Section 2.4**.
4. Type a comma.

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5. Type the value representing the desired selection. No spaces are allowed. A space or invalid character in a command causes the interface to ignore the command and resume printing from the point the error occurred.
6. A space or control character (such as NL, LF, CR, or FF) signals the end of the download command.
7. Multiple commands can be chained together by using a slash (/) or backslash (\) to separate the commands (no spaces allowed). For example, to set the Form Length (Command 05) to 64 lines (Value 64), the Buffer Size (Command 01) to 960 characters (Value 1), and the Character Density (Command 03) to 12 CPI (Value 12), type:

&%Z05,64/Z01,1/Z03,12

2.4 Configuration Options

The table below shows the Coax Host/PC Download commands and their corresponding command numbers in alphabetical order:

<u>Host/PC Download Command</u>	<u>Command Number</u>
CPT Ending Delimiter.....	39
CPT Start Delimiters	40
Automatic Function at End of Job	20
Buffer Hex Dump	42
CPI	03
Character Set	65
Coax Buffer Size	01
Command ID Character	41
CR at MPP + 1	15
Custom User Strings	55
FF After Time Out	27
FF At End of Buffer	18
FF After Local Screen Copy.....	13
FF Before Local Screen Copy	12
Form Length.....	05
Host Port Init String	57

<u>Host/PC Download Command</u>	<u>Command Number</u>
Host Timeout	51
IBM Motion Command	25
Intervention Required Timeout	34
Line Spacing	04
LPI	02
LU1 Language	08
Max. Print Position	06
NL at MPP + 1	16
Override Format Commands	30
Parallel Port Init String	56
Print Active Configuration Setting	98
Print Quality	21
Print Case	07
Print Image	14
Restore Factory Default	98
Restore Previously Saved Configuration	98
Save Config in NV Memory	99
SCS Translate =	45
Sharing Timeout	50
Suppress Empty Forms	26
Suppress Host	36
Text After FF	17
Truncate/Wrap	31
Valid FF Location	19
Vertical Channel Select	37

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Asterisks (*) identify factory-default settings. Invalid commands (such as selecting 2 LPI) are ignored. The last valid setting will be unchanged. Examples in this section apply to configuration through Host/PC download only.

COMMAND 1: BUFFER SIZE

Selects logical default buffer size.

<u>VALUE</u>	<u>DESCRIPTION</u>
1	960 characters
*2	1920 characters
3	2560 characters
4	3440 characters
5	3564 characters

Note: This command, along with the Z99,0 command, changes the logical buffer size selection in the non-volatile memory of the interface. The logical buffer size is only reported to the host the next time the unit is powered up.

The physical buffer size is permanently set at 4K.

Example: `&%Z1,3` sets the logical buffer size to 2560 characters.

COMMAND 2: LINES PER INCH

Selects default LPI.

<u>VALUE</u>	<u>DESCRIPTION</u>
3	3 LPI
4	4 LPI
*6	6 LPI
8	8 LPI

Note: This default emulates the front-panel selection on an IBM printer.

The IBM host can control the LPI unless Command 36 is used to override the host LPI commands.

Example: `&%Z2,8` sets the printer to 8 LPI default.

COMMAND 3: CHARACTERS PER INCH

Selects default CPI.

<u>VALUE</u>	<u>DESCRIPTION</u>
0	No default sent to printer
*10	10 CPI
12	12 CPI
15	15 CPI
16	16.7 CPI

Note: The IBM host can control CPI unless Command 36 is used to select override of host CPI commands.

Example: &%Z3,15 sets the printer to 15 CPI default.

COMMAND 4: LINE SPACING

Selects default Line Spacing.

<u>VALUE</u>	<u>DESCRIPTION</u>
*1	Single Space
2	Double Space

Example: &%Z4,2 sets the printer to double-space default.

COMMAND 5: FORM LENGTH

Selects default Form Length (MPL = Maximum Print Lines).

<u>VALUE</u>	<u>DESCRIPTION</u>
000	No form length control
001 to 255	Set form length in number of lines
*066	Factory default

Note: The 000 value enables the front-panel selection on the printer to control the form length when Command 25 is set to value 0.

Example: &%Z5,70 sets form length to 70 lines for A4 paper.

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COMMAND 6: MAXIMUM PRINT POSITION

Selects current and default Maximum Print Position, the maximum number of characters which can be printed on each line.

<u>VALUE</u>	<u>DESCRIPTION</u>
000	Infinite line length
001 to 254	Set MPP in number of characters
*80	Factory default

Note: Normal values are 80, 132, or 198 characters. This default emulates the front panel selection on an HP® printer.

MPP and the current position will not be changed by changes in CPI.

The infinite line length will place no limits on the number of characters that can be sent to the printer on a single line.

Example: &%Z6,63 sets MPP to 63 characters.

COMMAND 7: PRINT CASE

Selects default print case.

<u>VALUE</u>	<u>DESCRIPTION</u>
0	Mono case
*1	Dual case

Note: This default only affects LU3 printing.

Example: &%Z7,0 sets default to mono case.

COMMAND 8: LU1 LANGUAGE

Selects default LU1 language.

<u>VALUE</u>	<u>DESCRIPTION</u>
*01	English (U.S.) EBCDIC
03	Austrian/German
04	Belgian
05	Brazilian
06	Canadian (French)
07	Danish/Norwegian
08	Danish/Norwegian (alt.)
09	Finnish/Swedish
10	Finnish/Swedish (alt.)
11	French
12 (same as 11)	French (alt.)
13	Austrian/German (alt.)
14	International Set 5
15	Italian
16	Japanese (English)
19	Spanish
20	Spanish (alt.)
21	Spanish Speaking
22	English (U.K.)
23 (same as 07)	Norwegian
24 (same as 09)	Swedish
25 (same as 01)	EBCDIC (alt.)
26 (same as 08)	Norwegian (alt.)
27 (same as 10)	Swedish (alt.)
28	Portuguese
29 (same as 06)	Canadian (Bilingual)
30 (same as 11)	French AZERTY (105 character)
31 (same as 14)	Swiss German
32 (same as 14)	Swiss French

Note: This command, along with command Z99,0, changes the default LU1 language selection in the permanent memory of the interface. The command value should match the language number used in IBM CU configuration sequence number 121.

Example: `&%Z8,04` sets LU1 language to Belgian.

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COMMAND 12: FORM FEED BEFORE LOCAL SCREEN PRINT

Specifies whether a form feed is performed before doing local screen print.

<u>VALUE</u>	<u>DESCRIPTION</u>
*0	No form feed before local screen dump
1	Form feed before local screen dump

Note: This command only affects the local screen copy function, not the host-initiated local copy printing, and functions only in LU3 (non-SCS) operations.

Example: `&%Z12,1` performs a form feed before local screen dump.

COMMAND 13: FORM FEED AFTER LOCAL SCREEN COPY

Specifies whether a form feed is performed after a local screen hard copy.

<u>VALUE</u>	<u>DESCRIPTION</u>
*0	No Form Feed after local screen dump
1	Form Feed performed after local screen dump

Note: To use this function, the RPQ should be:

IBM 3268 RPQ SC9508
IBM 3287 RPQ MC3750
IBM 4214 OPT 20=3

This command only affects the local screen copy, not the host-initiated local copy printing, and functions only in LU3 (non-SCS) operations.

Example: `&%Z13,1` performs a form feed after local screen dump.

COMMAND 14: LU3 PRINT IMAGE (NON-SCS MODE)

Selects Null-Line Suppression or True Screen Image in LU3 printing mode.

<u>VALUE</u>	<u>DESCRIPTION</u>
*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 true screen image in local copy

Note: To use this function, the RPQ should be:

IBM 3268 RPQ SC9505
 IBM 3287 RPQ SC3741
 IBM 4214 OPT 18=2

Available only in LU3 (non-SCS) operations.

0 and 1 are only functional from CUT terminals.

Example: &%Z14,3 prints true screen image in non-SCS print and local copy.

COMMAND 15: CR AT MPP + 1

Specifies the printer in accordance with the RPQ installed in the control unit.

<u>VALUE</u>	<u>DESCRIPTION</u>
*0	First print position (PP) of next line
1	First PP of current line

Note: To use this function, the RPQ should be:

IBM 3268 RPQ SC9501
 IBM 3287 RPQ SC30219
 IBM 4214 OPT 15=1

Available only in LU3 (non-SCS) operation.

Example: &%Z15,1 prints first PP of current line as the next PP when a CR is received at MPP+1.

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COMMAND 16: NL AT MPP + 1

Sets the printer in accordance with the RPQ installed in the control unit.

<u>VALUE</u>	<u>DESCRIPTION</u>
*0	First PP of current line + 2 lines
1	First PP of next line

Note: To use this function, the RPQ should be:

IBM 3268 RPQ SC9502
IBM 3287 RPQ S30219
IBM 4214 OPT 15=1

Available only in LU3 (non-SCS) operation.

Example: &%Z16,1 performs first PP of next line as the next PP when an NL is received at MPP+1.

COMMAND 17: VALID FF FOLLOWED BY DATA

Sets the printer in accordance with the RPQ installed in the control unit.

<u>VALUE</u>	<u>DESCRIPTION</u>
*0	2nd print position of first line on next form
1	1st print position of the first line on next form

For the Value 1 selection, the RPQ would be:

IBM 3268 RPQ SC9503
IBM 3287 RPQ N/A
IBM 4214 OPT 16=2

Available only in LU3 (non-SCS) operation.

Example: &%Z17,1 performs first PP (print position) of the first line on next form as the next PP when a valid FF is not positioned at the end of an IBM print buffer.

COMMAND 18: VALID FF AT END OF PRINT BUFFER

Sets the printer in accordance with the RPQ installed in the control unit.

<u>VALUE</u>	<u>DESCRIPTION</u>
0	First PP of second line on next form
*1	First PP of the first line on next form

Note: To use this function, the RPQ should be:

IBM 3268 RPQ SC9504
IBM 3287 RPQ SC3749
IBM 4214 OPT 17=2

Available only in LU3 (non-SCS) operation.

Example: &%Z18,1 performs first PP of first line on next form as the next PP when a valid FF is received at the end of an IBM print buffer.

COMMAND 19: FF VALID LOCATION

Sets the printer in accordance with the RPQ installed in the control unit.

<u>VALUE</u>	<u>DESCRIPTION</u>
*0	FF is valid only at the first position or at position MPP+1
1	FF is valid anywhere it occurs

To use this function, the RPQ should be:

IBM 3268 RPQ SC9506
IBM 3287 RPQ SC3739
IBM 4214 OPT 19=1

Available only in LU3 (non-SCS) operation.

Example: &%Z19,1 makes FF valid anywhere it occurs.

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COMMAND 20: AUTOMATIC FUNCTION AT END OF JOB

Sets the printer in accordance with the RPQ installed in the control unit.

<u>VALUE</u>	<u>DESCRIPTION</u>
*0	NL is automatically executed after the buffer is completed (unless an FF, NL, or CR was last in the buffer).
1	FF is automatically executed after the print buffer is completed (unless an FF was last in the buffer).

Note: To use this function, the RPQ should be:

IBM 3268 RPQ SC9507

IBM 3287 RPQ SC3740

IBM 4214 OPT 20=2

Available only in LU3 (non-SCS) operation.

Do not press the form feed or line feed buttons on the front of the printer. This will cause the host and printer to lose synchronization of paper position. This command reduces the need to advance the paper.

Example: &%Z20,1 sets the printer to issue an FF automatically at the end of the print buffer.

COMMAND 21: PRINT QUALITY (FastDraft)

Defines default print quality.

<u>VALUE</u>	<u>DESCRIPTION</u>
*0	The Page Presentation Media (PPM) commands control the quality: DP Quality (01) = FastDraft and DP Text Quality (02) = normal draft
1	All DP draft output is printed FastDraft
2	All DP draft output is printed normal draft
3	Value 0 reversed, 01 = normal and 02 = FastDraft
4	All output is Near Letter Quality

Example: &%Z21,1 selects all DP output as FastDraft printing.

COMMAND 25: IBM MOTION COMMANDS

Enables a Form Feed from the host system to be converted to the required number of line feeds (beneficial when forms length is controlled by the interface).

<u>VALUE</u>	<u>DESCRIPTION</u>
*0	Pass FF from host to the printer
1	Count the lines in Command 5 and send multiple line feeds to the printer in place of the host FF
2	Ignore all IBM Motion Commands

Example: &%Z25,1 sets the printer to count the lines specified in Command 5.

COMMAND 26: SUPPRESS EMPTY FORMS

Suppresses blank printout pages caused by form-feed commands that occur at the top of a form.

<u>VALUE</u>	<u>DESCRIPTION</u>
*0	No, do not suppress empty forms
1	Yes, suppress empty forms

Note: If “Suppress Empty Forms” is selected, the interface ignores form-feed commands at the top-of-form position.

This command affects printing in both DSC and SCS modes. This differs from the IBM 3287, which suppresses form feed only in DSC mode.

Example: &%Z26,1 sets the interface to suppress empty forms.

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COMMAND 27: FF AFTER TIME ELAPSE

Send a Form Feed if unprinted data remains in the print buffer for the specified coax port timeout interval in Command 51.

<u>VALUE</u>	<u>DESCRIPTION</u>
*0	No extra FF is sent
1	Send FF after timeout value

Note: In most cases, the host application generates a termination FF, and there is no need to change this command from the default.

Example: `&%Z27,1` sends an FF after time delay selected by command 51 (default = 5 sec.) when unprinted data remains in the print buffer.

COMMAND 30: OVERRIDE OF FORMATTING COMMANDS

Enables the printer's front-panel selections to control how a job is printed.

<u>VALUE</u>	<u>DESCRIPTION</u>
*0	Normal operation (disabled)
1	Formatting commands are not sent to the printer (enabled)

Note: When active, this command overrides the interface's default selections for CPI, LPI, font, orientation, bin selection, paper size, COR, and line compression.

A reset command is sent to the printer before a coax print job in order to restore the printer's front-panel default selections.

This command has no effect on Command Pass-Thru, user strings, initialization strings, and coax host RPQs.

Example: `&%Z30,1` sets override of formatting commands.

COMMAND 31: TRUNCATE/WRAP SELECT

Selects whether the interface truncates or wraps the text if the maximum print position is exceeded.

<u>VALUE</u>	<u>DESCRIPTION</u>
*0	Allow text to print on next line when maximum print position is exceeded
1	Truncate text beyond the maximum print position

Example: `&%Z31,1` causes text that exceeds the maximum print position to be truncated (not printed).

COMMAND 34: INTERVENTION REQUIRED (IR) TIMEOUT

Sets the time interval before an intervention required signal is sent to the host after a printer error occurs. Note that the interface's setup switch #4 must be set to "0" (enabled).

<u>VALUE</u>	<u>DESCRIPTION</u>
000	Never send an IR
001 to 255	IR is sent (value *5) seconds after printer error occurs
*120	Default, send IR after ten minutes

Example: `&%Z34,036` sets IR time interval to 3 minutes $(36 \times 5) / 60 = 3$ minutes

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COMMAND 36: SUPPRESS IBM CONTROL CODES

This function is used to select suppression of all or some IBM control codes sent from the host system.

<u>VALUE</u>	<u>DESCRIPTION</u>
*0	Obey all IBM control codes
1	Suppress all IBM control codes
2	Suppress LPI, CPI, MPP, and MPL control codes
3	Suppress CPI and MPP control codes
4	Suppress LPI and MPL control codes
5	Suppress print quality specified in the PPM command

Note: If this command is set to 1, documents need to be formatted by sending transparent control codes to the printer using Command Pass-Thru or SCS mode transparent data.

If value 2 is selected, the SCS pitch (CPI), line density (LPI), SHF (MPP), and SVF (MPL) commands will be suppressed (not sent to the printer).

Example: &%Z36,2 No LPI, CPI, MPP, or MPL commands are sent to the printer. The document prints using the printer's defaults.

COMMAND 37: VERTICAL CHANNEL SELECT (VCS)

Specifies vertical channel select (VCS) emulation. Functions similarly to a vertical tab, except the 3287 does LF only.

<u>VALUE</u>	<u>DESCRIPTION</u>
0	3287 VCS emulation
*1	3268/4214/4224 VCS emulation

Example: &%Z37,0 selects 3287 VCS emulation.

COMMAND 39: CPT ENDING DELIMITER CHARACTERS

Specifies the two characters to be used for the ending delimiter characters or Command Pass-Thru.

<u>VALUE</u>	<u>DESCRIPTION</u>
XXYY	XX is the ASCII hexadecimal value of the first character and YY is the ASCII hexadecimal value of the second character.

Note: If an ending delimiter is not selected with this command, the delimited selected with Command 40 will be used as a default.

The default delimiter will no longer be active if the command is used to change it. If Command 39 and Command 40 are both entered, Command 39 must be sent after Command 40 to be active.

One delimiter character can be specified instead of two by entering the hex code for the character followed by two zeros (for example, `&%Z39,2500` selects `&` as the delimiter).

A hex code that starts with 00 is invalid.

Example: `&%Z39,253F` specifies the `%?` characters as the alternate ending delimiter characters (the ASCII hex value of `%` is 25, and the ASCII hex value of `?` is 3F).

COMMAND 40: CPT START DELIMITER CHARACTERS

Specifies the two characters to be used for the beginning delimiter characters for Command Pass-Thru.

<u>VALUE</u>	<u>DESCRIPTION</u>
XXYY	XX is the ASCII hexadecimal value of the first character and YY is the ASCII hexadecimal value of the second character

Note: Host download commands use the CPT beginning delimiter characters as well. The new character(s) replace the `&%` in front of the Z.

If you do not select an ending delimiter with Command 39, the delimiter selected with this command will be used as the default ending delimiter.

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The default beginning delimiter will no longer be active if you use this command to change it.

One delimiter character can be specified instead of two by entering the hex code for the character followed by two zeros (for example, `&%Z40,2500` selects `&` as the delimiter).

A hex code that starts with `00` is invalid.

Example: `&%Z40,253F` specifies the `%?` characters as the beginning delimiter characters (the ASCII hex value of `%` is `25`, and the ASCII hex value of `?` is `3F`).

COMMAND 41: COMMAND ID CHARACTER

Specifies the character that is used for the command identifier that follows the delimiter characters.

<u>VALUE</u>	<u>DESCRIPTION</u>
<code>00</code>	Deletes previously selected character
<code>ZZ</code>	<code>ZZ</code> is the ASCII HEX value of the command ID character

Note: The character selected must be a hex value (L, P, or U).

Example: `&%Z41,59` specifies “Y” as the command ID character.

COMMAND 42: START AND STOP EBCDIC HEX DUMP

After receiving a star command the coax interface, starting with the next buffer received, sends all host data directly to the printer as hexadecimal data until a stop command is received or the printer is powered off.

<u>VALUE</u>	<u>DESCRIPTION</u>
<code>*0</code>	No action taken
<code>1</code>	Start EBCDIC hex dump
<code>2</code>	Stop EBCDIC hex dump

Note: This command enables the user to print only the section of the document that is in question in buffer hex dump format. Hex printing starts with the buffer after the start command and stops with the buffer after the stop command.

Example: &%Z42,1 starts buffer hex dump printing. &%Z42,2 stops buffer hex dump printing.

COMMAND 45: SCS TRN TRANSLATE

Specifies how transparent data sent using SCS code 35 is handled.

<u>VALUE</u>	<u>DESCRIPTION</u>
0	Binary transparent
*1	Emulate IBM 3287 Printer

Note: Value 1 causes valid graphic characters to be printed normally (that is, converted from EBCDIC to ASCII), while control codes and invalid graphics are printed as hyphens, and normal page formatting is maintained.

Value 0 causes the 8-bit binary codes to be sent directly to the printer just as they are received from the host.

SCS code 36 functions the same as code 35.

Available in SCS (LU1) mode only.

Example: &%Z45,0 All SCS Code 35 data is sent to the printer as binary codes without translation.

COMMAND 50: SHARING PORT TIMEOUT

Selects how long the interface waits for receipt of additional data from the alternate (PC/LAN) host before automatically switching to check for data from the coax host.

<u>VALUE</u>	<u>DESCRIPTION</u>
04 to 63	Time interval is number of seconds
*08	Factory default is 8 seconds.

Note: The interface sends a reset command to the printer and restores the coax-host-defined format commands (that is, LPI, PI, MPL, MPP) prior to printing data from the coax host after having printed data from the shared parallel port. Because the printer is being shared between the parallel port and the 3270 host, careful attention should be paid to setting up the PC so that jobs are not automatically terminated because the printer is busy.

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This problem may be helped by setting the PC timer “off” by writing “mode lpt1:,,” (in case of an LPT1 printer) in DOS.

Use of the DOS PRINT command or a spooling program for the PC is recommended.

If your printer supports Intelligent Emulation Switching (IES), make sure the printer’s IES timeout period is less than the command 51 timeout setting.

Example: `&%Z50,10` sets the timeout interval to 10 seconds.

COMMAND 51: HOST PORT TIMEOUT

Selects how long the interface waits for receipt of additional data from the coax host before automatically switching to check for data from the alternate (PC/LAN) host.

<u>VALUE</u>	<u>DESCRIPTION</u>
04 to 60	Time interval in number of seconds
*08	Factory default is 8 seconds

Note: The alternate (PC/LAN) host is responsible for sending any needed format commands required by the printer prior to sending printable data.

If your printer supports Intelligent Emulation Switching (IES), make sure the printer’s IES timeout period is less than the command 50 timeout setting.

COMMAND 55: CUSTOM USER STRINGS

Allows the user to define up to six custom user strings, of up to 25 bytes each, which are stored in the memory of the interface and sent to the printer whenever the character delimiter, letter U, and number of the string appears in the text of the document (for example, `&%U3`).

<u>VALUE</u>	<u>DESCRIPTION</u>
0-5 (max. 25 bytes of ASCII hex code)	Defines the custom user string
0-5()	Deletes custom user string

Note: To aid in readability, a single space is allowed between hex bytes, but is not included in the string.

The strings could specify a special font-selection command or other custom command to be sent directly to the printer.

This command, if placed as the first printable data at the top of the page (position 1, line 1), will be sent to the printer before the data.

To change a custom user string, simply input the new custom-user-string values; the old string is automatically erased.

Example: `&%Z55,3(1B01)` defines the `&%U3` custom user string to send an “Escape and SOH” (1B and 01 hex) to the printer, which is the double-width command).

COMMAND 56: PARALLEL-PORT INITIALIZATION STRING

Allows the user to define an initialization string of up to 25 bytes, which is stored in the memory of the interface and is sent to the printer at the beginning of any printing received from the parallel port.

<u>VALUE</u>	<u>DESCRIPTION</u>
1 (max. 25 bytes of ASCII hex code)	Defines the parallel-port init string
1()	Deletes the parallel-port init string

Note: To aid in readability, a single space is allowed between hex bytes but is not included in the string.

The string could specify a special font-selection command or other custom command to be sent directly to the printer before the data that is received from the parallel shared port.

To change the initialization string, simply input the new command values. The entire old string is automatically erased.

To delete the initialization string from the NV memory, simply put nothing between the parentheses.

Example: `&%Z56,1()` deletes from NV memory any hex string that had been previously defined for the parallel-port initialization string.

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COMMAND 57: HOST-PORT INITIALIZATION STRING

Allows the user to define an initialization string of up to 25 bytes, which is stored in the memory of the interface and is sent to initialize the printer for host printing after shared port printing has occurred. The interface also restores the host page format parameters after sending this string and prior to host printing. The initialization string is sent at the beginning of each page.

<u>VALUE</u>	<u>DESCRIPTION</u>
1 (max. 25 bytes of ASCII hex code)	Defines the host-port init string
1()	Deletes the host-port init string

To aid in readability, a single space is allowed between hex bytes but is not included in the string.

The host-port initialization string is only sent to the printer when you turn the printer on and after printing by the shared parallel port has occurred.

Host SCS commands and download commands have priority over the initialization-string instructions.

To change the initialization string, simply input the new command values. The old string is automatically erased.

To delete the initialization string from the permanent memory, simply type the parentheses with nothing between them.

Example: `&%Z57,1()` deletes from permanent memory any hex string that had been previously defined for the host-port initialization string.

COMMAND 65: CHARACTER-SET SELECTION

Enables the user to select the ASCII character set that is used in the conversion from EBCDIC (SCS/LU1) or DSC (LU3) to ASCII.

<u>VALUE</u>	<u>DESCRIPTION</u>
2	Code Page 850 character set (IBM PPDS, Epson® ESC/P2, Generic)
3	IBM PC Extended (Code Page 437) and Epson Graphics (PC Set 2)

Note: The character-set substitutions defined in Commands 70 and 71 must be adjusted if the ASCII character set is changed.

All previously defined substitutions are lost from NV memory when the character set selection is changed.

Refer to the character-set summary tables at the end of the shelf test to confirm which ASCII character is printed for each of the 3270 hex codes. Both the EBCDIC and DSC tables are provided.

Example: `&%Z65,2` selects the Code Page 850 character set.

COMMAND 70: OVERWRITE EBCDIC (SCS/LU1) TRANSLATION TABLE

Custom substitutions defined by this command and stored in permanent memory are written into the EBCDIC (SCS/LU1) to ASCII translation table.

<u>VALUE</u>	<u>DESCRIPTION</u>
XX	The EBCDIC character to be changed (in hex)
YY	The substitute ASCII character for the EBCDIC character above

Note: Previously stored substitutions are automatically changed to the new selection when the same hex location is specified in the EBCDIC table.

Previously stored substitutions are canceled if an ASCII hex sequence of 00 is specified.

Command Z99,0 must be used to store the substitutions in permanent memory for them to be effective when the printer is next turned on.

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The active EBCDIC (SCS/LU1) translation table prints out at the end of the interface self-test summary.

Example: `&%Z70,7B,40/Z99,0` prints a 40 ASCII hex (a @ symbol) when the interface receives an EBCDIC 7B (a # symbol). The command is followed by a command `Z99,0` which stores the active setup selections in permanent memory.

COMMAND 71: OVERWRITE DSC (LU3) TRANSLATION TABLE

Custom substitutions defined by this command, and stored in the permanent memory, are overwritten into the DSC (LU3) to ASCII translation table.

Note: This command functions similarly to Command 70 except the substitutions are applicable to the DSC (LU3) translation table. Refer to the Command 70 instructions.

The active DSC (LU3) translation table prints out at the end of the interface self-test summary.

COMMAND 98: RESTORE DEFAULTS OR PRINT CONFIGURATION

Restores the factory-default configuration selections, prints out a copy of the active configuration selections, or restores the permanent memory selections to the active setup status.

<u>VALUE</u>	<u>DESCRIPTION</u>
0	Restores the factory setup
1	Prints out the active setup selections
2	Restores the setup selections stored in the permanent memory to active status.

Note: If a document is printed using temporary host download commands (commands not stored using the Z99,0 command), value 2 will restore the permanent memory selections.

Put a `&%Z98,2` at the end of the document to restore the standard setup parameters for the next user of the printer.

The active setup and permanent-memory setup selections are the same after a Command Z99,0 or a Command Z98,2 is sent to the printer.

Example: `&%Z98,1` prints out the active setup selections for review.

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COMMAND 99: STORE CONFIGURATION IN PERMANENT MEMORY

Send this command after all desired host download configuration commands have been sent to the interface. It stores the active setup in the permanent memory of the interface so it will be in effect whenever the printer is powered on. Otherwise, active configuration commands are lost when the printer is turned off.

<u>VALUE</u>	<u>DESCRIPTION</u>
0	To complete the command, the value 0 must be used

Note: Host download selections followed by a Command Z99,0 will be stored in permanent memory and active when the printer is turned on. Only use Command Z99,0 when the host download selection needs to be permanently stored in the memory of the interface.

Example: &%Z99,0 stores the currently active setup selections in the permanent memory of the interface.

3. Operation

3.1 Printer Sharing

The Coax Cards allow the printer to be shared automatically between an attached PC or LAN and an IBM coax host. Simply connect the PC or LAN printer server to the parallel port. The interface uses a timeout after each print job before it honors print jobs from another port.

At the end of a host print job, the interface waits for the specified Host Port Timeout period before it honors data streams coming in through the parallel port. The Host Port Timeout period is set through Host/PC download command 51.

After a parallel print job is completed, the interface will again wait for a period of time before it honors host print jobs. The Sharing Port Timeout is set through Host/PC download command 50.

If the PC print job is sent while a host job is printing, the printer responds as “busy” to the PC print request. The print job can be spooled through a spool program, sent to the printer when the host job is finished *or*, if the PC’s printer port is set for infinite retry through the DOS “Configure Printer” command (described in the DOS manual), the print job waits for the printer to be available to receive the data.

PC printing longer than 10 to 20 minutes (depending on host configuration) may cause the 3270 host to drop communication with the printer (“go to sleep”).

3.2 Parallel-Port Initialization

If you want to change the printer's configuration for shared printing (for example, set it to a different default font), use the parallel-port initialization string (Host/PC download command 56 for parallel). Consult the printer's user's guide for the ASCII hex values representing the desired configuration commands. Then store these commands in the interface's memory using Host/PC download command 56.

After host printing is completed and before the print job from the shared port is sent to the printer, the interface will send this initialization string to the printer and configure it according to your instructions. However, it is possible that the print job coming through the parallel shared port contains other printer instructions, thus overriding the parallel initialization string.

3.3 Host-Port Initialization

After shared printing, the Card reconfigures the printer according to the active configuration settings. If you want to further modify the printer configuration (for example, select a different font for all host printing) take advantage of the host-port initialization string. Unlike the Parallel-Port Initialization String, which is usually overridden by commands coming with the PC/LAN print job, the Host-Port Initialization String is not sent to the printer until after the interface has reconfigured the printer for host printing. The Initialization String is sent at the beginning of each printed page.

4. Advanced Features

There are several advanced features in the Coax Cards for accessing special functions that are not normally available on IBM system printers, but are available on your Lexmark printer: Command Pass-Thru, Custom User Strings, and SCS Mode Transparent Data.

4.1 Command Pass-Thru

The Command Pass-Thru feature allows access to all of the built-in features of the printer, even if these features aren't normally available through the host software. Command Pass-Thru lets you place printer-specific command sequences into the data sent to the printer. The interface recognizes these special sequences and "passes the command through" to the printer. The steps below describe how to use Command Pass-Thru.

1. Find the command for the print feature in the printer's user's guide.
2. Convert the printer command to hexadecimal.
3. Place the beginning delimiter `&%` (or the custom delimiter as defined with command 40) in the document at the point where you want the feature to take effect. This signals the start of the print feature.

Enter the beginning printer command, then enter the ending delimiter `&%` (or the custom delimiter as defined with command 39). No spaces are allowed.

4. Move the cursor to the point in the text where you want to end the print feature. Enter the delimiter, followed by the ending printer command and then the delimiter again, into the document.

For example:

The command ESC-1 begins underlining and ESC-0 ends underlining. First convert the start command to the hexadecimal 1B 2D 31 and the ending command to 1B 2D 30.

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If the delimiter is the default `&%` (hex 50 6C), then enter the commands as follows:

This is an `&%1B2D31&%underlined&%1B2D30&%` word.

to print on the printer as:

This is an underlined word.

Only numbers or the upper-case letters A–F are allowed. Errors in the Command Pass-Thru sequence will cause the interface to ignore the command and printing will resume at the point where the error occurred.

Command Pass-Thru may make horizontal spacing unpredictable.

4.2 Custom User Strings

Host download command 55 allows you to define up to six (0 through 5) custom user strings. A user string can be a font ID, a form feed, or another printer command that is frequently used. The information in **Chapter 2** describes how to define the custom user strings.

After the custom user string is defined, the string is activated by placing the delimiter (`&%` or the beginning delimiter defined with command 40), a capital letter U, and the number of the desired custom user string into the text of a document.

For example, use command 55 to define user string number 3 to send a form feed as follows (FF = 0C in hex):

```
&%Z55,3(0C)
```

Then, to send a form feed at the end of a print job, enter the following at the end of the document:

```
&%U3
```

Print the document, and the interface will send the 0C, or form feed, command to the printer when it encounters the `&%U3` code.

4.3 SCS Mode Transparent Data

SCS transparent mode (SCS TRN code 35) provides a method for transparent data transmission when operating in LU1 mode. To use this method, you must be connected to a system using SNA protocol and be operating as a Logical Unit Type 1.

An SCS TRN sequence begins with a one-byte binary count immediately following the TRN code. The count indicates the number of bytes, not including the count byte, of transparent data to follow. Up to 256 bytes of transparent data can be sent in each sequence.

SCS TRN data is user-defined and is not scanned for SCS control codes. However, to emulate the characteristics of the IBM 3287, non-printable characters (that is, control characters) are converted to hyphens. Data is translated to ASCII with undefined characters printed as hyphens. The Coax Cards offer a configurable option to emulate the IBM 3287 or to pass the data without translation. Refer to command 45, SCS TRN translate, in **Chapter 2** for more detailed information.

5. Troubleshooting

This chapter provides instructions for performing diagnostic tests on the Coax Cards. This chapter also contains a problem-resolution guide that describes common problems with the interface or the printer and their solutions. If you are unable to solve a problem by following the procedures outlined in this chapter, contact Technical Support.

Before calling, verify that the interface is installed correctly, that the interface configuration settings are correct, perform the appropriate diagnostic tests outlined in this chapter, and have the following information ready:

- Printer and interface self-test printouts
- Model number and serial number of the interface
- Description of the problem
- Results of diagnostic tests
- Type of host system or controller

You may also need to print a “hex dump” or “buffer print” by enabling the Buffer Print option through the interface’s setup switches, or Host/PC download command 42. This causes all printing to be in hexadecimal code, just as it’s received from the host, to help in tracing problems.

If it becomes necessary to ship the interface, use the original carton and packaging to prevent damage.

5.1 Interface Self-Test

Verify proper installation and configuration of the interface by performing an interface self-test. The self-test prints out the current software version, memory condition (RAM and ROM), and the current configuration selections.

Follow the steps below to start the self-test from your PC or terminal.

1. Verify that the printer is connected properly to the interface and in “Ready” mode.
2. Type “&%Z98,1” on the screen.
3. Send the Host/PC download command to the printer (press the Print Screen button or print the file that contains the Host/PC download command). The self-test will print out in a few seconds.

Follow the steps below to start the self-test by setting the configuration switches.

1. Verify that the interface is connected properly to the printer.
2. Power off the printer.
3. Set setup switch #8 (far right) to “|” and switch #1 to “0”.
4. Power on the printer. A self-test will print within a few seconds after power up. After the self-test prints, the LED light will begin blinking, indicating that the Coax Card is not in operating mode.
5. Return the setup switch #8 to the “0” position, then cycle the power one more time.

Two self-test pages will print if the interface is installed properly. Sample printouts of the first page are shown in **Chapter 1**. The selections shown in the samples are factory defaults. The numbers at the left margin are command numbers used to change this setting using host download commands (see **Chapter 2**).

If the test does not print, the interface failed the self-test. Contact Technical Support for more information.

5.2 EBCDIC Hex Dump

The interface can be set up to print the buffer in hexadecimal EBCDIC code. This can be useful for a technician to diagnose problems with the interface or the printer.

The EBCDIC hex data is printed on a grid corresponding to the data's position in the buffer. If the hex data represents a printable character, that character is printed below the hex data.

To start the EBCDIC hex dump through Host/PC Download:

1. Verify that the printer is connected properly to the interface.
2. Type “&%Z42,1” on the screen.
3. Send the Host/PC download command to the printer (press the Print Screen button or print the file that contains the Host/PC download command).
4. Send the host data in question to the printer.
5. To stop the EBCDIC hex dump, type “&%Z42,2” on the screen.
6. Send the Host/PC download command to the printer (press the Print Screen button or print the file that contains the Host/PC download command).

Start the EBCDIC hex dump from the interface's front panel as follows:

1. With the interface powered on, set setup switch #1 (far left) to “0”, and switch #8 (far right) to “|”. The interface is now in buffer print mode.
2. Return setup switch #8 to the “0” position after printing is completed.

5.3 Troubleshooting Guide

The following is a general guide to resolve common problems that may occur. Please refer to this guide before contacting Technical Support.

Problem or Message	Probable Cause	Action
"Host Ready" LED is not on when connected to the host.	Host is not operating.	Check host system.
	Damaged or improper cabling.	Check host cabling for damage or improper connection.
	The PC110C+ is not operating.	Verify that the Lexmark/IBM printer is a Plus series model and is supplying power through pin 18 of its parallel port.
"Host Ready" LED is continually blinking when connected to the host.	The PC123C is set to Parallel/RS-232 mode.	Make sure the button to the left of the printer's parallel connection is set to Parallel/RS-232.
"Host Ready" LED blinks 3 times, pauses, and continues to repeat this pattern.	Interface is in Restore Factory Defaults mode.	Power off the printer and reset the interface's DIP switches as shown in Chapter 2 .
Printer loses host communication (drops off-line).	Improper or damaged cabling.	Check host cabling for improper connections or damage.
Right margin is cut off.	Word-processing program page width is not set wide enough.	Change to a wider page.
	Page width is too wide.	Select a narrower page.
Form length is incorrect.	Form length incorrect in software.	Change form length.

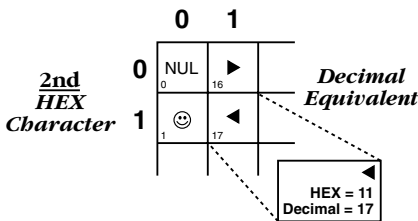
Appendix A. Character Sets

The IBM 4214, 5224, 5225, and 5256 printer emulations support both the Code Page 850 and Code Page 437 character sets. The selection between the two available character sets decides which is used when a font supports both. Refer to the printer's user's guide for illustrations and information on character sets and supported symbols, characters, and control codes.

Fig. A-1. Code Page 850 Symbol Set.

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	NUL	▶		0	@	P	`	p	Ç	É	á	⋮	Ł	ð	Ó	–
1	☺	◀	!	1	A	Q	a	q	ü	æ	í	⋮	⊥	Ð	β	±
2	☹	↕	"	2	B	R	b	r	é	Æ	ó	⋮	⊥	Ê	Ô	=
3	♥	!!	#	3	C	S	c	s	â	ô	ú	|	ı	Ë	Ò	3/4
4	♦	¶	\$	4	D	T	d	t	ä	ö	ñ	|	–	È	õ	¶
5	♣	§	%	5	E	U	e	u	à	ñ	Á	|	ı	Ï	Ş	
6	♠	–	&	6	F	V	f	v	â	û	ª	Â	ã	í	µ	÷
7	•	↕	'	7	G	W	g	w	ç	ù	º	À	Ã	î	þ	247 [†]
8	◻	↑	(	8	H	X	h	x	ê	ÿ	¿	©	ℓ	ï	þ	◦
9	○	↓	)	9	I	Y	i	y	ë	Ö	®	≡	≡	Ƶ	Ú	“
A	◼	→	*	:	J	Z	j	z	è	Ü	¬	||	≡	≡	Û	•
B	♂	←	+	;	K	[	k	{	ï	ø	1/2	≡	≡	■	Ù	1
C	♀	└	,	<	L	\	l	|	î	£	1/4	≡	≡	■	Ý	3
D	🎵	↔	-	=	M	]	m	}	ì	Ø	ı	¢	≡	ı	Ý	2
E	🎵	▲	.	>	N	^	n	~	Ä	×	«	¥	≡	ı	–	■
F	⚙	▼	/	?	O	o	o	◊	Å	f	»	≡	€	■	,	

1st HEX Character

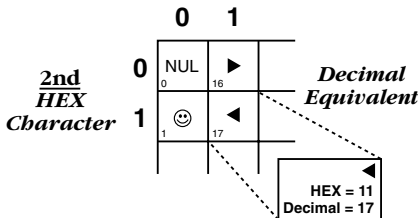


2380+/2390+ AND 4227 COAX EMULATION CARDS

Fig. A-2. Code Page 437 Symbol Set.

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	NUL	▶		0	@	P	`	p	Ç	É	á	☐	ℒ	⊥	α	≡
1	☺	◀	!	1	A	Q	a	q	ü	æ	í	☒	⊥	≡	β	±
2	☺	↕	"	2	B	R	b	r	é	Æ	ó	☒	⊥	⊥	Γ	≥
3	♥	!!	#	3	C	S	c	s	â	ô	ú	⊥	⊥	⊥	π	≤
4	♦	⌈	\$	4	D	T	d	t	ä	ö	ñ	⊥	⊥	⊥	Σ	∫
5	♣	§	%	5	E	U	e	u	à	ò	Ñ	⊥	⊥	⊥	σ	∫
6	♠	−	&	6	F	V	f	v	â	û	a	⊥	⊥	⊥	μ	÷
7	•	↕	'	7	G	W	g	w	ç	ù	ó	⊥	⊥	⊥	τ	≈
8	◻	↑	(	8	H	X	h	x	ê	ÿ	¿	⊥	⊥	⊥	Φ	°
9	○	↓	)	9	I	Y	i	y	ë	Ö	⊥	⊥	⊥	⊥	θ	•
A	☐	→	*	:	J	Z	j	z	è	Ü	⊥	⊥	⊥	⊥	Ω	•
B	♂	←	+	;	K	[	k	{	ï	ç	1/2	⊥	⊥	⊥	δ	√
C	♀	⊥	,	<	L	\	l	|	î	£	1/4	⊥	⊥	⊥	∞	n
D	🎵	↔	-	=	M	]	m	}	ì	¥	ì	⊥	⊥	⊥	∅	2
E	🎵	▲	.	>	N	^	n	~	Ä	Pt	«	⊥	⊥	⊥	ε	■
F	☼	▼	/	?	O	—	o	⌘	Ä	f	»	⊥	⊥	⊥	⌘	■

1st HEX Character



Appendix B. Parallel-Port Specifications

The 36-pin connector on the Coax Cards labeled “Parallel In From PC/LAN” uses this pin assignment:

Pin Number	Direction	Name
1	Input	nStrobe
2–9	Input	Data 1–Data 8
10	Output	nAck
11	Output	Busy
12	Output	PError
13	Output	Select
14, 15	————	No connection
16	————	Signal Ground
17	————	Chassis Ground
18	Output	Optional +5V (350 mA max.)
10–30	————	Signal Ground
31	Input	nInit (an Acknowledge will be generated in response to this input going active; however, the interface will not be reset)
32	Input	nFault
34–36	————	No connection
Shell	————	Chassis Ground



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