

Printer Languages and Interfaces Technical Reference

August 2016

www.lexmark.com

August 2016

The following paragraph does not apply to any country where such provisions are inconsistent with local law: LEXMARK INTERNATIONAL, INC., PROVIDES THIS PUBLICATION "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. Some states do not allow disclaimer of express or implied warranties in certain transactions; therefore, this statement may not apply to you.

This publication could include technical inaccuracies or typographical errors. Changes are periodically made to the information herein; these changes will be incorporated in later editions. Improvements or changes in the products or the programs described may be made at any time.

References in this publication to products, programs, or services do not imply that the manufacturer intends to make these available in all countries in which it operates. Any reference to a product, program, or service is not intended to state or imply that only that product, program, or service may be used. Any functionally equivalent product, program, or service that does not infringe any existing intellectual property right may be used instead. Evaluation and verification of operation in conjunction with other products, programs, or services, except those expressly designated by the manufacturer, are the user's responsibility.

For Lexmark technical support, visit **http://support.lexmark.com**.

For information on supplies and downloads, visit **www.lexmark.com**.

© **2016 Lexmark International, Inc.**

All rights reserved.

Trademarks

Lexmark and the Lexmark logo are trademarks or registered trademarks of Lexmark International, Inc. in the United States and/or other countries.

Microsoft and Windows are either registered trademarks or trademarks of the Microsoft group of companies in the United States and other countries.

PCL® is a registered trademark of the Hewlett-Packard Company. PCL is Hewlett-Packard Company's designation of a set of printer commands (language) and functions included in its printer products. This printer is intended to be compatible with the PCL language. This means the printer recognizes PCL commands used in various application programs, and that the printer emulates the functions corresponding to the commands

PostScript is a registered trademark of Adobe Systems Incorporated in the United States and/or other countries.

All other trademarks are the property of their respective owners.

GOVERNMENT END USERS

The Software Program and any related documentation are "Commercial Items," as that term is defined in 48 C.F.R. 2.101, "Computer Software" and "Commercial Computer Software Documentation," as such terms are used in 48 C.F.R. 12.212 or 48 C.F.R. 227.7202, as applicable. Consistent with 48 C.F.R. 12.212 or 48 C.F.R. 227.7202-1 through 227.7207-4, as applicable, the Commercial Computer Software and Commercial Software Documentation are licensed to the U.S. Government end users (a) only as Commercial Items and (b) with only those rights as are granted to all other end users pursuant to the terms and conditions herein.

Contents

Introduction..... 5

Overview..... 5

Printer Control Language (PCL) emulation..... 6

Selecting PCL emulation..... 6
Page formatting..... 6
Print Area menu..... 6
Command structure..... 8
PCL emulation commands..... 10
GL/2 commands..... 32
Raster image graphics..... 34
Creating macros..... 39

Printer job language..... 41

PJL command notation..... 41
Kernel commands..... 41
Job separation commands..... 42
Environment commands and variables..... 43
Status message format..... 80
Device attendance commands..... 81
Unique PJL commands..... 81
File commands for flash memory or hard disk..... 84
File and device protection commands..... 87

PostScript emulation..... 91

Selecting PostScript emulation..... 91
Supported paper size in PostScript..... 91
PostScript emulation supplemental operators..... 91
Interpreter parameters..... 93
Status and error messages..... 121

Switching languages..... 123

SmartSwitch..... 123
Datastream..... 123
Sniffing..... 123

Default printer language for an interface port.... 124

Flash memory and hard disk.... 125

Resource data collection (download target).... 125
Viewing the contents of a flash memory or hard disk.... 126
Example of directory.... 126
Password protection.... 128
Rewriting the flash memory content.... 128
Accessing files with PostScript emulation.... 129
Performance.... 132
Job buffering.... 132

Printer interfaces.... 133

Setting up the communications port.... 133
Choosing an interface.... 133
Parallel interface.... 134
Network support.... 145
Input buffer.... 145

Index.... 147

Introduction

Overview

The *Printer Languages and Interfaces Technical Reference* is divided into the following chapters:

- Printer Control Language (PCL®) emulation—Provides information on PCL emulation commands and GL/2 commands.
- Printer job language—Provides information on commands that allows the printer to enter PCL emulation, PostScript® emulation, and other types of commands.
- PostScript emulation—Provides information on PostScript emulation and supplementary operators.
- Switching languages—Provides information on how and when to switch printer languages.
- Flash memory and hard disk—Provides information on how to manage the printer memory, store resources, and manage files.
- Printer interfaces—Provides information on printer interfaces, including parallel and serial interface, network support, and communication protocols.

Printer Control Language (PCL) emulation

Selecting PCL emulation

Using SmartSwitch

When SmartSwitch is enabled for both PostScript® emulation and PCL® emulation on an interface such as Parallel, USB, Serial Option 1, or Network Option 1, the printer automatically switches to the printer language that the software program sends.

Note: The factory default setting for SmartSwitch is enabled for both printer languages in all interfaces.

Using the control panel or MarkVision Enterprise

If SmartSwitch is set to Off for both printer languages, you can select PCL Emulation from the control panel or through MarkVision® Enterprise. For more information, see the documentation that came with the printer.

Using a software program

To select PostScript emulation, use the PJL Enter Language Command. For more information, see “Kernel commands” on page 41. For syntax and use of PJL, see “Printer job language” on page 41.

Warning—Potential Damage: Changing printer languages may result to a loss of previously downloaded resources. To avoid loss of data, set Resource Save to On, or store resources in a flash memory or on a hard disk.

Page formatting

For more information on page formatting, see the *Technical Reference* for your printer model at **http://support.lexmark.com**.

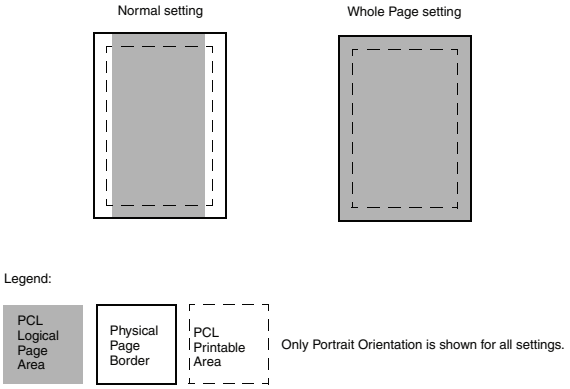
Print Area menu

Printable area is the area on paper where a pel can be printed.

Logical page is a conceptual entity that defines the area in which margins may be set and the PCL cursor may be positioned.

Physical page border is the actual physical boundaries of a page.

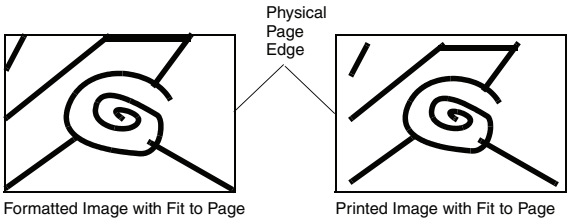
The Print Area menu is available from the control panel or through MarkVision Enterprise. For some printers, Print Area supports three values: Normal, Whole Page, and Fit to Page. For more information, see the documentation that came with your printer.



The printer holds this formatted image in memory. When the page prints, the image is compressed horizontally and vertically. The image is then centered on the physical page for letter size paper only. This process creates a small margin around the image. This artificial margin prevents printing from one edge to the other. Edge-to-edge printing could contaminate the printer and cause printing problems.

Print area setting	Description
Normal	The printable area includes the entire page except the nonprintable area around the edge of the page. The printer measures margin settings relative to the logical page. For more information, see the *Technical Reference* for your printer model at **http://support.lexmark.com**.
Whole Page*	Affects only the pages that are printed when using PCL emulation. The cursor may be positioned anywhere on the page. To avoid clipping an image, use this setting to print scanned images that extend from edge to edge of a page.
Fit to Page* **Note:** This setting is available only in some printer models.	The PCL or PostScript emulation formats a page using a printable area equal to the physical page, which is from one edge to the other edge of the page. This setting does not clip the image.
* This setting sets the PCL language logical page dimension equal to the physical page dimension.	

The following illustrations show an image held in memory for printing edge to edge and how the image would actually print based on the Fit to Page setting. Notice that a small border appears at the edges of the printed page, and the image is slightly compressed.



Command structure

Control codes

Code	Dec	Hex	Function	Result
BS	8	08	Backspace	Moves the cursor toward the left margin one horizontal space equal to the last printed character
HT	9	09	Horizontal Tab	Moves the cursor to the next defined tab stop
LF	10	0A	Line Feed	Advances the cursor to the same horizontal position on the following line as determined by either the Vertical Motion Index (VMI) or Set Line Spacing command
FF	12	0C	Form Feed	Advances the cursor to the same horizontal position at the top margin of the next page
CR	13	0D	Carriage Return	Moves the cursor to the left margin
SP	32	20	Space	Moves the cursor to the right one column
SI	15	0F	Primary Font	Selects the primary font
SO	14	0E	Secondary Font	Selects the secondary font

Commands

PCL emulation commands are multibyte strings (also known as escape sequences) that begin with the Escape control code (ESC, ←, decimal 27, or hexadecimal 1B). The ESC control code notifies the printer to interpret the characters that follow as part of a command and are not control codes or data to be printed.

Command structure

Most PCL emulation commands have the following structure:

ESC **& a # C**

Spaces have been added to this example for readability. The command parameter variables are indicated by a number sign (#).

Element	Description
ESC	Decimal 27 or hex 1B.
&	Parameterized character from American National Standard Code for Information Interchange (ASCII) table (ranging from 33 to 47 decimal).
a	Group character from ASCII table (ranging from 96 to 126 decimal) that specifies a group type of control.
#	Decimal character string value within specified numeric ranges. May be preceded by a + or - sign and contain a decimal point.

Element	Description
C	Termination character from ASCII table (ranging from 64 to 94 decimal).

Command parameters

A command parameter sets the value for a command. This value stays constant until either a different value resets the command or a command resets the printer to the default values. For example, after the printer receives a command that selects a right margin beginning at column 63, the right margin of each printed page begins at column 63. That margin stays constant until a right margin command with a different value resets it or until the printer is reset.

To determine the value of a decimal or hex:

1. Locate the value of the parameter you require in the Symbol Set Table. The decimal value is the value shown in the bottom of the cell or box with that parameter. To find a hex value, go straight up the grid from the wanted parameter and read the value in the top heading. This is the first character of the hex value.
2. Go straight across the grid to the left of the parameter and read the value in the left column heading. This is the second character of the hex value.

For example, ESC (←) is coded 1B in Hex and 27 in decimal. (Any one of the three values ←, 1B, or 27 might be used in your application. Read your documentation to determine which to use.) The example on the following page sets the pitch of the primary font to 16.66 characters per inch.

Example:

ESC**(s16.66H**

- Decimal: **27 40 115 49 54 46 54 54 72**
- Hex: **1B 28 73 31 36 2E 36 36 48**

Use the plus symbol (+) or the minus symbol (-) to select a position relative to the current cursor position. For example:

ESC**&a6C**—Move to horizontal cursor position, column six

ESC**&a+6C**—Move six columns to the right of the current position

ESC**&a-6C**—Move six columns to the left of the current position

Linking commands

You can combine PCL emulation commands by linking them if the first 3 bytes of the commands are identical. The combined form sends the first 3 bytes only once in the string.

Follow these guidelines to combine commands:

- Use the first 3 bytes (characters) of the command only once at the start of the command string.
- Lowercase the last letter of each command in the string.
- Capitalize the last letter of the string.

For example, notice that the first 3 bytes of these two commands are the same:

ESC**(s10H**—Select 10 characters per inch

ESC**(s4099T**—Select Courier typeface

To combine these two commands, use ESC**(s10h4099T** which is 3 bytes shorter than the long form ESC**(s10H**ESC**(s4099T**.

PCL emulation commands

PCL emulation commands by function

PCL emulation commands by function (number of copies, printing, offset registration, unit of measure)

Command / Parameters	Function / Result
ESC E	**Printer Reset** • Prints any partial pages. • Resets printer settings to their factory defaults. • Deletes all temporary downloaded resources.
ESC &d#A Where: **#** = number of collated copies. You can collate up to 999 copies. **Note:** 0 turns off the collation.	**Number of Collated Copies** Turns off collation of pages or sets the number of collated copies.
ESC &l#X Where: **#** = number of copies (1 to 32767). 1 is the factory default value.	**Number of Copies** Affects the page currently in process and subsequent pages.
ESC &l#S Assign any of the following numbers: • 0—Single-Sided (default) • 1—Duplex long-edge binding • 2—Duplex short-edge binding • 100—Manual duplex first sides • 101—Manual duplex second sides	**Simplex/Duplex Print** Long- or short-edge binding refers to the side of the physical page where binding occurs.
ESC &l#U Where: **#** = number of decipoints. 1 decipoint is equal to 1/720 inch. 0 is the factory default value. Range = -32767 to 32767	**Long-Edge Offset Registration** Also known as Left Offset, this command adjusts the placement of logical page along the width of the physical page.
ESC &l#Z Where: **#** = number of decipoints. 1 decipoint is equal to 1/720 inch. 0 is the factory default value. Range = -32767 to 32767	**Short-Edge Offset Registration** Also known as Top Offset, this command adjusts the placement of logical page along the length of the physical page.

Command / Parameters	Function / Result
ESC&u#D Range = (96, 100, 120, 144, 150, 160, 180, 200, 225, 240, 288, 300, 360, 400, 450, 480, 600, 720, 800, 900, 1200, 1440, 1800, 2400, 3600, 7200) **Note:** 300 units per inch is the factory default value.	**Unit of Measure** Sets the size for the PCL unit (units per inch). The Unit of Measure defines the unit used in the following commands: • Horizontal Cursor Position by PCL Unit (ESC*p#X) • Vertical Cursor Position by PCL Unit (ESC*p#Y) • Horizontal Rectangle Size by PCL Unit (ESC*c#A) • Vertical Rectangle Size by PCL Unit (ESC*c#B) The Unit of Measure also affects the rounding of character escapements and the Horizontal Motion Index. **Note:** This command does not affect the interpretation of binary raster data for bit-mapped fonts, raster graphics, or user-defined fill patterns.
ESC% – 12345X	**Universal Exit Language (UEL) / Start of PJL** This command terminates the current printer language and allows switching into PJL. For more information, see "Kernel commands" on page 41.

PCL emulation commands by function (page size, dimensions, source, margins, spacing, output bins)

Command / Parameters	Function / Result
ESC&l#A **Paper** • 1—Executive • 2—Letter • 3—Legal • 4—Folio • 6, 11—Ledger (11 x 17) • 13, 25—A5 Paper • 15—Statement • 26—A4 Paper • 27—A3 Paper • 12, 45—B5 Paper • 46—B4 Paper • 101—Custom Paper/Universal **Envelope** • 80—Monarch 7 3/4 • 81—Commercial 10 • 89—Commercial 9 • 90—DL • 91—C5 • 99, 100—B5 Envelope • 600—Other Envelope	**Set Page Size** Sets the physical size of the paper, which also determines the logical page dimensions. For information about the supported paper and envelope dimensions, see the *Technical Reference* guide for your printer model at **http://support.lexmark.com**. If the requested page size is not in the requested source or if no source is requested, then the printer checks the size in the following order of sources: multipurpose feeder, tray 1, tray 2, tray 3, tray 4, tray 5, and envelope feeder. **Notes:** • When the printer receives the page size command, any partially formatted pages are printed, and the cursor position and margins are reset. • Duplex printing is not supported on any envelope. • When no paper source is requested, you can configure when the printer checks paper from the multipurpose feeder. For more information, see the printer *User's Guide*.
ESC&l#H Assign any of the following numbers: • 1—Active Source or Eject Page • 2—Tray 1 (default) • 3—Manual Envelope Feed • 4—Tray 2 • 5—Tray 3 • 6—Optional Envelope Feeder • 7—Auto Select • 8—Multipurpose Feeder • 20—Tray 4 • 21—Tray 5 • 62—Optional Paper Source	**Paper Source** If the paper source is changed for the back of a duplexed page, then the following occurs: • A blank back page prints. • The paper source changes. • The information for the back side of the page is printed on the front side of a page sent from the new paper source.
ESC&f#G Where: **#** = number of decipoints. 1 decipoint is 1/720 inch.	**Set Universal Width**

Command / Parameters	Function / Result
ESC&f#F Where: **#** = number of decipoints. 1 decipoint is 1/720 inch.	**Set Universal Height**
ESC&f#O 0—Short-edge 1—Long-edge	**Set Universal Feed Direction**
ESC&f#W [custom name] Where: **#** = number of bytes in the custom name.	**Set Universal Custom Name** Sets the user-specified custom name for the Universal paper size being used.
ESC&l#O 0—Portrait (Default) 1—Landscape 2—Reverse Portrait 3—Reverse Landscape	**Select Orientation** Specifies the position of the logical page with respect to the physical page. **Note:** This setting resets margins, number of printable lines per page, and cursor position.
ESC&a#P Where: **#** = rotational degree (0, 90, 180, 270) of the coordinate system with respect to the current orientation. 0 is the factory default value.	**Print Direction** Rotates the coordinate system counterclockwise in 90° increments with respect to the current orientation. **Note:** Margins are not rotated or cleared.
ESC&c#T 0—Horizontal Printing -1—Vertical Rotated Printing	**Character Text Path Direction** Vertically rotates text for use in vertical writing such as printing Japanese text.
ESC&a#L Where: **#** refers to the column width. 0 is the default value.	**Set Left Margin** Sets the left margin to the left edge of the designated column. **Note:** The column width is defined by the space character of the active font and the horizontal motion index (HMI).
ESC&a#M Where: **#** refers to the column width. Local Page Width is the default setting.	**Set Right Margin** Sets the right margin to the right edge of the designated column. **Note:** The column width is defined by the space character of the active font and the HMI.
ESC9	**Clear Horizontal Margins** Clears the left and right margins.
ESC&l#E Where: **#** refers to the number of lines. 3 (1/2 inch) is the default value.	**Set Top Margin** Sets the number of lines between the top of the physical page and first line of print. Line height is determined by the current vertical motion index (VMI) and/or line spacing value. **Note:** If the top margin is set to 0, then the first line of text falls outside of the printable area.

Command / Parameters	Function / Result
ESC&l1T	**Job Separation** This command is parsed and ignored.
ESC&l#F Where: # refers to the number of lines. 60 or 64 (country-specific) is the default value.	**Set Text Length** Sets the bottom margin length in lines, measured from the first line of the page. Text Length equals Logical Page Length –1 inch (–1/2 inch for top and –1/2 inch for bottom).
ESC&l#G Each of the following numbers is assigned to a specific bin: • 0—Auto select (uses active bin) • 1—Standard bin • 2—Bin 1 or rear bin • 3—Bin 1 or rear bin • 4—Bin 2 • 5—Bin 3 • 6—Bin 4 • 7—Bin 5 • 8—Bin 6 • 9—Bin 7 • 10—Bin 8 • 11—Bin 9 • 12—Bin 10	**Set Output Bin** Sets the paper exit path.
ESC&l#L 0—Off 1—On (Default)	**Skip Perforation** Perforation area includes the area from the bottom margin of the current page to the top margin of the next page. When skipping perforations, a line feed past the bottom margin ejects a page and places the cursor at the top margin of the next page.
ESC&k#H Where: # refers to the number of 1/120 inch increments. 8 is the default value. **Note:** Valid to 4 decimal places.	**Set Horizontal Motion Index (HMI)** Sets the width of all characters for fixed-space fonts. Sets only the width of the space for proportional spaced fonts.

Command / Parameters	Function / Result
ESC&l#C Where: **#** refers to the number of 1/48 inch increments. 8 is the default value. **Note:** Valid to 4 decimal places.	**Set Vertical Motion Index (VMI)** Sets Vertical Motion Index in 1/48 inch increments. The VMI determines the vertical distance between lines. **Notes:** • For some printers, you can change the default VMI from the control panel or through MarkVision Enterprise by using the Lines Per Page menu item. For more information, see the printer *User's Guide*. • Use of this command alters any previous Set Line Spacing command settings.
ESC&l#D 1—1 line/inch 2—2 lines/inch 3—3 lines/inch 4—4 lines/inch 6—6 lines/inch (Default) 8—8 lines/inch 12—12 lines/inch 16—16 lines/inch 24—24 lines/inch 48—48 lines/inch	**Set Line Spacing (Alternative Method)** Specifies VMI in lines per inch. **Notes:** • For some printers, you can change the default VMI from the control panel or through MarkVision Enterprise by using the Lines Per Page menu item. For more information, see the printer *User's Guide*. • Unsupported values are ignored. • Use of this command alters any earlier VMI setting.
ESC&a#G 0—Next Side 1—Front Side 2—Back Side	**Duplex Page Side Selection** Specifies which physical page side to print next when printing in duplex. **Note:** When the duplex option is not installed, this command causes a conditional page eject.
ESC&l#P Where: **#** = number from 0 to 14. 0 is the factory default value.	**Set Page Length** Sets the logical page length in number of lines. **Notes:** • This command is sent at the beginning of a page in a print job and before any printable data. • When the command is sent, the current page is closed and printed. • Unsupported values are ignored.
ESC&k#W 5—Turn Text Scale Mode OFF 6—Turn Text Scale Mode ON	**Text Scale Mode** Allows 66 lines of text at six lines per inch to print on an effective page length of 10 1/2 inches. **Notes:** • Unsupported values are ignored. • When the printer is in landscape mode, the command is ignored.

PCL emulation commands by function (alphanumeric ID)

Command / Parameters	Function / Result
ESC&n#W [operation] [string] Where: • **#** = number of data bytes that make up the operation and string. • **Operation** = 100 or 1 byte = 0x64 or 'd' ascii For example: 100—Media Select • **String** = paper type. See alphanumeric string list at the right.	**Alphanumeric ID** Selects the media type using a character string. The string ID is case sensitive and may be up to 511 bytes long. The string ID specifies the media type requested. **Media Type** / **Alphanumeric String** Plain / PaperPlain Bond / Bond Transparency / Transparency Card Stock / Card Stock Labels / Labels Letterhead/ Letterhead Pre-printed / Preprinted Colored / PaperColor Envelope / Envelope Custom Type 1 / Custom Type 1 *or* User Type 1 Custom Type 2 / Custom Type 2 *or* User Type 2 Custom Type 3 / Custom Type 3 *or* User Type 3 Custom Type 4 / Custom Type 4 *or* User Type 4 Custom Type 5 / Custom Type 5 *or* User Type 5 Custom Type 6 / Custom Type 6 *or* User Type 6 For example, the following shows the command and parameters used to select bond paper: ESC&n5WdBond To select letterhead paper: ESC&n11WdLetterhead

PCL emulation commands by function (cursor positioning)

Command / Parameters	Function / Result
ESC&a#C Where: **#** = number of columns[1].	**Horizontal Cursor Position (in columns)** Moves the cursor to a new position along the horizontal axis. **Note:** If set, the space character width of the active font or the Horizontal Motion Index (HMI) determines the column width.
ESC&a#H Where: **#** = number of decipoints[1]. 1 decipoint equals 1/720 inch.	**Horizontal Cursor Position (in decipoints)** Moves the cursor to a new position along the horizontal axis.
ESC*p#X Where: **#** = number of PCL units[1].	**Horizontal Cursor Position (in PCL units)** Moves the cursor to a new position along the horizontal axis. **Note:** PCL units are set by the Unit-of-Measure Command.

[1] Parameter preceded by + or - sign denotes a relative cursor move from the current cursor position. Parameter without a sign denotes an absolute cursor move from the top left margin.

Command / Parameters	Function / Result
ESC&a#R Where: **#** = number of rows[1].	**Vertical Cursor Position (in rows)** Moves the cursor to a new position along the vertical axis. **Note:** The Vertical Motion Index (VMI) or the Set Line Spacing Command determines the row height.
ESC&a#V Where: **#** = number of decipoints[1]. 1 decipoint equals 1/720 inch.	**Vertical Cursor Position (in decipoints)** Moves the cursor to a new position along the vertical axis.
ESC*p#Y Where: **#** = number of PCL units[1].	**Vertical Cursor Position (in PCL units)** Moves the cursor to a new position along the vertical axis. **Note:** PCL units are set by the Unit of Measure command.
ESC=	**Half Line-Feed** Moves the cursor down 1/2 line (1/2 of the current VMI).
ESC&k#G 0—CR=CR, LF=LF, FF=FF (Default) 1—CR=CR+LF, LF=LF, FF=FF 2—CR=CR, LF=CR+LF, FF=CR+FF 3—CR=CR+LF, LF=CR+LF, FF=CR+FF	**Set Line Termination** Controls how the printer responds to the Carriage Return (CR), Line Feed (LF), and Form Feed (FF) control codes.
ESC&f#S 0—Push 1—Pop	**Push / Pop Cursor Position** Sets up a cursor position stack for storing and recalling various cursor positions. The stack can store up to 20 cursor positions.
[1] Parameter preceded by + or - sign denotes a relative cursor move from the current cursor position. Parameter without a sign denotes an absolute cursor move from the top left margin.	

Note: For the commands listed in "PCL emulation commands by function (page size, dimensions, source, margins, spacing, output bins)" on page 12, the printer selects the font that best fits the font selected based on the parameters set with the commands.

PCL emulation commands by function (font selection)

Command / Parameters	Function / Result
ESC(# (primary) ESC)# (secondary) Where: **#** = symbol set ID. **Notes:** • 10U (PC-8) is the U.S. factory default setting. • 12U (PC-850) is the non-U.S. factory default setting.	**Select Symbol Set** The line-draw characters are contained in the symbol set ID 10U, PC-8. The non-U.S. characters are contained in symbol set ID 12U, PC-850.

Command / Parameters	Function / Result
ESC(s#P (primary) ESC)s#P (secondary) 0—Fixed (Default) 1—Proportional	**Select Spacing** Selects a font with proportional or fixed spacing.
ESC(s#H (primary) ESC)s#H (secondary) Where: **#** = characters per inch. 10 is the factory default value.	**Select Pitch** Selects the number of characters per inch (cpi) for a fixed-space bitmapped or monospaced scalable font. Valid to 2 decimal places. **Note:** Pitch is not needed for proportional spaced fonts.
ESC(s#V (primary) ESC)s#V (secondary) Where: **#** = height in points (.25 to 999.75). 12 is the factory default value.	**Height (Select Point Size)** Sets the font height in points. Valid to 2 decimal places. **Note:** Point size is not needed for monospaced fonts. For fonts larger than 12 points, it may be necessary to change the line spacing.
ESC(s#S (primary) ESC)s#S (secondary) 0—Upright (Default) 1—Italic 4—Condensed 5—Condensed Italic 8—Compressed 24—Expanded 32—Outline 64—Inline 128—Shadowed 160—Outline Shadowed	**Select Style** Identifies the physical traits of a character and the composition of the font symbols. **Note:** You can only use this command to select fonts currently available in the printer. It cannot alter the appearance of the available fonts.

Command / Parameters	Function / Result
ESC(s#B (primary) ESC)s#B (secondary) -7—Ultra Thin -6—Extra Thin -5—Thin -4—Extra Light -3—Light -2—Demi Light -1—Semi Light 0—Medium (Default) 1—Semi Bold 2—Demi Bold 3—Bold 4—Extra Bold 5—Black 6—Extra Black 7—Ultra Black	**Select Stroke Weight** Selects a font with a particular thickness. **Note:** This command will not alter the stroke weight of an available font.
ESC(s#T (primary) ESC)s#T (secondary) Where: **#** = typeface identifier (0–65535).	**Select Typeface** Selects the best fit font design. To obtain the typeface values for downloaded fonts, print the font list from the control panel or through MarkVision Enterprise. See your printer documentation for more information. On the printout, the typeface number is the last number on the font selection command example line. The example line is below the name of the font. In the following example, the typeface number is underlined: RO Courier **<<ESC>>(<<symset>><<ESC>>(s0p<<pitch>>h0s0b4099T**
ESC(#X (primary) ESC)#X (secondary) Where: **#** = font ID (0–32767).	**Select Font by Font ID**
ESC(3@ (primary) ESC)3@ (secondary)	**Select Default Font** Sets all font selection characteristics to the default font.
ESC&p#X[data] Where: **#** = number of data of bytes to print as text.	**Transparent Print Data** Prints the next number of bytes as text.
ESC&d#D 0,1—Fixed 2—Fixed - double 3—Floating 4—Floating - double	**Select Underline Type (Enable)** • Fixed underline is drawn 5 pels below cursor position. • Floating underline position is determined by all the positions of the characters with descenders in the fonts that are to be underlined. • Underline thickness is 1/100 inch.

Command / Parameters	Function / Result
ESC&d@	**Underline - Disable**
ESC&t#P 0, 1—1 byte characters 21—1 or 2 byte characters 31—1 or 2 byte characters 38—1 or 2 byte characters 1008—1, 2, or 3 byte characters (UTF-8)	**Text Parsing Method** Communicates to the PCL parser whether character codes are interpreted as 1- or 2-byte character codes.
ESC&k#S 0—10.00 cpi 2—16.66 cpi 4—12.00 cpi	**Select Primary and Secondary Pitch** Selects the pitch for the primary and secondary font.

PCL emulation commands by function (user-defined symbol set)

Command / Parameters	Function / Result
ESC*c#R Where: **#** = symbol set ID (0–32767). 0 is the factory default value.	**Symbol Set ID Code** Sets the symbol set identification for the symbol set downloaded.
ESC(f#W[data] Where: **#** = number of data bytes.	**Define Symbol Set** Contains data for the user-defined symbol sets.
ESC*c#S 0—Delete all (temporary and permanent) 1—Delete all temporary 2—Delete current (ID) 4—Make current temporary 5—Make current permanent	**Symbol Set Control** Manages user-defined symbol sets.

PCL emulation commands by function (font creation)

Command / Parameters	Function / Result
ESC*c#D Where: **#** = font ID number (0–32767). 0 is the factory default value.	**Set Font ID** Sets the identification number for the font being downloaded.
ESC)s#W[data] Where: **#** = number of data bytes.	**Load Font Header** Downloads soft font header information. **Note:** Set Font ID before using this command.

Command / Parameters	Function / Result
ESC*c#F 0—Delete all (temporary and permanent) 1—Delete all temporary 2—Delete previous font ID 3—Delete previous specified character 4—Make previous font ID temporary 5—Make previous font ID permanent 6—Copy current font	**Font Control** Manages soft fonts.
ESC*c#E Where: **#** = code point (0–65536). 0 is the factory default value.	**Set Character Code** Sets the decimal code point associated with the next character downloaded or deleted.
ESC(s#W[data] Where: **#** = number of data bytes.	**Load Character** Downloads character descriptor and data to the current character code.

PCL emulation commands by function (macros)

Command / Parameters	Function / Result
ESC&f#Y Where: **#** = micro ID (0–32767). 0 is the factory default value.	**Set Macro ID** Sets the ID for the macro that is created on flash memory or hard disk.
ESC&f#X 0—Start definition 1—End definition 2—Execute macro (previous macro ID) 3—Call macro (previous macro ID) 4—Enable overlay (previous macro ID) 5—Disable overlay 6—Delete all macros 7—Delete all temporary macros 8—Delete current macro ID 9—Make last ID temporary 10—Make last ID permanent	**Macro Control** Manages the use of macros. For more information, see “Creating macros” on page 39. **Notes:** • GL/2 commands are supported inside macros. • Only call and execute macro commands are allowed within a macro. • A macro may call or execute another macro. This is called nesting. A maximum of two nesting levels are allowed, for a total of three levels.

PCL emulation commands by function (print model)

Command / Parameters	Function / Result
ESC*c#G **Gray Scale Fills** 0—White (default) 1–2—2% gray 3–10—10% gray 11–20—15% gray 21–35—30% gray 36–55—45% gray 56–80—70% gray 81–99—90% gray 100—100% gray (black) **Cross-Hatch Fills** 1—Horizontal line 2—Vertical line 3—Diagonal line 4—Diagonal line 5—Square Grid 6—Diagonal Grid **User-Defined Patterns** Where: **#** = user-defined pattern ID.	**Area Fill ID** Selects the pattern used to fill a rectangular area. **Note:** This command is also used to set the user-defined pattern ID.
ESC*v#N 0—Transparent (default) 1—Opaque	**Source Transparency Mode** Affects copying of white pixels from the source onto the destination image.
ESC*v#O 0—Transparent (default) 1—Opaque	**Pattern Transparency Mode** Affects copying of white pixels from the pattern onto the destination image.
ESC*l#O Where: **#** = logical operation with value that ranges from 0 to 255. 252 is the factory default value.	**Logical Operation** Defines Boolean operations to be performed on data already printed and data about to be printed.
ESC*l#R 0—Grid Intersection (Default) 1—Grid Centered	**Pixel Placement** Determines how pixels are placed for a rectangular area fill and GL/2 objects. Pixel Placement does not affect text or raster images.

Command / Parameters	Function / Result
ESC*v#T 0—Solid Black (default) 1—Solid White 2—Gray Shading Pattern 3—Cross-Hatch Pattern 4—User Defined Pattern	**Select Current Pattern** Selects the pattern used when printing text and raster images.

PCL emulation commands by function (user-defined pattern)

Command / Parameters	Function / Result
ESC*c#W[data] Where: **#** = number of data bytes.	**User-Defined Pattern** Downloads binary pattern data.
ESC*p#R 0—Rotate with print (Default) 1—Fixed	**Set Pattern Reference Point** Sets the pattern reference point to the current cursor position for user-defined patterns. **Note:** The default pattern reference point is the upper left corner of the logical page.
ESC*c#Q 0—Delete all patterns (temporary and permanent) 1—Delete all temporary patterns 2—Delete pattern (last ID specified) 4—Make pattern of last ID # temporary 5—Make pattern of last ID # permanent	**Pattern Control** Manages the use of user-defined patterns. **Note:** Use the Area Fill ID command (ESC*c#G) to set the ID.

PCL emulation commands by function (rectangular area specifications)

Command / Parameters	Function / Result
ESC*c#H Where: **#** = number of decipoints (0–32767). 1 decipoint equals 1/720 inch. 0 is the factory default value. **Note:** Valid up to 4 decimal places.	**Horizontal Rectangle Size (in decipoints)** Specifies the rectangle width in decipoints.
ESC*c#A Where: **#** = number of PCL units (0–32767). 0 is the factory default value.	**Horizontal Rectangle Size (in PCL units)** Specifies the rectangle width in PCL units. **Note:** The size of PCL Units is set by the Unit-of-Measure command.
ESC*c#V Where: **#** = number of decipoints (0–32767). 1 decipoint equals 1/720 inch. 0 is the factory default value. **Note:** Valid up to 4 decimal places.	**Vertical Rectangle Size (in decipoints)** Specifies the rectangle height in decipoints.

Command / Parameters	Function / Result
ESC*c#B Where: **#** = number of PCL units (0–32767). 0 is the factory default value.	**Vertical Rectangle Size (in PCL Units)** Specifies the rectangle height in PCL units. **Note:** The size of PCL Units is set by the Unit-of-Measure command.
ESC*c#G **Gray Scale Fills** 0—White (default) 1–2—2% gray 3–10—10% gray 11–20—15% gray 21–35—30% gray 36–55—45% gray 56–80—70% gray 81–99—90% gray 100—100% gray (black) **Cross-Hatch Fills** 1—Horizontal line 2—Vertical line 3—Diagonal line 4—Diagonal line 5—Square Grid 6—Diagonal Grid **User-Defined Patterns** Where: **#** = user-defined pattern ID.	**Area Fill ID** Selects the pattern used to fill the rectangular area. **Note:** This command is also used to set the user-defined pattern ID.
ESC*c#P 0—Black fill (default) 1—White fill 2—Gray fill 3—Predefined cross-hatch pattern fill 4—User-defined pattern 5—Current pattern fill	**Fill Rectangular Area** Fills a rectangular area defined by horizontal and vertical rectangle sizes with the selected pattern.

PCL emulation commands by function (raster graphics)

Command / Parameters	Function / Result
ESC*t#R 75—75 dpi 100—100 dpi 150—150 dpi 200—200 dpi 300—300 dpi 600—600 dpi 1200—1200 dpi	**Raster Resolution** **Note:** 200 dpi is only supported when the printer is operating in 600 dpi or 1200 dpi mode.
ESC*r#F 0—Rotate with print 3—Fixed (default)	**Raster Graphics Presentation** Sets the raster image orientation in relation to the logical page.
ESC*r#S Where: **#** = number of input pixels.	**Raster Width (Source)** Sets the width of the clip window for raster graphics.
ESC*r#T Where: **#** = number of raster lines.	**Raster Height (Source)** Sets the height of the clip window for raster graphics.
ESC*r#A 0—Left Graphics Margin at 0 (Default) 1—Current Cursor Position 2—At logical left page limit with scaling On 3—At current cursor position with scaling On	**Start Raster Graphics** Sets the left margin for raster graphics.
ESC*b#V[data] Where: **#** = number of data bytes.	**Transfer Raster Data by Plane** Use this command when the raster data is encoded by plane as specified by the Simple Color command or the Configure Image Data command. The command sends each plane in the row except the last.
ESC*b#Y Where: **#** = number of raster lines.	**Y Offset** Moves the cursor position down by the specified number of raster lines.

Command / Parameters	Function / Result
ESC*b#M 0—Uncoded (Default) 1—Run-Length Encoded 2—Tagged Image File Format (TIFF) byte 3—Delta Row 5—Adaptive Compression 9—Replacement Delta Row 999—Zlib 1002—Group 4 1003—Group 3 one dimensional 1004—Group 3 two dimensional K=2 1005—Group 3 two dimensional K=4 1006—TIFF word (16 bit) 1007—TIFF double-word (32 bit) 1008—Adaptive compression (includes TIFF word and TIFF double-word)	**Set Raster Compression Mode** Identifies the compression mode the host uses to transfer RIG data. For instance, this command can be run-length encoding or TIFF encoding. **Note:** For more information, see “Raster compression mode” on page 34.
ESC*b#W[data] Where: **#** = number of data bytes.	**Transfer Raster Data by Row/Block** Transfers RIG data. **Note:** After each command, the cursor position is moved to the beginning of the next raster row.
ESC*rB	**End Raster Graphics (Version B)** Signals the end of the raster graphics transfer. If a raster height is specified, then the cursor is moved to the first raster row past the raster height.
ESC*rC	**End Raster Graphics (Version C)** Same as version B, but: • Resets the compression mode to uncoded. • Sets the left graphics margin to 0.
ESC*t#H	**Raster Width (Destination)** Sets the width of the destination raster.
ESC*t#V	**Raster Height (Destination)** Sets the height of the destination raster.

Command / Parameters	Function / Result
ESC*g#W[data] # - 8 (K-only) or 26 (KCMY) **Data** Byte 0 - 0x02 (constant) Byte 1 - number of colors 0x01 - K only 0x04 - CMYK Byte 2,3 - X res for K plane 0x012C (300) or 0x0258 (600) Byte 4,5 - Y res for K plane 0x012C (300) or 0x0258 (600) Byte 6,7 - K plane intensity levels 0x02 (1 bit/plane) or 0x04 (2 bits/plane) Byte 8,9 - X res for C plane 0x012C (300) or 0x0258 (600) Byte 10,11 - Y res for C plane 0x012C (300) or 0x0258 (600) Byte 12,13 - C plane intensity levels 0x02 (1 bit/plane) or 0x04 (2 bits/plane) Byte 14,15 - X res for M plane 0x012C (300) or 0x0258 (600) Byte 16,17 - Y res for M plane 0x012C (300) or 0x0258 (600) Byte 18,19 - M plane intensity levels 0x02 (1 bit/plane) or 0x04 (2 bits/plane) Byte 20,21 - X res for Y plane 0x012C (300) or 0x0258 (600) Byte 22,23 - Y res for Y plane 0x012C (300) or 0x0258 (600) Byte 24,25 - Y plane intensity levels 0x02 (1 bit/plane) or 0x04 (2 bits/plane)	**Set Raster Configuration** Sets the configuration of the destination raster.

PCL emulation commands by function (color extensions)

Command / Parameters	Function / Result
ESC&b#M 0—Print in mixed render algorithm mode 1—Print using gray scale equivalent	**Monochrome Print Mode** Changes each color value to its gray scale equivalent.

Command / Parameters	Function / Result
ESC&p#C 0—Delete all palettes except those in stack (active palette is deleted) 1—Delete all palettes in stack (active palette not affected) 2—Delete palette specified by palette control ID 6—Copy active palette to ID specified by palette control ID	**Palette Control** Provides palette management.
ESC&p#I 0 to 32767—Palette ID number	**Palette Control ID** Indicates the ID number used by the Palette Control command.
ESC&p#S 0 to 32767—Palette ID number	**Select Palette** Selects a new active palette by indicating the ID number.
ESC*l#W[data] 0—Resets or initializes the color lookup tables for each primary color to the unity curve 770, Data—Data for color lookup table	**Color Lookup Tables** Enables the color lookup tables and specifies the table to use.
ESC*m#W[data] 7 to 32767, Data Data size and data of byte-aligned binary data that specify a matrix or matrices for the primary colors	**Download Dither Matrix** Downloads a device-dependent user-defined dither matrix.
ESC*o#W[data] 7 to 32767, Data Specifies lightness, saturation, and image scaling	**Driver Configuration Command** Indicates the lightness, saturation, and scaling algorithm to apply to a job. **Note:** Depending on your printer model, settings for Lightness (0), Saturation (1) or Download Color Map (5) may not be supported.
ESC*p#P 0—Push (Save) Palette 1—Pop (Restore) Palette	**Push/Pop Palette** Saves (push) the current palette and then restores (pop) it from the palette stack.
ESC*r#U -44—Planes, device CMYK palette -33—Planes, device CMY palette 1—Single plane, K (black) palette 33—Planes, device RGB palette	**Simple Color** Creates a fixed-size palette. The color specification of the palette cannot be modified.
ESC*t#I 0—Gamma Correction Off 0.0 to 4.0—Gamma Number	**Gamma Correction** Improves the perceptual correctness of color data sent from the monitor to any other nonlinear device by adjusting the brightness and darkness.
ESC*t#J	**Render Algorithm** Selects the algorithm used for dithering images and fills.

Command / Parameters	Function / Result
ESC*v#A -32767.0 to 32767.0	**Color Component One** Indicates the first primary color specified by the Assign Color Index command.
ESC*v#B -32767.0 to 32767.0	**Color Component Two** Indicates the second primary color specified by the Assign Color Index command.
ESC*v#C -32767.0 to 32767.0	**Color Component Three** Indicates the third primary color specified by the Assign Color Index command.
ESC*v#I # = Palette Index 0 to 2^n – 1 = Palette Index	**Assign Color Index** Designates the three current color components to the specified palette index number. *n* represents the number of bits per index.
ESC*v#S # = Palette Index 0 to 2^n – 1 = Palette Index	**Foreground Color** Sets the foreground color to the specified index in the current palette. *n* represents the current palette size.
ESC*v#W[data]	**Configure Image Data** Creates programmable palettes.
ESC*i#W[data]	**Viewing Illuminant** 8, Data Designates the relative white point used in determining a viewing illuminant condition.

PCL emulation commands by function (Status Readback)

Command / Parameters	Function / Result
ESC*s#T 0—Invalid location (default) 1—Use currently selected location 2—All locations 3—Internal (resident) 4—Downloaded entity 5—Cartridge 7—User-installable flash 200—Disk	**Set Status Readback Location Type** Sets the status location type to the specified value. **Notes:** • The 5 value for Cartridge may be specified. If your printer does not support font cards or cartridges, then the command is ignored. • The 7 value for user-installable flash is only valid when a flash memory is installed. • The 200 value is only valid when a hard disk is installed.
ESC*s#U 0—All 1—If download, temporary; otherwise, highest priority 2—If download, permanent; otherwise, next higher priority	**Set Status Readback Location Unit** Sets the status location unit to the specified value. The location unit is used along with the location type to identify a location for the Inquire Status Readback Entity command. **Note:** Depending on the location type specified, the unit value is interpreted differently.

Command / Parameters	Function / Result
ESC*s#I 0—Font 1—Macro 2—User-defined pattern 3—Symbol set (for unbound scalable fonts) 4—Font extended	**Inquire Status Readback Entity** Returns the requested information set by Set Status Readback Location Type and Set Status Readback Location Unit.
ESC*s1M	**Free Space** Returns the total available memory and the largest available block of memory.
ESC&r#F 0—Flush all complete pages 1—Flush all pages	**Flush All Pages** Holds print jobs in the print buffer until the current job finishes printing.
ESC*s#X -32767 to 32767 Default = 0	**Echo** Returns # back to host computer.

PCL emulation commands by function (picture frame)

Command / Parameters	Function / Result
ESC*c#X Where: **#** = number of decipoints (0 to 32767). 1 decipoint equals 1/720 inch.	**Picture Frame Horizontal Size (in Decipoints)** Specifies the horizontal dimension of the picture frame used when printing a GL/2 plot.
ESC*c#Y Where: **#** = number of decipoints (0 to 32767). 1 decipoint equals 1/720 inch.	**Picture Frame Vertical Size (in Decipoints)** Specifies the vertical dimension of the picture frame used when printing a GL/2 plot.
ESC*c0T 0—Set Anchor Point to Cursor Position	**Set Picture Frame Anchor Point** Sets the position of the picture frame anchor point to the cursor position. The picture frame anchor point defines the location of the upper left corner of the picture frame.
ESC*c#K Size in inches: 0 to 32767	**GL/2 Horizontal Plot Size** Specifies the horizontal scaling factor used when importing an image into the picture frame.
ESC*c#L Size in inches: 0 to 32767	**GL/2 Vertical Plot Size** Specifies the vertical scaling factor used when importing an image into the picture frame.
ESC%#B 0—Use previous GL/2 pen position 1—Use current PCL cursor position	**Enter GL/2 Language** Exits PCL emulation and uses GL/2 commands to print.

Command / Parameters	Function / Result
ESC%#A 0—Use current PCL cursor position 1—Use previous GL/2 pen position	**Enter PCL Emulation** Exits GL/2 mode and uses PCL emulation commands to print.

PCL emulation commands by function (miscellaneous)

Command / Parameters	Function / Result
ESC&s#C 0—Enable 1—Disable (default)	**End-Of-Line Text Wrap** Enabling End-Of-Line Text Wrap moves portions of lines that extend into the unprintable area to the next line. Disabling drops the portion extending into the unprintable area.
ESCY	**Display Functions On** Prints all control codes and escape sequences rather than executing them. **Notes:** • To prevent characters from falling outside the right margin (and not printing), enable End-Of-Line Text Wrap (ESC&s0C). • To see the control characters and other blank codepoints in symbol set Roman8 (8U), set the symbol set to PC-8 (10U).
ESCZ	**Display Functions Off** Turns off Display Functions and resumes normal command processing.
ESCz	**Print Test Page** Causes a test page to print.
ESC*o#M(b) -1—Ink Saver 0—Normal 1—Best	**Print Quality** Selects the print quality setting for the page.
ESC&l#M(b) 0—Plain Paper 1—Bond 2—Coated Paper 3—Glossy Paper 4—Transparency 101—Photo Paper 102—Card Stock 103—Labels 104—Envelope 105—Letterhead 106—Preprinted 107—Colored Paper 108—Iron On	**Paper Type** Selects the paper type setting for the page.

GL/2 commands

GL/2 is not a standalone plotter emulation. It can only be entered from within PCL emulation and cannot be used with software without a unique print driver written explicitly for the GL/2 graphics language.

The following tables list the GL/2 commands by group. For more information on GL/2 command support, see the *Technical Reference* for your printer model at **http://support.lexmark.com**

Configuration group

Command / Parameter	Function
CO "text"	Comment
DF;	Default Values
IN (n);	Initialize
IP (XP1, YP1(, XP2, YP2));	Input P1 and P2
IR (XP1, YP1, XP2, YP2));	Input Relative P1 and P2
IW (X1, Y1, X2, Y2);	Input Window
MC (mode(, opcode));	Logical Operation
PP (mode);	Pixel Placement
RO (angle);	Rotate Coordinate System
SC (Xmin, Xmax, Ymin, Ymax(, type(, left, bottom)));	Scale

Vector group

Command / Parameter	Function
AA Xcenter, Ycenter, sweep_angle(, chord_angle);	Arc Absolute
AR Xcenter, Ycenter, sweep_angle(, chord_angle);	Arc Relative
AT Xinter, Yinter, Xend, Yend(, chord_angle);	Absolute Arc Three Point
BR X1, Y1, X2, Y2, X3, Y3(,...);	Bezier Relative
BZ X1, Y1, X2, Y2, X3, Y3(,...);	Bezier Absolute
CI radius(, chord_angle);	Circle
PA (X, Y(,...));	Plot Absolute
PD (X, Y(,...));	Pen Down
PE (flag(value) | coordinates (...));	Polyline Encoded
PR (X, Y(,...));	Plot Relative
PU (X, Y(,...));	Pen Up
RT Xincr inter, Yincr inter, Xincr end, Yincr end(, chord_angle);	Arc Relative Three Point
WU (type);	Pen Width Units

Polygon group

Command / Parameter	Function
EA X, Y;	Edge Rectangle Absolute
EP;	Edge Polygon
ER X, Y;	Edge Rectangle Relative
EW radius, start_angle, sweep_angle(, chord_angle);	Edge Wedge
FP (0);	Fill Polygon, Odd/Even
FP 1;	Fill Polygon, Non-Zero Winding
PM (mode);	Polygon Mode
RA X, Y;	Fill Rectangle Absolute
RR X, Y;	Fill Rectangle Relative
WG radius, start_angle, sweep_angle(, chord_angle);	Fill Wedge

Character group

Command / Parameter	Function
AD (kind, value(,...));	Define Alternate Font
CF (mode(, pen));	Character Fill
CP (spaces, lines);	Character Plot
DI (run, rise);	Absolute Direction
DR (run, rise);	Relative Direction
DT (label_terminator(, mode));	Define Label Terminator
DV (path(, line));	Define Variable Text Path
ES (width(, height));	Extra Space
FI font_ID;	Primary Font
FN font_ID;	Secondary Font
LB char...char label_terminator;	Label
LM (mode,[row number])	Label Mode
LO (position);	Label Origin
LO 21;	Uses PCL Label Origin
SA;	Select Alternate Font
SB (mode);	Scalable or Bitmapped Fonts
SD (kind, value(,...));	Define Standard Font
SI (width, height);	Absolute Character Size
SL (tangent);	Character Slant
SR (width, height);	Relative Character Size
SS;	Select Standard Font

Command / Parameter	Function
TD (mode);	Transparent Data

Line and fill attributes group

Command / Parameter	Function
AC (X, Y);	Anchor Corner
CR (red black ref, red white ref, green black ref, green white ref, blue black ref, blue white ref);	Color Range
FT (fill_type(, option1(, option2));	Fill Type
FT22, (PCL User-Defined Pattern ID);	Fill Type
FT 9, level;	Fill Type
LA (kind, value(,...));.	Line Attributes
LT (pattern_number(, pattern_length(, mode)));	Line Type
NP (number);	Number of Pens
PC (pen (, red, green, blue));	Pen Color
PW (width(, pen));	Pen Width
RF (index(, width, height(, pen, ...)));	Define Raster Fill
SM (character);	Symbol Mode
SP (pen);	Select Pen
SV (screen_type(, option1(, option2)));	Screened Vectors
SV (9, level,)	Screened Vectors
TM (width, height(, number...));	Threshold Matrix
TR (mode);	Transparency Mode
UL (index(, gap,...gap));	User-Defined Line
WU (type);	Pen Width Units

Raster image graphics

Raster compression mode

The raster compression mode command determines how raster data is coded. It affects the amount of code required to create an image, and the efficiency of image printing.

Syntax:

ESC***b#M**

Parameters:

- 0—Uncoded (default)
- 1—Run-length encoded

- 2—Tagged Image File Format (TIFF) Byte
- 3—Delta row
- 5—Adaptive compression
- 9—Replacement delta row
- 999—Zlib
- 1002—Group 4
- 1003—Group 3 one-dimensional
- 1004—Group 3 two-dimensional K=2
- 1005—Group 3 two-dimensional K=4
- 1006—TIFF word (16 bit)
- 1007—TIFF double-word (32 bit)
- 1008—Adaptive compression (includes TIFF word and TIFF double-word)

Uncoded data

Uncoded data is not compressed. Only those bytes needed to form the image are sent. Each bit represents a single dot. In the first byte, bit 7 corresponds to the first dot in the raster row, bit 5 to the third dot, and so forth.

Example:

ESC***p300x300Y**	|Move the cursor to 1 x 1 in. (1 in. from top margin and 1 in. from left edge of logical page)
ESC***t100R**	|Set resolution to 100-dots per inch
ESC***r0F**	|Rotate image to match current orientation
ESC***b0M**	|Set compression mode to uncoded
ESC***r1A**	|Start raster graphics at current position
ESC***b8W 'FF FF FF FF FF FF FF FF'x**	|Raster data uncompressed
ESC***b8W '80 00 00 00 00 00 00 01'x**	
ESC***b8W '80 00 00 00 00 00 00 01'x**	
...	|Repeat to provide 64 total scan lines
ESC***b8W '80 00 00 00 00 00 00 01'x**	
ESC***b8W 'FF FF FF FF FF FF FF FF'x**	
ESC***rB**	|End graphics

Run-length encoded data

Run-length encoded data is interpreted in pairs of bytes.

The following are the characteristics of the first byte:

- Acts as a counter, or control byte.
- Indicates how many times to repeat the data in the second byte.
- Can be from 0 (no repetition) to 255.
- The second byte is the data byte.

Example:

ESC***r1A**	|Start raster graphics at current position
ESC***b2W '07FF'x**	|Run-Length: 8x'FF'x
ESC***b6W '0080 0500 0001'x**	|1x'80'x, 6x'00'x, 1x'01'x
ESC***b6W '0080 0500 0001'x**	|1x'80'x, 6x'00'x, 1x'01'x
...	|**...**
ESC***b6W '0080 0500 0001'x**	|1x'80'x, 6x'00'x, 1x'01'x
ESC***b2W '07FF'x**	|8x'FF'x
ESC***rB**	|End graphics

Tagged Image File Format

TIFF "Packbits" contain a control byte (a signed number) that indicates whether the raster data bytes repeats (up to 127 times) or prints as encoded data.

- For control values of 0 through 127, the next (Control+1) bytes are uncoded.
- For control values of -1 through -127 ('FF'x - '81'x), the next byte is repeated (Abs(Control)+1) times.

Example:

ESC***p300x900Y**	|Move cursor to 1 x 3 in.
ESC***b2M**	|Set compression to TIFF
ESC***r1A**	|Start raster graphics at current position
ESC***b2W 'F9FF'x**	| TIFF: 8x'FF'x
ESC***b6W '0080 FB00 0001'x**	|1:'80'x, 6x'00'x, 1: '01'x or
ESC***b9W '078000000000000001'x**	|8: '8000000000000001'x
...	|**...**
ESC***b6W '0080 FB00 0001'x**	|1:'80'x, 6x'00'x, 1: '01'x
ESC***b2W 'F9FF'x**	|8x'FF'x
ESC***rB**	|End graphics

Delta row

Delta row is a compression mode that identifies and transmits only those bytes different from the ones in a preceding row.

The control byte consists of two parts:

- High 3 bits—Number of bytes to replace +1 (1 to 8).
- Low 5 bits—Offset from last unmodified byte (0-30); if the offset is 31, the next bytes are added to the offset until the next byte is not 255.

Example:

ESC***p300x1200Y**	|Move cursor to 1 x 4 in.
ESC***b3M**	|Set compression to Delta Row
ESC***r1A**	|Start raster graphics at current position
	|Num Offset
ESC***b9W 'E0FFFFFFFFFFFFFFFF'x**	|'111 00000'b=8 at 0: 'FFFFFFFFFFFFFFFF'x
ESC***b9W 'E08000000000000001'x**	|8 at 0: '8000000000000001'x
ESC***b0W**	|No bytes change
...	
ESC***b0W**	|No bytes change
ESC***b9W 'E0FFFFFFFFFFFFFFFF'x**	|8 at 0: '8FFFFFFFFFFFFFF'x
ESC***rB**	|End graphics

Adaptive compression

Adaptive compression allows the combined use of compression methods 0 through 3 (Uncoded, run-length encoded, TIFF, and delta row). It also allows the printing of empty rows (all zeros) or duplicate rows.

- The Transfer Raster Data command size includes all rows (scan lines).
- Scan Mode and SizeH,L are three-byte primary control strings: CountH and CountL.

Adaptive compression control strings

Scan mode	CountH, CountL	Data
0	Data SizeH,L	Uncoded raster scan data
1	Data SizeH,L	Size of run-length encoded data (high,low)
2	Data SizeH,L	Size of Tagged Image File Format (TIFF) data (high,low)
3	Data SizeH,L	Size of delta row data (high,low)
4	NumberH,L of empty rows	None
5	NumberH,L of duplicate rows	None
254	Data SizeH,L	TIFF word
255	Data SizeH,L	TIFF double-word

Example:

ESC***p300x1500Y**	|Move cursor to 1 x 5 in.
ESC***b5M**	|Set the compression to adaptive compression
ESC***b29W**	|Raster Data: 29 bytes follow
'03 0009'x 'E0FFFFFFFFFFFFFFFF'x	|Delta Row: 8 at 0: 'FFFFFFFFFFFFFFFFh'x
'01 0006'x '0080 FB00 0001'x	|Run Length: 1:'80'x, 6x'00'x, 1:'01'x
'05 0035'x	|Duplicate rows: 61 times

'02 0002'x 'F9FF 'x	|TIFF: 8x'FF'x
ESC***rB**	|End graphics

Zlib

Zlib is a generic compression method. It refers to a standard for compression and the library that implements the standard.

The zlib compression method uses the deflate algorithm. This same algorithm is used by more widely known compression utilities such as PKZIP and GZIP.

Compressed data is a series of variably sized blocks. An encoder determines how to break the data into blocks and finds the best compression method to use for each block.

An encoder works based on the following principles:

- The encoder creates a dictionary containing different characters in a set of data. Short strings of bits represent more commonly occurring characters, and long strings of bits represent less frequently used characters.
- A probability tree determines which characters are frequently used.
- Repeated patterns in a string of characters are identified and stored to avoid storing the string multiple times.

A three-bit zlib header is added to the beginning of a block to describe the type of compression used. The header also indicates whether the block is a final block. Other information in the header includes checksums, compression algorithm used, and the level of compression. In compression, all checksums are set to zero, and in decompression, the checksums are ignored.

The memory required for zlib compression and decompression is independent of the size of the data for compression or decompression.

The number 999 is used to represent zlib compression because it does not conflict with other compression types.

Group 3 and group 4 raster compression

Since group 4 images do not use line endings, the width of the image must be specified using the Raster Width command (ESC***r#S**).

Send the compressed image data to the printer using the Transfer Raster Data command (ESC***b#W**). The maximum number of bytes that can be sent using the command is 32K bytes. Break up images larger than 32K bytes and send them using multiple commands. It does not matter where the image is broken, or how many Transfer Raster Data commands are used. When the image is started (with a Transfer Raster Data command), no other commands are allowed until the entire image has been sent.

The following example prints a group 4 image file that is 256 bits wide and 9,645 bytes long:

ESC***b1002M**	|Set raster compression to group 4
ESC***r256S**	|Define width of image in input bits
ESC***r1A**	|Start raster graphics at current position
ESC***b9645W**	|9,645 bytes of a group 4 image
...[Group 4 image data]**...**	
ESC***rB**	|End raster graphics

All lines of data must be the same length. If they are not, then add zeroes (0) to attain the same length.

Note: If the uncompressed image extends beyond the logical page dimensions or beyond the raster width specified in the Raster Width command (ESC***r#S**), then the image is clipped at print time.

Additional compression modes

When the compression mode is 1008 (Lexmark adaptive), TIFF word and double-word can be printed using compression scan modes 254 and 255 respectively. This compression method sends a raster image as a block of raster data.

Creating macros

1. Assign an ID number for the macro.

   Note: If the number is identical to an existing macro ID in RAM, then the old macro is deleted when you specify the Macro Control Start Definition.
2. Start the macro definition.
3. Send the macro contents.
4. Stop the macro definition.

Note: Define each macro separately.

Example:

This example creates a macro to print the Wigit Corp. logo, and then calls the logo macro in the body of a letter.

ESC**&f1Y**	Set the macro ID to 1
ESC**&f0X**	Start the macro definition
ESC**&a+72H**	Relative move right 1/10 inch (+72/720th)
ESC**(8U**	Select Roman-8 symbol set
ESC**(s1p18v0s3b4101T**	Select CG Times 18 point bold
W	Print W
ESC**&a-21.6H**	Relative move left 0.03 inch
ESC**(s12v1S**	Select (CG Times) 12 point (bold) italic
igit	Print igit
ESC**&a+72H**	Relative move right 1/10 inch
ESC**(s18v0S**	Select 18 point and turn off italic
C	Print C
ESC**(s12v1S**	Select 12 point italic
orp.	Print orp.
ESC**&a+72H**	Relative move right 1/10 inch
ESC**&f1X**	End of macro definition

ESC**&f10X**	|Make Macro ID 1 permanent
...	
...	
From:	|Print the header From:
ESC**&f1y3X**	|Set the macro ID to 1 and call the macro
...	|Print the letter
Thank you for ...	|Print the closing
ESC**&f1y3X**	|Set the macro ID to 1 and call the macro
...	

Printer job language

PJL command notation

The following character codes are used to illustrate the syntax of each PJL command.

Character code	Description	Hex code
<ESC>	Escape character	0x1B
<LF>	Line Feed character	0x0A
<CR>	Carriage Return character	0x0D
<FF>	Form Feed character	0x0C
<HT>	Horizontal Tab character	0x09
<UEL>	Universal Exit Language	0x1B 0x25 0x2D 0x31 0x32 0x33 0x34 0x35 0x58

Kernel commands

Universal Exit Language (UEL) command

This command terminates the current printer language and allows dynamic switching into PJL.

Syntax:

```
<ESC>%-12345X
```

Notes:

- If the printer receives this command after a PJL job and before PJL End-of-Job (EOJ), then perform a Printer Language Reset.
- If the printer receives this command outside a PJL job/EOJ pair, then reset to user defaults.

Enter Language command

This command causes the printer to enter the specified language, such as PCL emulation, PostScript emulation, or PPDS.

Syntax:

```
@PJL ENTER LANGUAGE = language[<CR>]<LF>
```

Notes:

- The *language* is PCL, PCLXL, PostScript, or PPDS.
- Write **@PJL** in upper case. All others can be mixed or lowercase.

Comment command

This command lets the user add a comment or explanation to the PJL commands.

Syntax:

```
@PJL COMMENT words[<CR>]<LF>
```

Notes:

- The *words* parameter can be any combination of printable characters, spaces, and horizontal tabs.
- The **COMMENT** command has no effect on a PJL job.

Job separation commands

The printer supports the PJL JOB and EOJ commands. When the printer receives a JOB command, the print timeout is multiplied by 10. When the printer receives a PJL EOJ command, the print timeout is reset to the user default.

JOB command

The host computer can use the JOB command to separate print data into various parts or jobs. The command signifies the start of a print job.

Syntax:

```
@PJL JOB [NAME = "job name"] [START = first page][END = last page] [PASSWORD = number] [LCREDSESSIONID
```

Notes:

- Only use this command with the EOJ command.
- After receiving a JOB command, the printer does not process a UEL command as a PJL job boundary until it receives the corresponding EOJ. Instead, UELs occurring within a JOB and EOJ pair are processed as printer language resets (for example, PCL ESCE).

Parameters:

- Use the **NAME** parameter to assign a character string name to a particular job. The name may be any combination of printable characters, spaces, or horizontal tabs up to a maximum of 80 characters, spaces, or tabs. Enclose **job name** in double quotes as indicated by the command syntax.
- Use the **START** parameter with the **END** parameter to skip the printing of a particular portion of the job. The printer emulator discards pages of a job until the page specified by this parameter is reached. First page range is from 1 to 2,147,483,647. Omission of the **START** parameter causes the printer to start printing with page 1 of the job.
- Use the **END** parameter with the **START** parameter to skip the printing of a particular portion of the job. The printer emulator discards all pages of a job after the last page of the print job. The specification of the last page is relative to page 1 of the print job and its range is from 1 to 2,147,483,647. Omission of the **END** parameter causes the printer to print all pages to the end of the job.
- Use the **PASSWORD** parameter to control which jobs and users are allowed to modify the printer default or NVRAM variables.

EOJ command

The EOJ command signifies the end of a print job.

Syntax:

```
@PJL EOJ [NAME="job name"][<CR>]<LF>
```

Note: Only use this command with the **JOB** command.

Parameters:

Use the **NAME** parameter to assign a character string name to a particular job. The name may be any combination of printable characters, spaces, or horizontal tabs up to a maximum of 80 characters, spaces, or tabs. The **NAME** string may be different from the **NAME** string in the **JOB** command.

Environment commands and variables

Common variables for both printer languages

The following table shows the common variables supported for both PCL emulation and PostScript emulation. The **[command modifier:value]** parameter is not required for the listed variables.

To determine which variables your printer supports, see the *Technical Reference* for your printer model at http://support.lexmark.com.

Variable	Function	Description/notes
AUTOCONT • 0 • 5–255 • OFF • ON	Auto Continue	**Notes:** • If the value is 0 or OFF, then the variable is disabled. 0 is the factory default setting. • ON sets the variable value to 30. • INQUIRE or DINQUIRE on the variable returns a numeric value. • If a SET or DEFAULT command specifies a value greater than 255, then the value is changed to 255.
BINDING • LONGEDGE • SHORTEDGE	Duplex Bind	**Note:** LONGEDGE is the factory default setting.
BITSPERPIXEL • 1 • 2 • 4 • Auto	Image Enhancement Technology and Image Enhancement Technology Type	• 1—Sets Image Enhancement Technology setting to Off. 1 is the factory default setting. • 2 or 4—Sets Image Enhancement Technology setting to On. INQUIRE or DINQUIRE returns the value of Image Enhancement Technology and Image Enhancement Technology Type as follows: • If Image Enhancement Technology is set to: – Off—1 is returned. – On—2 or 4 is returned depending on the Image Enhancement Technology Type setting. • If Image Enhancement Technology Type is set to: – On—Numerical value of BITSPERPIXEL is returned. – Auto—2 or 4 is returned depending on the amount of total memory installed.

Variable	Function	Description/notes
CLEARABLEWARNINGS • JOB • ON	Panel non-fatal warning messages	**Notes:** • ON is the factory default setting. • If Auto Continue is set to On, then JOB is returned. • If Auto Continue is set to Off, then ON is returned.
COPIES • 1 to 999	Number of copies of each page	**Note:** 1 is the factory default setting. If a SET or DEFAULT command specifies a value greater than 999, then the value is changed to 999.
CPLOCK • ON • OFF	Disables menus	• ON—Disables the control panel menus. • OFF—Enables the control panel menus. OFF is the factory default setting.
DENSITY • 1 • 2 • 3 • 4 • 5	Print Darkness	**Note:** 3 is the factory default setting for mono printers. 4 is the factory default setting for color printers. • 1—Lightest • 2—Lighter • 3—Normal • 4—Darker • 5—Darkest
DUPLEX • ON • OFF	Duplex	**Note:** OFF is the factory default setting.
ECONOMODE • ON • OFF	Toner Saver	**Note:** OFF is the factory default setting.
FORMATTERNUMBER	Unique printer identifier	The value of the NVRAM serial number field is returned. The NVRAM serial number field is set to the printer serial number. To guarantee that a unique identifier exists in this field, the printer writes a random alphanumeric string into this field whenever the critical byte area in NVRAM is reinitialized.
FORMLINES • 1 to 255	Lines per page	**Notes:** • 60 or 64 (country-specific) is the factory default setting. • If a SET or DEFAULT command specifies a value greater than 255, then the value is changed to 255.
HOLD • ON • OFF • STORE • PROOF	Print and Hold	**Notes:** • OFF is the factory default setting. • The HOLD variable interacts with the HOLDKEY and HOLDTYPE variables.

Variable	Function	Description/notes
HOLDKEY • < **PIN** >	Print and Hold PIN	**Notes:** • This variable is null by default. It interacts with the HOLD and HOLDTYPE variables. • PIN should consist of exactly four numbers. Only numbers 1 through 6 are valid.
HOLDTYPE • PUBLIC • PRIVATE	Print and Hold Type	**Note:** PUBLIC is the factory default setting. The HOLD, HOLDKEY, and HOLDTYPE variables interact with each other as follows: • When HOLD is set to On, HOLDKEY is set to a valid PIN, and HOLDTYPE is set to Private. Confidential Print capability is available. • When HOLD is set to On, HOLDKEY is set to *PIN*, and HOLDKEY is set to Public. Repeat Print capability is available. • When HOLD is set to Store, HOLDKEY is set to *PIN*, and HOLDTYPE is set to Public. Reserve Print capability is available. • When HOLD is set to Proof, HOLDKEY is set to *PIN*, and HOLDTYPE is set to Public. Verify Print capability is available. • Print and Hold capabilities are not available with any other possible combination of HOLD, HOLDKEY, and HOLDTYPE settings.
IMAGEADAPT • ON • OFF	Resolution reduction	**Note:** OFF is the factory default setting.
INTRAY2 • UNLOCKED • LOCKED	Tray lock	**Note:** UNLOCKED is the factory default setting.
INTRAY3 • UNLOCKED • LOCKED	Tray lock	**Note:** UNLOCKED is the factory default setting.
INTRAY4 • UNLOCKED • LOCKED	Tray lock	**Note:** UNLOCKED is the factory default setting.
INTRAY5 • UNLOCKED • LOCKED	Tray lock	**Note:** UNLOCKED is the factory default setting.
INTRAY1SIZE • < *paper size* >	Tray 1 installed and default formatting size	**Note:** Letter is the U.S. factory default setting. A4 is the international factory default setting.
INTRAY2SIZE • < *paper size* >	Tray 2 installed and default formatting size	**Note:** Letter is the U.S. factory default setting. A4 is the international factory default setting.

Variable	Function	Description/notes
INTRAY3SIZE • < *paper size* >	Tray 3 installed and default formatting size	**Note:** Letter is the U.S. factory default setting. A4 is the international factory default setting.
INTRAY4SIZE • < *paper size* >	Tray 4 installed and default formatting size	**Note:** Letter is the U.S. factory default setting. A4 is the international factory default setting.
INTRAY5SIZE • < *paper size* >	Tray 5 installed and default formatting size	**Note:** Letter is the U.S. factory default setting. A4 is the international factory default setting.
IPPJOBPAGESPERSET • 0 to 255		**Note:** 0 is the factory default setting.
IPPORIENTATION • 0 to 7		**Note:** 0 is the factory default setting.
IPPSCALING • 0 to 7		**Note:** 0 is the factory default setting.
JOBNAME • < *jobname* >	Print and Hold Jobname	**Notes:** • This variable is null by default. A null (“ “) string is an acceptable value that indicates no Print and Hold job name is specified. • A job name is a text string truncated to 24 characters.
JOBOFFSET • ON • OFF • BETWEENJOBS • BETWEENCOPIES	Offset Pages	**Note:** OFF is the factory default setting. INQUIRE or DINQUIRE returns the value of Offset Pages as follows: • If Offset Pages is set to Off, then OFF is returned. • If Offset Pages is set to BETWEENJOBS or BETWEENCOPIES, then ON is returned.

Variable	Function	Description/notes
LANG • ENGLISH • FRENCH • GERMAN • ITALIAN • SPANISH • GREEK • DANISH • NORWEGIAN • DUTCH • SWEDISH • PORTUGUESE • FINNISH • RUSSIAN • POLISH • HUNGARIAN • TURKISH • CZECH • SIMPLIFIED CHINESE • TRADITIONAL CHINESE • KOREAN • JAPANESE	Default display language	**Note:** The printer default language is specific to a country or region.
LOWTONER • ON • OFF • CONTINUE • STOP	Toner Alarm	• OFF or STOP—Indicates that the Toner Alarm setting is set to Single. OFF is the factory default setting. • ON or CONTINUE—Indicates that the Toner Alarm setting is set to Off.
MANUALFEED • OFF	Manual feed selection	OFF disables manual feeding.

Variable	Function	Description/notes
MEDIATYPE • PLAIN • CARDSTOCK • TRANSPARENCY • RECYCLED • GLOSSY • HEAVYGLOSSY • LABELS • VINYLLABELS • BOND • ENVELOPE • ROUGHENVELOPE • LETTERHEAD • PREPRINTED • COLORED • LIGHT • HEAVY • ROUGH • CUSTOMTYPE1 • CUSTOMTYPE2 • CUSTOMTYPE3 • < *custom name* >	Default paper source and formatting size	**Notes:** • PLAIN is the factory default setting. • <*name*> is a variable that allows for custom naming of custom print material types. The text is truncated to 24 characters.
MPTRAY • CASSETTE • MANUAL • FIRST	Multipurpose feeder configuration	Configures the multipurpose feeder. **Note:** CASSETTE is the factory default setting.
ORIENTATION • PORTRAIT • LANDSCAPE	Print orientation	**Note:** This variable does not affect PostScript emulation. PORTRAIT is the factory default setting.

Variable	Function	Description/notes
OUTBIN • UPPER • LOWER • OPTIONALOUTBIN1 • OPTIONALOUTBIN2 • OPTIONALOUTBIN3 • OPTIONALOUTBIN4 • OPTIONALOUTBIN5 • OPTIONALOUTBIN6 • OPTIONALOUTBIN7 • OPTIONALOUTBIN8 • OPTIONALOUTBIN9 • OPTIONALOUTBIN10 • < *custom name* >	Output bin	**Notes:** • UPPER is the factory default setting. • <*name*> is a variable that allows custom naming of optional output bins. The text is truncated to 24 characters.
PAGEPROTECT • AUTO • ON	Page Protect	**Note:** AUTO is the factory default setting. INQUIRE or DINQUIRE returns the value of Page Protect as follows: • If Page Protect is set to Off, then AUTO is returned. • If Page Protect is set to On, then ON is returned.
PAPER • < *paper sizes* > • < *envelope sizes* >	Default paper source and formatting size	**Note:** Letter is the U.S. factory default setting. A4 is the international factory default setting.
PARALLEL • SLOW • FAST	Parallel Protocol	• SLOW—Indicates that the Parallel Protocol setting is Standard. • FAST—Indicates that the Parallel Protocol setting is FASTBYTES. FAST is the factory default setting.
PASSWORD • 0 to 65535	Default password for PJL NVRAM security	**Notes:** • 0 is the factory default setting. • This setting locks the control panel to keep the user defaults from changing. For more information, see the documentation that came with your printer. • If the PJL password is not equal to 0, then a DINQUIRE or INQUIRE on the PASSWORD variable returns ENABLED. If the PJL password is equal to 0, then a DINQUIRE or INQUIRE on the PASSWORD variable returns DISABLED.

Variable	Function	Description/notes
PERSONALITY • PCL • POSTSCRIPT • AUTO	SmartSwitch settings	**Notes:** • AUTO is the factory default setting. • This setting controls the SmartSwitch settings for the interface link on which the PJL command is received. If AUTO is sent, then both PS SmartSwitch and PCL SmartSwitch menu settings are set to ON. • If PCL is sent, then PS SmartSwitch is set to OFF and PCL SmartSwitch is set to ON. • If POSTSCRIPT is sent, then PCL SmartSwitch is set to OFF and PS SmartSwitch is set to ON. • When queried, AUTO is returned if both SmartSwitch settings are ON. If one SmartSwitch setting is OFF, then the printer language whose SmartSwitch setting is ON is returned. If both SmartSwitch settings are OFF, then the default language is returned.
POWERSAVE • ON • OFF	Sleep Mode Switch	**Note:** ON is the factory default setting. This setting enables the power-saving feature.
POWERSAVETIME • 0 to 240	Power Save time (in minutes)	**Notes:** • 20 is the factory default setting. This setting sets the time the printer remains idle before it enters Power Saver mode when POWERSAVE is On. • If a SET or DEFAULT command specifies a value greater than 120 or 240, then the value is changed to 120 or 240 depending on the printer model.
PRINTEXPRESSMODE • ON • OFF	Express Printing	**Note:** ON is the factory default setting.
QTY • 0 to 999	Collation - Collated Copies (QTY)	**Notes:** • This setting sets the number of collated copies of a print job. 0 is the factory default setting. • If Collation - Collated Copies (QTY) is not equal to 0, then a DINQUIRE or INQUIRE returns the numerical setting for QTY. If Collation - Collated Copies (QTY) is set to Off, then a DINQUIRE or INQUIRE returns 0. • If a SET or DEFAULT command specifies a value greater than 999, then the value is changed to 999.
REPRINT • ON • OFF • AUTO	Jam Recovery	**Note:** AUTO is the factory default setting.

Variable	Function	Description/notes
RESOLUTION • 300 • 600 • 1200	Print Resolution	**Note:** 600 is the factory default setting.
RESOURCESAVE • ON • OFF • AUTO	Resource Save	• ON—Indicates that Resource Save is set to On. • OFF and AUTO—Indicate that Resource Save is set to Off. OFF is the factory default setting.
RET • OFF • DARK • MEDIUM • LIGHT • ON	Print Quality Enhancement Technology (PQET)	**Notes:** • ON is the factory default setting. • If this value is set through PJL, then the same value is returned on a PJL inquiry. • DARK, MEDIUM, LIGHT, and ON values indicate that PQET is On. OFF indicates that PQET is Off.
TIMEOUT • 0 to 255	Print timeout (in seconds)	**Notes:** • 90 is the factory default setting. This setting sets the time the printer remains idle before the job is forced to print. • If a SET or DEFAULT command specifies a value greater than 255, the value is changed to 255.
USERNAME • < *username* >	Print and Hold username	**Notes:** • <*username*> is a text string truncated to 24 characters. • A null (“ “) string is an acceptable value and indicates no Print and Hold username is specified.
WIDEA4 • NO • YES	A4 width	**Notes:** • NO is the factory default setting. This setting indicates that the A4 width is 198 mm (7.79 in.). • YES indicates that the A4 width is 203 mm (7.99 in.).

Common variables for PCL emulation

Variable	Function	Value list	Factory default
FONTNUMBER	Font number	0, 1, ..., n	0
FONTSOURCE	Font source	I, S, M1, M2, M3, M4, D1	I
PITCH	Default pitch	0.08 to 100 (increments of 0.01) **Note:** If an invalid pitch is requested, the printer selects the closest pitch.	10

Variable	Function	Value list	Factory default
PTSIZE	Default point size	1 to 1008 (increments of 0.25) **Note:** If an invalid point size is requested, the printer selects the closest point size.	12
SYMSET	Symbol set for the default font	If a symbol set is requested that is not resident in the printer, then the symbol set is not changed.	PC-8 (U.S.); PC850 (Non-U.S.)

Printer-unique variables for PCL emulation

Specify the *[command modifier:value]* parameter as **LPARM:PCL**.

```
@PJL SET LPARM:PCL LBITMAPROUNDING=OFF[<CR>]<LF>
```

To determine which variables your printer supports, see the *Technical Reference* for your printer model at **http://support.lexmark.com**.

Variable	Function	Value list	Factory default
LA4WIDTH	A4 width in millimeters	• 198 • 203	198
LASSIGNFEEDER	Tray renumber assign envelope feeder	• OFF • 0 to 199 Variable used with PJL SET or DEFAULT command.	OFF
		• OFF • 0 to 199 • NONE Variable used with PJL INQUIRE or DINQUIRE command.	
LASSIGNMANUALENVELOPE	Tray renumber assign manual envelope	• OFF • 0 to 199 Variable used with PJL SET or DEFAULT command.	OFF
		• OFF • 0 to 199 • NONE Variable used with PJL INQUIRE or DINQUIRE command.	

Variable	Function	Value list	Factory default
LASSIGNMANUALPAPER	Tray renumber assign manual paper	• OFF • 0 to 199 Variable used with PJL SET or DEFAULT command.	OFF
		• OFF • 0 to 199 • NONE Variable used with PJL INQUIRE or DINQUIRE command.	
LASSIGNMPFEEDER	Tray renumber assign multipurpose feeder	• OFF • 0 to 199 Variable used with PJL SET or DEFAULT command.	OFF
		• OFF • 0 to 199 • NONE Variable used with PJL INQUIRE or DINQUIRE command.	
LASSIGNTRAY#	Tray renumber assign tray #	• OFF • 0 to 199 Variable used with PJL SET or DEFAULT command. **Note:** # is for the tray number in the variable and function columns. The tray number can be 1 through 5.	OFF
		• OFF • 0 to 199 • NONE Variable used with PJL INQUIRE or DINQUIRE command.	
LBITMAPROUNDING	Bitmap font partial pel rounding	• ON • OFF Some printers handle partial pel character escapement rounding of bitmap fonts differently. LBITMAPROUNDING instructs the printer how to handle partial pel rounding of bitmap fonts. Bitmap rounding is compatible with the Hewlett-Packard Company LaserJet printers.	ON

Variable	Function	Value list	Factory default
LCOLOREXTENSIONS	Color extensions	• ON • OFF • HPCLJ5	ON
LFONTCOMPATIBILITY	Font Compatibility level	• PCL5 • PCL6	PCL6
LFONTPRIORITY	Font priority search	• RESOLUTION • NORESOLUTION When RESOLUTION is specified, your printer is compatible with the Hewlett-Packard Company LaserJet printers. When NORESOLUTION is specified, font resolution is removed from the font selection priority criteria.	RESOLUTION

Common variables for PostScript emulation

Use the following variables only for PostScript emulation.

The *[command modifier:value]* parameter should be specified as **LPARM:POSTSCRIPT**.

```
@PJL SET LPARM:POSTSCRIPT JAMRECOVERY=OFF[<CR>]<LF>
```

To determine which variables your printer supports, see the *Technical Reference* for your printer model at http://support.lexmark.com.

Variable	Function	Value list	Default values
JAMRECOVERY	Jam Recovery	• On • Off	Off
PRTPSERRS	Print PS errors	• On • Off	Off

Printer-unique variables for PostScript emulation

The following variables are unique in some printer models and are supported in PostScript emulation only.

The *[command modifier:value]* parameter should be specified as **LPARM:POSTSCRIPT**.

```
@PJL SET LPARM:POSTSCRIPT LPSFONTPRIORITY=RESIDENT[<CR>]<LF>
```

To determine which variables your printer supports, see the *Technical Reference* for your printer model at http://support.lexmark.com.

Variable	Function	Value list	Factory default
LPSFONTPRIORITY	Font priority	• RESIDENT • FLASHDISK	RESIDENT

Printer-unique LRESOURCE variables

Use the following variables when additional storage devices are installed in the printer.

The *[command modifier:value]* parameter or the **DEFAULT**, **INQUIRE**, **DINQUIRE**, and **SET** commands must be specified as **LRESOURCE:"device.filename.filetype"**.

```
@PJL DEFAULT LRESOURCE:"device:filename.filetype" LDESCRIPTION="my description"[<CR>]<LF>
```

Values for **"device:filename.filetype"**:

- The **device** is a file storage device, such as a hard disk or a flash memory.
- The **filename** is a unique identifier for a file, such as the macro ID for a PCL macro, the symbol set ID for a PCL symbol set, or the font ID for a PCL font. This variable is case-sensitive.
- The **filetype** is an identifier which categorizes the file, such as *sFnt5* for PCL scalable font, *bFnt5* for a PCL bitmap font, *MAC5* for a PCL macro, *data* for user data, or *demo* for a demo file. This variable is case-sensitive.

To determine which variables printer supports, see the *Technical Reference* for your printer model at http://support.lexmark.com.

Variable	Function	Value list	Default values
LDESCRIPTION	Macro or symbol set description	"alphanumeric string"	NULL
LRWLOCK	Read or write lock for a file storage device	"alphanumeric string"	NULL
LWLOCK	Write lock for a file storage device	"alphanumeric string"	NULL

Auto-continuable conditions

The status messages are returned independent of the state of the Auto Continue menu item. Auto-continuable messages are returned in this form:

CODE=status code
DISPLAY=display string
ONLINE=online status

To determine which messages your printer supports, see the *Technical Reference* for your printer model at http://support.lexmark.com.

Message	Status code	Return string	Online status
Intervention Required - PPDS Font Error	30014	**PPDS font error [50]**	FALSE
Intervention Required - Insufficient Collation Area	30016	**Insufficient Collation Area [37]**	FALSE
Intervention Required - Insufficient Defragment Memory	30016	**Insufficient Defrag Memory [37]**	FALSE
Intervention Required - Insufficient Memory	30016	**Insufficient memory [37]**	FALSE

Message	Status code	Return string	Online status
Intervention Required - Memory Full	30016	**Memory full [38]**	FALSE
Intervention Required - Configuration Change	30016	**Configuration Change [57]**	FALSE
Intervention Required - Held Jobs May Not Be Restored	30016	**Held Jobs May Not Be Restored**	FALSE
Intervention Required - Complex Page	30017	**Complex page [39]**	FALSE
Intervention Required - Parallel Error	30018	**Parallel Error [54]**	FALSE
Intervention Required - Serial Option Error	30018	**Serial option [slot #] error [54]**	N/A
Intervention Required - Standard Serial Error	30018	**Standard Serial Error [54]**	FALSE
Intervention Required - Standard Network Software Error	30018	**Standard network software error [54]**	FALSE
Intervention Required - Standard Serial Fax Connection Lost	30018	**Std Ser Fax Connection Lost [54]**	FALSE
Intervention Required - Parallel Port Disabled	30018	**Parallel Port Disabled [56]**	FALSE
Intervention Required - Parallel Port Error	30018	**Parallel Port Disabled [56]**	FALSE
Intervention Required - Serial Option Disabled	30018	**Serial [slot #] Port Disabled [56]**	FALSE
Intervention Required - Standard Serial Disabled	30018	**Standard Serial Disabled [56]**	FALSE
Intervention Required - Standard USB Port Disabled	30018	**Standard USB port disabled [56]**	FALSE
Intervention Required - Insufficient Fax Buffer	30026	**Insufficient Fax Buffer [55]**	FALSE
Intervention Required - Std Par ENA Connection Lost	30027	**Std Par ENA Connection Lost [54]**	FALSE
Intervention Required - Standard Parallel Port Disabled	30027	**Standard Parallel Port Disabled [56]**	FALSE

Message	Status code	Return string	Online status
Intervention Required - Std Parallel Port Disabled	30027	**Std Parallel Port Disabled [56]**	FALSE
Intervention Required - Resolution Reduced	30029	**Resolution Reduced [36]**	FALSE
Intervention Required - Print Jobs on Disk Request	30031	**Print Jobs on Disk?** or **Print Jobs on Disk. Go/Stop?**	FALSE
Intervention Required - Restore Held Jobs. Go/Stop?	30031	**Restore held jobs?**	FALSE
Intervention Required - Short Paper	30034	**Short Paper [34]**	FALSE
Intervention Required - Short Paper	30034	**Incorrect paper size, open [source] [34]**	FALSE
Intervention Required - Scheduled Maintenance	30075	**Scheduled Maintenance [80]**	FALSE
Intervention Required - Scheduled Maintenance	30075	**Scheduled maintenance ADF kit [80]**	FALSE
Intervention Required - Scheduled Maintenance	30075	**Scanner maintenance required soon, use ADF Kit [80]**	FALSE
Intervention Required - Scheduled Maintenance	30075	**Scanner maintenance required, use ADF Kit [80]**	FALSE
Intervention Required - Scheduled Maintenance	30075	**Replace paper pick rollers in [source], use parts and instructions in tray 1 or tray 2 compartment [80]**	FALSE
Intervention Required - Res Save Off Deficient Memory	30076	**Insufficient memory to support Resource Save feature [35]**	FALSE
Intervention Required - Insufficient memory	30076	**Insufficient memory to support Resource Save feature [35]**	FALSE
Intervention Required - Resource Save Off Deficient Memory	30076	**Res Save Off Deficient Memory [35]**	FALSE
Intervention Required - Insufficient Collation Area	30076	**Insufficient Collation Area [37]**	FALSE

Message	Status code	Return string	Online status
Intervention Required - Service Required	30095	**Printer service required [36]**	FALSE
Intervention Required - Empty Box M	30107	**Empty Box M**	FALSE
Intervention Required - Empty Hole Punch Box	30107	**Empty the Hole Punch Box**	FALSE
Intervention Required - Insert Box M	30107	**Insert Box M**	FALSE
Intervention Required - Insert Staple Cartridge	30107	**Insert staple cartridge**	FALSE
Intervention Required - Insert Stapler	30107	**Insert Stapler**	FALSE
Intervention Required - Priming Failed	30107	**Priming Failed, Retry. Go/Stop?**	FALSE
Intervention Required - Network [x] Software Error	30112	**Network [x] software error [54]**	FALSE
Intervention Required - Serial [x] Fax Connection Lost	30112	**Ser [x] Fax Connection Lost [54]**	FALSE
Intervention Required - Serial Option [x] Error	30112	**Serial option [x] error [54]**	FALSE
Intervention Required - Serial Port [x] Disabled	30112	**Serial port [x] disabled [56]**	FALSE
Intervention Required - USB Port [x] Disabled	30112	**USB port [x] disabled [56]**	FALSE
Intervention Required - Parallel [x] ENA Connection Lost	30113	**Par [x] ENA Connection Lost [54]**	FALSE
Intervention Required - Parallel Port [x] Disabled	30113	**Parallel port [x] disabled [56]**	FALSE
Intervention Required - Disk Operation Failed Faxes on Disk	32001	**Operation Failed Faxes on Disk**	FALSE
Intervention Required - Disk Operation Failed Jobs on Disk	32001	**Operation Failed Jobs on Disk**	FALSE
Intervention Required - Flash Full	32002	**Flash Full [52]**	FALSE

Message	Status code	Return string	Online status
Intervention Required - Flash Full	32002	**Not enough free space in flash memory for resources [52]**	FALSE
Intervention Required - Disk Full	32002	**Disk full [62]**	FALSE
Intervention Required - Disk Corrupted	32015	**Disk Corrupted**	FALSE
Intervention required - Disk Corrupted. Reformat?	32015	**Disk Corrupted. Reformat?**	FALSE
Intervention required - Disk Must Be Formatted	32015	**Disk must be formatted for use in this device**	FALSE
Intervention required - Too Many Bins Attached	32030	**Too many bins attached [58]**	FALSE
Intervention Required - Too Many Flash Options Installed	32030	**Too Many Flash Options [58]**	FALSE
Intervention Required - Too Many Flash Options Installed	32030	**Too many flash options installed [58]**	FALSE
Intervention Required - Too Many Disks Installed	32030	**Too many disks installed [58]**	FALSE
Intervention Required - Too Many Trays Attached	32030	**Too many trays. Remove some. [58]**	FALSE
Intervention Required - Unformatted Flash	32052	**Unformatted flash detected [53]**	FALSE
		Flash memory unformatted [53]*	FALSE
Intervention Required - Unformatted Disk	32052	**Unformatted disk [63]**	FALSE
Intervention Required - Unsupported Disk Format	32052	**Unsupported Disk Format [64]**	FALSE
Intervention Required - Defective Flash	32056	**Defective Flash [51]**	FALSE
Intervention Required - Defective Flash	32056	**Defective flash detected [51]**	FALSE
		Defective flash memory [51]*	FALSE
Intervention Required - Defective Disk	32056	**Defective Disk [61]**	FALSE

Message	Status code	Return string	Online status
Intervention Required - Defective Disk	32056	**Remove defective disk [61]**	FALSE
Intervention Required - Scheduled Maintenance	35075	**Scheduled Maintenance [80]**	FALSE
Intervention Required - Scheduled Maintenance	40316	**Scheduled Maintenance [x] [81]**	FALSE
Intervention Required - Belt Life Warning	40038	**Belt Life Warning [80]**	FALSE
Intervention Required - Belt Exhausted	40038	**Belt Exhausted [80]**	FALSE
Intervention Required - Fuser Maintenance	40038	**Fuser Maintenance [80]**	FALSE
Intervention Required - Fuser Life Warning	40038	**Fuser Life Warning [80]**	FALSE
Intervention Required - Fuser Exhausted	40038	**Fuser Exhausted [80]**	FALSE
Intervention Required - Fuser/Belt Life Warning	40038	**Fuser/Belt Life Warning [80]**	FALSE
Intervention Required - Fuser/Belt Exhausted	40038	**Fuser/Belt Exhausted [80]**	FALSE
Intervention Required - ITU Maintenance	40038	**ITU Maintenance [83]**	FALSE
Intervention Required - Cartridge Nearly Low	40038	**Cartridge nearly low [88.xy]**	FALSE
Intervention Required - Cartridge Low	40038	**Cartridge low [88.xy]**	FALSE
Intervention Required - Cartridge Low	40038	**Cartridge Low [88]**	FALSE
Intervention Required - [Color] Cartridge Low	40038	**[Color] cartridge is low [88]**	FALSE
Intervention Required - Toner Low	40038	**Cartridge low [88]**	FALSE
Intervention Required - Cartridge Low	40038	**Cartridge Low [CMYK] [88]**	FALSE
Intervention Required - Toner Low	40038	**Toner is low [88]**	FALSE
Intervention Required - Toner Low	40038	**Toner Low [88]**	FALSE

Message	Status code	Return string	Online status
Intervention Required - Toner Low	40038	**Yellow Toner Low [88]** **Magenta Toner Low [88]** **Cyan Toner Low [88]** **Black Toner Low [88]**	FALSE
Intervention Required - Cartridge Nearly Low	40038	**Cartridge nearly low [88.xx]**	FALSE
Intervention Required - Cartridge Nearly Low	40038	**[Color] cartridge nearly low, [number] estimated pages remain [88.xy]**	FALSE
Intervention Required - Cartridge Nearly Low	40038	**[Color] cartridge nearly low, [number] estimated [pages or days] remain [88.xy]**	FALSE
Intervention Required - Cartridge Low	40038	**[Color] cartridge low, [number] estimated pages remain [88.xy]**	FALSE
Intervention Required - Cartridge Low	40038	**[Color] cartridge low, [number] estimated [pages or days] remain [88.xy]**	FALSE
Intervention Required - PJL OP Message	40048	**[Pick up text from 'data1' and 'data2 but not 'userMessage1' and 'userMessage2']**	FALSE
Intervention Required - PJL ST Message	40049	**[Pick up text from 'data1' and 'data2' but not 'userMessage1' and 'userMessage2']**	FALSE
Intervention Required - Waste Toner Bottle Nearly Full	40141	**Waste toner bottle nearly full [82.xx]**	FALSE
Intervention Required - Waste Toner Nearly Full	40141	**Waste toner bottle nearly full [82.xy]**	FALSE
Intervention Required - Waste Toner Bottle Nearly Full	40141	**Waste toner bottle nearly full [82.xx]**	FALSE
Intervention Required - Waste Toner Nearly Full	40141	**Waste toner bottle nearly full [82]**	FALSE
Intervention Required - Waste Toner Nearly Full	40141	**Waste toner bottle nearly full [82.xy]**	FALSE

Message	Status code	Return string	Online status
Intervention Required - Cartridge Low	40200	**Black cartridge low [88.xx]**	FALSE
Intervention Required - Cartridge Nearly Low	40200	**black cartridge nearly low [88.1x]**	FALSE
Intervention Required - Cartridge Very Low	40200	**Black cartridge very low [88.xx]**	FALSE
Intervention Required - Cartridge Very Low	40200	**Cartridge very low, [number] estimated pages remain [88.xy]**	FALSE
Intervention Required - Cartridge Low	40201	**Cyan cartridge low [88.xx]**	FALSE
Intervention Required - Cartridge Nearly Low	40201	**cyan cartridge nearly low [88.1x]**	FALSE
Intervention Required - Cartridge Very Low	40201	**Cyan cartridge very low [88.xx]**	FALSE
Intervention Required - Cartridge Low	40202	**Magenta cartridge low [88.xx]**	FALSE
Intervention Required - Cartridge Nearly Low	40202	**magenta cartridge nearly low [88.1x]**	FALSE
Intervention Required - Cartridge Very Low	40202	**Magenta cartridge very low [88.xx]**	FALSE
Intervention Required - Cartridge Low	40203	**Yellow cartridge low [88.xx]**	FALSE
Intervention Required - Cartridge Nearly Low	40203	**yellow cartridge nearly low [88.1x]**	FALSE
Intervention Required - Cartridge Very Low	40203	**Yellow cartridge very low [88.xx]**	FALSE
Black PC Unit Life Warning	40204	**Black pc unit life warning [84]**	FALSE
Intervention Required - Photoconductor Low	40204	**[Color] imaging unit low [84.xx]**	FALSE
Intervention Required - Photoconductor Low	40204	**[Color] photoconductor low [84.xx]**	FALSE
Intervention Required - Fuser Very Low	40204	**Fuser kit very low**	FALSE
Intervention Required - Color PC Units Life Warning	40204	**Color PC Unit Life warning [84.xx]**	FALSE

Message	Status code	Return string	Online status
Intervention Required - PC Kit Life Warning	40204	**PC kit life warning [84]**	FALSE
Intervention Required - Photoconductor Low	40204	**[Color] photoconductor low [84.xx]**	FALSE
Intervention Required - Photoconductor Low	40204	**Photoconductor low [84]**	FALSE
Intervention Required - Imaging Unit Mid Warning	40204	**Photoconductor low [84.xy]**	FALSE
Intervention Required - Photoconductor Nearly Low	40204	**[color] photoconductor nearly low [84.xx]**	FALSE
Intervention Required - Imaging Unit Nearly Low	40204	**Imaging unit nearly low [84.xy]**	FALSE
Intervention Required - Imaging Unit Late Warning	40204	**Photoconductor very low, [number] estimated pages remain [84.xy]**	FALSE
Intervention Required - Imaging Kit Late Warning	40204	**Black and color imaging kit very low, [number] estimated pages remain [84.xy]**	FALSE
Intervention Required - Imaging Kit Mid Warning	40204	**Black and color imaging kit low [84.xy]**	FALSE
Intervention Required - Imaging Kit Nearly Low	40204	**Black and color imaging kit nearly low [84.xy]**	FALSE
Intervention Required - Developer Early Warning	40204	**[Color] developer early wear warning [85.xy]**	FALSE
Intervention Required - Developer Mid Warning	40204	**[Color] developer wear warning [85.xy]**	FALSE
Intervention Required - Developer Late Warning	40204	**[Color] developer near end of life [85.xy]**	FALSE
Intervention Required - Photoconductor/Imaging Unit Mid Warning	40204	**[Color] photoconductor low [84.xy]**	FALSE
Intervention Required - Photoconductor/Imaging Unit Late Warning	40204	**[Color] photoconductor very low [84.xy]**	FALSE

Message	Status code	Return string	Online status
Intervention Required - Developer Mid Warning	40204	**[Color] developer low [85.xyz]**	FALSE
Intervention Required - Developer Nearly Warning	40204	**[Color] developer nearly low [85.xyz]**	FALSE
Intervention Required - Developer Late Warning	40204	**[Color] developer very low [85.xyz]**	FALSE
Intervention Required - Transfer Module Life Warning	40215	**Transfer module life warning [83.xx]**	FALSE
Intervention Required - Transfer Module Mid Warning	40215	**Transfer module wear warning [83.xx]**	FALSE
Intervention Required - Transfer Module Near Life Warning	40215	**Transfer module near life warning [83.xx]**	FALSE
Intervention Required - Transfer Module Near Life Warning	40215	**Transfer module early wear warning [83.xx]**	FALSE
Intervention Required - Transfer Module Mid Warning	40215	**Transfer module low [83.xx]**	FALSE
Intervention Required - Transfer Module Nearly Low	40215	**Transfer module nearly low [83.xyz]**	FALSE
Intervention Required - Transfer Module Early Life Warning	40215	**Transfer module very low [83.xyz]**	FALSE
Intervention Required - Fuser Life Warning	40216	**Fuser Life Warning [87]**	FALSE
Intervention Required - Fuser Life Warning	40216	**Fuser life warning [80.xx]**	FALSE
Intervention Required - Fuser Near Life Warning	40216	**Fuser near life warning [80.xx]**	FALSE
Intervention Required - Fuser Early Life Warning	40216	**Fuser kit early wear warning [81.xx]**	FALSE
Intervention Required - Fuser Mid Warning	40216	**Fuser kit wear warning [81.xx]**	FALSE
Intervention Required - Fuser Late Warning	40216	**Fuser kit near end of life [81.xx]**	FALSE
Intervention Required - Fuser Early Life Warning	40216	**Fuser nearly low [81.xyz]**	FALSE

Message	Status code	Return string	Online status
Intervention Required - Fuser Mid Warning	40216	**Fuser low [81.xyz]**	FALSE
Intervention Required - Fuser Late Warning	40216	**Fuser very low [81.xyz]**	FALSE
Intervention Required - Maintenance Kit Low	40315	**Maintenance kit low [80.xy]**	FALSE
Intervention Required - Maintenance Kit Nearly Low	40315	**Maintenance kit nearly low [80.xy]**	FALSE
Intervention Required - Maintenance Kit1 [x] Near Low	40315	**[x] maintenance kit nearly low [80.xy]**	FALSE
Intervention Required - Maintenance Kit2 [x] Low	40315	**[x] maintenance kit low [80.xy]**	FALSE
Intervention Required - Maintenance Kit3 [x] NEOL	40315	**[x] maintenance kit very low, [number] estimated pages remain [80.xy]**	FALSE
Intervention Required - Maintenance Kit Late Warning	40316	**Maintenance kit very low [80.xy]**	FALSE
Intervention Required - Maintenance Kit Low	40316	**Maintenance kit low [80.xy]**	FALSE
Intervention Required - Maintenance Kit Nearly Low	40316	**Maintenance kit nearly low [80.xy]**	FALSE
Intervention Required - Maintenance Kit1 [x] Near Low	40316	**[x] maintenance kit nearly low [80.xy]**	FALSE
Intervention Required - Maintenance Kit2 [x] Low	40316	**[x] maintenance kit low [80.xy]**	FALSE
Intervention Required - Maintenance Kit3 [x] NEOL	40316	**[x] maintenance kit very low, [number] estimated pages remain [80.xy]**	FALSE

Attendance conditions

Attendance conditions require operator intervention. Attendance messages are returned in this form:

CODE=status code
DISPLAY=display string
ONLINE=online status

To determine which messages your printer supports, see the *Technical Reference* for your printer model at **http://support.lexmark.com**.

Message	Status code	Return string	Online status
Intervention required - Disk Corrupted. Reformat?	32015	**Disk corrupted**	FALSE
Intervention Required - Too Many Bins Attached	32030	**Too many bins attached [58]**	FALSE
Intervention Required - Too Many Flash Options Installed	32030	**Too many flash options installed [58]**	FALSE
Intervention Required - Disk Problem	32052	**Disk problem**	FALSE
Intervention Required - Remove Defective Disk	32056	**Remove defective disk [61]**	FALSE
Intervention Required - Defective Flash	32056	**Defective flash detected [51]**	FALSE
Intervention Required - Insert Hole Punch Box	40010	**Insert Hole Punch Box**	FALSE
Intervention Required - Insert PC Cartridge	40010	**Insert PC Cartridge**	FALSE
Intervention Required - 30 Coating Roll Missing	40010	**Coating Roll Missing [30]**	FALSE
Intervention Required - Remove Originals from Scanner ADF	40019	**Remove originals from the scanner automatic document feeder**	FALSE
Intervention Required - Remove Paper Standard Bin	40019	**Remove paper from standard output bin**	FALSE
Intervention Required - Remove Paper Output Bin [x]	40019	**Remove paper from bin [x]**	FALSE
Intervention Required - Remove Paper [All Output Bins]	40019	**Remove paper from all bins**	FALSE
Intervention Required - Remove Paper [linked set bin name]	40019	**Remove paper from [linked set bin name]**	FALSE
Intervention Required - Remove Paper Saddle stitch Accumulator	40019	**Open door H and remove paper from beneath area H10**	FALSE
Intervention Required - Install MICR cartridge	40020	**Install MICR cartridge**	FALSE

Message	Status code	Return string	Online status
Intervention Required - Change Cartridge Invalid Refill	40021	**Change Cartridge Invalid Refill**	FALSE
Intervention Required - Close Cover [x]	40021	**Close cover [x]**	FALSE
Intervention Required - Close Cover [x]	40021	**Close paper transport cover**	FALSE
Intervention Required - Printer Cover Open	40021	**Close Cover**	FALSE
Intervention Required - Close Toner Box Cover	40021	**Close Cover**	FALSE
Intervention Required - Close Deflector G	40021	**Close Deflector G**	FALSE
Intervention Required - Close Door	40021	**Close Door**	FALSE
Intervention Required - Close Door [x]	40021	**Close door [x]**	FALSE
Intervention Required - Close Door [x]	40021	**Close stapler door**	FALSE
Intervention Required - Close Door Insert Cartridge	40021	**Close door or insert cartridge**	FALSE
Intervention Required - Close Finisher Rear Door	40021	**Close Finisher Rear Door**	FALSE
Intervention Required - Close Finisher Side Door	40021	**Close finisher side door**	FALSE
Intervention Required - Close Finisher Top Cover	40021	**Close finisher top cover**	FALSE
Intervention Required - Close Front Door	40021	**Close front or side door**	FALSE
Intervention Required - Close Front Door	40021	**Close front door**	FALSE
Intervention Required - Close Left Side Door	40021	**Close left side door**	FALSE
Intervention Required - Close Low ADF Door	40021	**Close lower automatic feeder door**	FALSE
Intervention Required - Close Base Rear Door	40021	**Close rear door**	FALSE

Message	Status code	Return string	Online status
Intervention Required - Close Side Door	40021	**Close Side Door**	FALSE
Intervention Required - Close Surface	40021	**Close surface H**	FALSE
Intervention Required - Close Cover	40021	**Close top access cover**	FALSE
Intervention Required - Close Cover and Door	40021	**Close top access cover and front door**	FALSE
Intervention Required - Close Door	40021	**Close [tray] door**	FALSE
Intervention Required - Close Tray [x] Top Cover	40021	**Close Tray [x] Top Cover**	FALSE
Intervention Required - Close Tray [x] Left Door	40021	**Close Tray [x] left door**	FALSE
Intervention Required - Printer Upper Door Open	40021	**Cover Open, Close Top Covers, Close Door, or Insert Cartridge**	FALSE
Intervention Required - Insert Print Cartridge	40021	**Insert Print Cartridge**	FALSE
Intervention Required - Open Cover	40021	**Open Cover**	FALSE
Intervention Required - Open Rear Door	40021	**Open Rear Door**	FALSE
Intervention Required - Open Close Door A	40021	**Open and close door A**	FALSE
Intervention Required - Invalid Refill	40021	**Invalid Refill Change Cartridge [30]**	FALSE
Intervention Required - Defective Print Cartridge	40021	**Defective Print Cartridge [31]**	FALSE
Intervention Required - Missing Printhead	40021	**Missing Printhead [31]**	FALSE
Intervention Required - Defective Print Cartridge	40021	**Replace defective cartridge [31]**	FALSE
Intervention Required - Invalid Refill	40021	**Invalid refill, change cartridge [31.xx]**	FALSE

Message	Status code	Return string	Online status
Intervention Required - Defective Print Cartridge	40021	**Replace defective cartridge [31.xx]**	FALSE
Intervention Required - Defective Print Cartridge	40021	**Replace defective print cartridge [31.xx]**	FALSE
Intervention Required - Defective Cartridge	40021	**Replace defective cartridge [31.xy]**	FALSE
Intervention Required - Imaging Unit Defective	40021	**Replace defective imaging unit [31.xy]**	FALSE
Intervention Required - Unsupported Cartridge	40021	**Unsupported Cartridge [32]**	FALSE
Intervention Required - Unsupported Print Cartridge	40021	**Unsupported Print Cartridge [32]**	FALSE
Intervention Required - Unsupported Printhead	40021	**Unsupported Printhead [32]**	FALSE
Intervention Required - Unsupported Cartridge	40021	**Cartridge part number unsupported by device [32.xx]**	FALSE
Intervention Required - Tray Size Sense Error	40021	**Tray [x] Size Sense Error [40]**	FALSE
Intervention Required - Open Bin Exit Tray	40021	**Open Bin 1 Exit Tray [41]**	FALSE
Intervention Required - Cartridge Region Mismatch	40021	**Cartridge region mismatch [42.xy]**	FALSE
Intervention Required - Cartridge Region Mismatch	40021	**Replace cartridge, printer region mismatch [42.xy]**	FALSE
Intervention Required - Cartridge Region Mismatch	40021	**Replace [color] cartridge, printer region mismatch [42.xy]**	FALSE
Intervention Required - Cartridge Missing	40021	**Replace missing cartridge [31.xy]**	FALSE
Intervention Required - PC/Imaging Unit Defective	40021	**Replace defective photoconductor [31.xy]**	FALSE
Intervention Required - Developer Missing	40021	**Replace missing [color] developer [31.xy]**	FALSE

Message	Status code	Return string	Online status
Intervention Required - PC/Imaging Unit Missing	40021	**Replace missing photoconductor [31.xy]**	FALSE
Intervention Required - Developer Defective	40021	**Replace defective [color] developer [31.xy]**	FALSE
Intervention Required - Imaging Kit Defective	40021	**Reinstall missing or unresponsive black and color imaging kit and all cartridges [31.xy]**	FALSE
Intervention Required - Imaging Kit Missing	40021	**Replace missing black and color imaging kit [31.xy]**	FALSE
Intervention Required - Paper Jam	40022	**Paper Jam [2xx]**	FALSE
Intervention Required - Remove Packaging Material	40025	**Remove packaging material**	FALSE
Intervention Required - Remove Packaging Material	40025	**Remove packaging material, [area name]**	FALSE
Intervention Required - Waste Toner Missing	40025	**Waste toner bottle missing [82]**	FALSE
Intervention Required - Waste Toner Bottle Missing	40025	**Waste toner bottle missing [82.xx]**	FALSE
Intervention Required - Waste Toner Missing	40025	**Replace missing waste toner bottle [82.xy]**	FALSE
Intervention Required - Waste Toner Missing	40025	**Replace missing waste toner bottle [81.xyz]**	FALSE
Intervention Required - Check Tray Connection	40027	**Check tray [paper source #] connection**	FALSE
Intervention Required - Install Tray [x] or Cancel Job	40027	**Install tray [x]**	FALSE
Intervention Required - Install Tray [x] or Cancel Job	40027	**Install Tray [x] or Cancel Job**	FALSE
Intervention Required - Check Tray [x] Connection	40027	**Check tray [x] connection**	FALSE
Intervention Required - Install Envelope Feeder	40028	**Install envelope feeder**	FALSE

Message	Status code	Return string	Online status
Intervention Required - Install Env Feeder or Cancel Job	40028	**Install Env Feed or Cancel Job**	FALSE
Intervention Required - Reattach Envelope Feeder	40028	**Reattach Envelope Feeder**	FALSE
Intervention Required - Reattach MP Feeder	40028	**Reattach MP Feeder**	FALSE
Intervention Required - Check Finisher Installation	40029	**Check Finisher Installation**	FALSE
Intervention Required - Check Mailbox Installation	40029	**Check Mailbox Installation**	FALSE
Intervention Required - Install Bin [x] or Cancel Job	40029	**Install Bin [x] or Cancel Job**	FALSE
Intervention Required - Install Bin [x] or Cancel Job	40029	**Install bin [x]**	FALSE
Intervention Required - Reattach Bin	40029	**Reattach bin [x]**	FALSE
Intervention Required - Reattach Bins [x]–[y]	40029	**Reattach bin [x]-[y]**	FALSE
Intervention Required - Reattach Bins	40029	**Reattach Bins [bin #x–bin #y]**	FALSE
Intervention Required - Reattach Output Bin	40029	**Reattach Output Bin [bin #]**	FALSE
Intervention Required - Tray Config Error	40030	**Tray [x] Config Error [33]**	FALSE
Intervention Required - Input Config Error	40030	**Input config error [58]**	FALSE
Intervention Required - Too Many Bins Attached	40030	**Too Many Bins Attached [58]**	FALSE
Intervention Required - Too Many Disks Installed	40030	**Too many disks installed [58]**	FALSE
Intervention Required - Too Many Trays Attached	40030	**Too many trays attached [58]**	FALSE
Intervention Required - Too Many Disks Installed	40036	**Too Many Disks Installed [58]**	FALSE
Intervention Required - PerfectFinish Missing	40037	**PerfectFinish Missing [31]**	FALSE

Message	Status code	Return string	Online status
Intervention Required - PerfectFinish Empty	40037	**PerfectFinish Empty [87]**	FALSE
Intervention Required - Replace Oil Coating Roll	40038	**Replace Oil Coating Roll**	FALSE
Intervention Required - Replace PC Kit	40038	**Replace PC Kit**	FALSE
Intervention Required - Replace PC Kit To Continue	40038	**Replace PC Kit To Continue**	FALSE
Intervention Required - Replace Toner Cartridge	40038	**Replace Toner Cartridge**	FALSE
Intervention Required - Replace Toner Cartridge To Continue	40038	**Replace Toner To Continue**	FALSE
Intervention Required - 84 All Photo Devs Exhausted	40038	**All Photo Devs Exhausted [84]**	FALSE
Intervention Required - 84 Black Photo Dev Exhausted	40038	**Black Photo Dev Exhausted [84]**	FALSE
Intervention Required - 84 Black Photo Dev Life Warning	40038	**Black Photo Dev Life Warning [84]**	FALSE
Intervention Required - 84 Color Photo Dev Life Warning	40038	**Color Photo Dev Life Warning [84]**	FALSE
Intervention Required - Cartridge Empty	40039	**Cartridge Empty [CMYK] [89]**	FALSE
Intervention Required - Load Staples	40040	**Load Staples**	FALSE
Intervention Required - Priming Failed. Retry?	40041	**Priming Failed. Retry?**	FALSE
Intervention Required - PJL OP Message	40048	**OPMSG message**	FALSE
Intervention Required - PJL ST Message	40049	**STMSG message**	FALSE
Intervention Required - Replace Fuser	40050	**Replace Fuser**	FALSE
Intervention Required - Replace Transfer Kit	40050	**Replace Transfer Kit**	FALSE

Message	Status code	Return string	Online status
Intervention Required - Incompatible Bin [x]	40087	**Incompatible Bin [x] [59]**	FALSE
Intervention Required - Incompatible Bin [x]	40087	**Incompatible output bin [x] [59]**	FALSE
Intervention Required - Incompatible Duplex	40088	**Incompatible Duplex [59]**	FALSE
Intervention Required - Incompatible Tray [x]	40089	**Incompatible Tray [x] [59]**	FALSE
Intervention Required - Paper Size Unsupported	40089	**Tray [x] paper size unsupported**	FALSE
Intervention Required - Incompatible Envelope Feeder	40090	**Incompatible envelope feeder [59]**	FALSE
Intervention Required - Check Duplex Connection	40095	**Check Duplex Connection**	FALSE
Intervention Required - Install Duplex or Cancel Job	40095	**Install Duplex or Cancel Job**	FALSE
Intervention Required - Install Duplex or Cancel Job	40095	**Install duplex**	FALSE
Intervention Required - Duplex Cover Open	40096	**Close Duplex Door**	FALSE
Intervention Required - Insert Duplex Option	40096	**Insert Duplex Option**	FALSE
Intervention Required - Load Staples	40101	**Load staples**	FALSE
Intervention Required - Load Staples [G11, G12]	40101	**Load Staples [area]**	FALSE
Intervention Required - Insert Hole Punch Box	40107	**Insert the hole punch box**	FALSE
Intervention Required - Replace Photoconductor or Imaging Unit	40129	**Replace [color] imaging unit and [color] cartridge [84.xx]**	FALSE
Intervention Required - Replace Color PC Units	40129	**Replace color PC Units [84]**	FALSE
Intervention Required - Replace Photoconductor	40129	**Replace [Color] photoconductor [84.xx]**	FALSE

Message	Status code	Return string	Online status
Intervention Required - Replace Waste Toner Bottle	40141	**Replace waste toner bottle [82.xx]**	FALSE
Intervention Required - Replace Waste Toner	40141	**Replace waste toner bottle [82.xy]**	FALSE
Intervention Required - Replace Waste Toner	40141	**Replace waste toner bottle [82]**	FALSE
Intervention Required - Waste Toner Bottle Nearly Full	40141	**Waste toner bottle nearly full [82.xx]**	FALSE
Intervention Required - Waste Toner Nearly Full	40141	**Waste toner bottle nearly full [82]**	FALSE
Intervention Required - Transfer Module Missing	40143	**Transfer module missing [83.xx]**	FALSE
Intervention Required - Transfer Module Missing	40143	**Replace missing transfer module [83.xx]**	FALSE
Intervention Required - Transfer Module Missing	40143	**Replace missing or unresponsive transfer module [81.xyz]**	FALSE
Intervention Required - Replace Cartridge	40200	**Replace black cartridge [88.2x]**	FALSE
Intervention Required - Replace Cartridge	40201	**Replace cyan cartridge [88.2x]**	FALSE
Intervention Required - Replace Cartridge	40202	**Replace magenta cartridge [88.2x]**	FALSE
Intervention Required - Replace Cartridge	40203	**Replace yellow cartridge [88.2x]**	FALSE
Intervention Required - Unsupported PC Unit	40204	**unsupported [color] imaging unit [84]**	FALSE
Intervention Required - Unsupported PC Unit	40204	**unsupported [color] pc unit [84]**	FALSE
Intervention Required - Imaging Unit EOL	40204	**Replace photoconductor, 0 pages remain [84.xy]**	FALSE
Intervention Required - Imaging Kit EOL	40204	**Replace [type] imaging kit, 0 estimated pages remain [84.xy]**	FALSE

Message	Status code	Return string	Online status
Intervention Required - Developer EOL	40204	**Replace [color] developer [85.xy]**	FALSE
Intervention Required - Imaging Kit 4 EOL	40204	**Replace [type] imaging kit, 0 estimated pages remain [84.xy]**	FALSE
Intervention Required - Replace Fuser Kit	40204	**Replace fuser kit, 0 estimated pages remain**	FALSE
Intervention Required - Photoconductor/Imaging Unit AEOL	40204	**Replace [color] photoconductor to continue printing [84.xyz]**	FALSE
Intervention Required - Photoconductor/Imaging Unit EOL	40204	**Replace [color] photoconductor recommended life exceeded [84.xyz]**	FALSE
Intervention Required - Developer AEOL	40204	**Replace [color] developer to continue printing [85.xyz]**	FALSE
Intervention Required - Developer EOL	40204	**Replace [color] developer, recommended life exceeded [85.xyz]**	FALSE
Intervention Required - Replace Toner	40300	**Replace black toner[88]**	FALSE
Intervention Required - Unsupported Print Cartridge	40300	**Replace unsupported cartridge [32.xy]**	FALSE
Intervention Required - PC/Imaging Unit Unsupported	40300	**Replace unsupported photoconductor [32.xy]**	FALSE
Intervention Required - Unsupported Developer	40300	**Replace unsupported developer [32.xy]**	FALSE
Intervention Required - Imaging Kit Unsupported	40300	**Replace unsupported black and color imaging kit [32.xy]**	FALSE
Intervention Required - Replace Toner	40301	**Replace cyan toner [88]**	FALSE
Intervention Required - Replace Toner	40302	**Replace magenta toner [88]**	FALSE

Message	Status code	Return string	Online status
Intervention Required - Replace Toner	40303	**Replace yellow toner [88]**	FALSE
Intervention Required - Replace PC Kit	40304	**Replace PC Kit [84]**	FALSE
Intervention Required - Replace Photoconductor	40304	**Replace photoconductor [84]**	FALSE
Intervention Required - 84 Replace Black PC Unit	40305	**Replace black PC Unit [84]**	FALSE
Intervention Required - Cartridge Part Number Unsupported	40309	**Black cartridge part number unsupported by device [32.xx]**	FALSE
Intervention Required - Replace unsupported cartridge	40309	**Replace unsupported black cartridge [32.xx]**	FALSE
Intervention Required - Invalid Refill, Change Cartridge	40309	**black invalid refill, change cartridge [40]**	FALSE
Intervention Required - Cartridge Part Number Unsupported	40310	**Cyan cartridge part number unsupported by device [32.xx]**	FALSE
Intervention Required - Replace unsupported cartridge	40310	**Replace unsupported cyan cartridge [32.xx]**	FALSE
Intervention Required - Invalid Refill, Change Cartridge	40310	**cyan invalid refill, change cartridge [40]**	FALSE
Intervention Required - Cartridge Part Number Unsupported	40311	**Magenta cartridge part number unsupported by device [32.xx]**	FALSE
Intervention Required - Replace unsupported cartridge	40311	**Replace unsupported magenta cartridge [32.xx]**	FALSE
Intervention Required - Invalid Refill, Change Cartridge	40311	**magenta invalid refill, change cartridge [40]**	FALSE
Intervention Required - Cartridge Part Number Unsupported	40312	**Yellow cartridge part number unsupported by device [32.xx]**	FALSE

Message	Status code	Return string	Online status
Intervention Required - Replace unsupported cartridge	40312	**Replace unsupported yellow cartridge [32.xx]**	FALSE
Intervention Required - Invalid Refill, Change Cartridge	40312	**yellow invalid refill, change cartridge [40]**	FALSE
Intervention Required - Scheduled Maintenance	40315	**Scheduled maintenance [x] [80]** **Note:** [x] indicates 600K kit.	FALSE
Intervention Required - Replace Transfer Module	40315	**Replace transfer module [83.xx]**	FALSE
Intervention Required - Maintenance Kit4 [x] EOL	40315	**Replace [x] maintenance kit, 0 estimated pages remain [80.xy]**	FALSE
Intervention Required - Transfer Module End of Life	40315	**Replace transfer module, recommended life exceeded [83.xyz]**	FALSE
Intervention Required - Transfer Module AEOL	40315	**Replace transfer module to continue printing [83.xyz]**	FALSE
Intervention Required - Replace Fuser	40316	**Replace fuser [80.xx]**	FALSE
Intervention Required - Replace Fuser	40316	**Replace fuser [87.xx]**	FALSE
Intervention Required - Scheduled Maintenance	40316	**Scheduled maintenance [x] [80]** **Note:** [x] indicates 100K kit.	FALSE
Intervention Required - Maintenance Kit EOL	40316	**Replace maintenance kit [80.xy]**	FALSE
Intervention Required - Maintenance Kit EOL	40316	**Replace maintenance kit, recommended life exceeded [80.xyz]**	FALSE
Intervention Required - Fuser EOL	40316	**Replace fuser kit [81.xx]**	FALSE

Message	Status code	Return string	Online status
Intervention Required - Roller Kit EOL	40316	**Replace roller kit [81.xx]**	FALSE
Intervention Required - Maintenance Kit4 [x] EOL	40316	**Replace [x] maintenance kit, 0 estimated pages remain [80.xy]**	FALSE
Intervention Required - Fuser EOL	40316	**Replace fuser, recommended life exceeded [81.xyz]**	FALSE
Intervention Required - Fuser AEOL	40316	**Replace fuser to continue printing [81.xyz]**	FALSE
Intervention Required - Replace Cartridge	40400	**Replace defective or missing cartridge [31.xx]**	FALSE
Intervention Required - Defective or Missing Cartridge	40400	**Reinstall missing or unresponsive cartridge [31.xy]**	FALSE
Intervention Required - Defective or Missing PC/Imaging Unit	40400	**Reinstall missing or unresponsive photoconductor [31.xy]**	FALSE
Intervention Required - Insert Photoconductor	40404	**Insert photoconductor [84]**	FALSE
Intervention Required - Photoconductor Abnormal	40404	**Defective [color] imaging unit [84]**	FALSE
Intervention Required -	40404	**Photoconductor abnormal [84]**	FALSE
Intervention Required - Cartridge/Imaging Unit Region Mismatch	40404	**Cartridge, imaging unit mismatch [41.xy]**	FALSE
Intervention Required - [Color] PC Unit Missing	40405	**Black PC Unit missing [84.41]**	FALSE
Intervention Required - [Color] Photoconductor Missing	40405	**Black photoconductor missing [84.41]**	FALSE
Intervention Required - [Color] PC Unit Missing	40406	**Cyan PC Unit missing [84.41]**	FALSE
Intervention Required - [Color] Photoconductor Missing	40406	**Cyan photoconductor missing [84.41]**	FALSE

Message	Status code	Return string	Online status
Intervention Required - [Color] PC Unit Missing	40407	**Magenta PC Unit missing [84.41]**	FALSE
Intervention Required - [Color] Photoconductor Missing	40407	**Magenta photoconductor missing [84.41]**	FALSE
Intervention Required - [Color] PC Unit Missing	40408	**Yellow PC Unit missing [84.41]**	FALSE
Intervention Required - [Color] Photoconductor Missing	40408	**Yellow photoconductor missing [84.41]**	FALSE
Intervention Required - Toner Cartridge Missing	40409	**Missing black cartridge and/or black imaging unit [30.xx]**	FALSE
Intervention Required - Toner Cartridge Missing	40409	**Black toner cartridge missing [30.xx]**	FALSE
Intervention Required - Defective Cartridge	40409	**Defective black cartridge [31.xx]**	FALSE
Intervention Required - Missing or Defective Cartridge	40409	**Missing or defective black cartridge [31.xx]**	FALSE
Intervention Required - Toner Cartridge Missing	40410	**Missing cyan cartridge and/or cyan imaging unit [30.xx]**	FALSE
Intervention Required - Toner Cartridge Missing	40410	**Cyan toner cartridge missing [30.xx]**	FALSE
Intervention Required - Defective Cartridge	40410	**Defective cyan cartridge [31.xx]**	FALSE
Intervention Required - Missing or Defective Cartridge	40410	**Missing or defective cyan cartridge [31.xx]**	FALSE
Intervention Required - Toner Cartridge Missing	40411	**Missing magenta cartridge and/or magenta imaging unit [30.xx]**	FALSE
Intervention Required - Toner Cartridge Missing	40411	**Magenta toner cartridge missing [30.xx]**	FALSE

Message	Status code	Return string	Online status
Intervention Required - Defective Cartridge	40411	**Defective magenta cartridge [31.xx]**	FALSE
Intervention Required - Missing or Defective Cartridge	40411	**Missing or defective magenta cartridge [31.xx]**	FALSE
Intervention Required - Toner Cartridge Missing	40412	**Missing yellow cartridge and/or yellow imaging unit [30.xx]**	FALSE
Intervention Required - Toner Cartridge Missing	40412	**Yellow toner cartridge missing [30.xx]**	FALSE
Intervention Required - Defective Cartridge	40412	**Defective yellow cartridge [31.xx]**	FALSE
Intervention Required - Missing or Defective Cartridge	40412	**Missing or defective yellow cartridge [31.xx]**	FALSE
Intervention Required - Fuser Missing	40416	**Fuser missing [80.xx]**	FALSE
Intervention Required - Fuser Missing	40416	**Fuser missing [87.xx]**	FALSE
Intervention Required - Fuser Missing	40416	**Replace missing fuser[80.xx]**	FALSE
Intervention Required - Insert Duplex Pages in Tray [x]	41202	**Reload printed pages in Tray [x]**	FALSE

Status message format

Informational messages

Printer state	Status code	Return string	Online status
Ready	10001	Ready	TRUE
Ready	10001	RDYMSG	TRUE
Power Saver	35078	Power Saver	TRUE
Ready with toner low	10006	Toner Low	TRUE
Power Saver with toner low	10006	Toner Low	TRUE
While in Ready menu group	10002	Not Ready	FALSE
Not Ready	10002	Not Ready	FALSE

Printer state	Status code	Return string	Online status
Performing front panel reset	10005	Resetting the Printer	TRUE
Canceling job	10007	Canceling Job	FALSE
Waiting	10024	Waiting	TRUE
Busy	10023	Busy	TRUE
Resolution reduce	Not supported		

Service errors

When the printer can return a status code, it returns error code 50000 for all 9xx service errors.

To determine whether your printer supports returning service messages, see the *Technical Reference* for your printer model at **http://support.lexmark.com**.

Device attendance commands

RDYMSG command

The **RDYMSG** command is used to specify a message that appears on the control panel whenever the printer is online.

Syntax:

```
@PJL RDYMSG DISPLAY = "message"[<CR>]<LF>
```

OPMSG command

When an **OPMSG** command is received, the message appears on the control panel and then the printer goes offline. If any intervention occurs, the printer displays the intervention message instead of the **OPMSG** message.

Syntax:

Syntax:

```
@PJL OPMSG DISPLAY = "message"[<CR>]<LF>
```

STMSG command

When an **STMSG** command is received, the message appears on the control panel and then the printer goes offline. If any intervention occurs, the printer displays the intervention message instead of the **STMSG** message.

Syntax:

```
@PJL STMSG DISPLAY = "message"[<CR>]<LF>
```

Unique PJL commands

To determine which commands your printer supports, see the *Technical Reference* for your printer model at **http://support.lexmark.com**.

LBEEP command

This command causes the printer to beep three times.

Syntax:

```
@PJL LBEEP[<CR>]<LF>
```

LPORTROTATE command

This command causes the printer to rotate ports at the next job boundary. The information to rotate ports is specified in the job header. For example, the printer could switch from parallel interface to serial interface between jobs.

Syntax:

```
@PJL LPORTROTATE[<CR>]<LF>
```

LPRINT commands

Use these commands to print one of the internal information pages.

Syntax:

```
@PJL testpage[<CR>]<LF>
```

The following LPRINT commands are used for the *testpage* value.

Testpage value	Description
LPRINTDIRECTORY	Prints both the flash memory and hard disk directory listings. If the flash memory or hard disk is not installed, the command is ignored.
LPRINTTESTPAGE	Prints the test page.
LPRINTMENUS	Prints the menu settings page.
LPRINTPCLFONTS	Prints the PCL font listing.
LPRINTPSFONTS	Prints the PostScript font listing.

LESCAPECHAR command

This command modifies the code point of the escape character for the host computer. The PORT parameter specifies the command information. The escape character is mapped to code point 0x1B for each host interface port.

Syntax:

```
@PJL LESCAPECHAR CHAR=byte PORT=port[<CR>]<LF>
```

The following ports are valid parameters for **LESCAPECHAR**:

- INA, INA1, INA2, INA3
- LOCALTALK1, LOCALTALK2, LOCALTALK3
- PARALLEL, PARALLEL1, PARALLEL2, PARALLEL3
- USB, USB1, USB2, USB3
- SERIAL, SERIAL1, SERIAL2, SERIAL3
- IR, IR1, IR2, IR3

Note: The *byte* value for the **CHAR** parameter is the code point of the ASCII character used for the escape character. For example, at the factory, the printer uses 0x1B (character <ESC>) for the escape character. If **CHAR** = 65 is specified with this command, the printer uses 0x41 (character A) as the escape character for the host interface port specified via the PORT parameter.

LFAX PHONENUMBER command

This command tells the printer that the output resulting from the current job is sent to the fax processing device instead of to the printer.

The current job is printed and is not sent to the fax processing device if one of the following occurs:

- The printer is not configured for fax send capability.
- The command is received with a command that selects an interpreter that does not support formatting functionality for sending faxes.

Syntax:

```
@PJL LFAX PHONENUMBER="number" [STATIONID="station name"][<CR>]<LF>
```

Notes:

- The **PHONENUMBER** parameter is a text string up to 60 characters. If an unsupported character is supplied in the **PHONENUMBER** parameter, then the entire **LFAX PHONENUMBER** command is ignored.
- The **STATIONID** parameter specifies a station name that is set to the receiving fax machine to indicate the origin of an incoming fax. The *station name* is a text string which is truncated to 20 characters. A null value (“ “) indicates that no station ID is specified. If no station name is specified, then the default station name of the printer is used.

LFAX PHONENUMBER *number* values

Character	Description
0–9	DTMF† digits 0 to 9
*	DTMF† character *
#	DTMF† character #
A–D	DTMF† character A, B, C, and D
!	Flash
W	Wait for dial tone
@	Wait for silence
&	Wait for credit card tone
,	Pause
^	Toggles between tone and pulse modes

† Dual Tone Multi-Frequency (DTMF) is the system used by touch-tone telephones which assigns a specific frequency or tone to each key so a microprocessor can easily identify it.

LDOWNLOADTARGET command

This command specifies the target device for downloaded files. The target can be RAM, flash memory, or hard disk.

Syntax:

```
@PJL SET LDOWNLOADTARGET=variable[<CR>]<LF>
```

File commands for flash memory or hard disk

Use the following commands to manage resources on flash memory and hard disk:

- LOPENFILE
- LCLOSEFILE
- LREADFILE
- LWRITEFILE
- LRUNFILE
- LRENAMEFILE
- LDELETEFILE
- LFORMAT
- LDEFRAG

Syntax:

```
@PJL LOPENFILE DEVICE=filedevice FILENAME=fname ACCESS=accesstype[<CR>]<LF>
```

The following are the parameters used with most of the file commands.

Parameter	Syntax	Description
acccesstype	**ACCESS** = *acccesstype*	When opening a file, specify one of the following access types: • RO—Open for read only. The file must exist on the specified device. • WO—Create a new file. If the file exists, then its contents are discarded and a new file is created. • RW—Open for reading and writing. The file must already exist. • AP—Open for reading and writing, and then position the file pointer to the end of the file. The file must already exist. **Note:** Access types are case-sensitive.
bytecount	**LENGTH** = *bytecount*	The amount of data in bytes to be read or written. The parameter is optional for both the **LREADFILE** and **LWRITEFILE** commands. **Note:** If the LENGTH is greater than the file size on an LREADFILE command, then it is assumed to be the entire file beginning at the START location.

Parameter	Syntax	Description
filedevice	**DEVICE** = *filedevice*	File storage media. • flash • flash1 • disk • disk1 • rom (for **LRUNFILE** command only) **Note:** The storage name is case-sensitive.
flashdevice	**DEVICE** = *flashdevice*	File storage media. • flash • flash1
filename	**FILENAME** = *"fname"* **OLDFILENAME** = *"fname"* **NEWFILENAME** = *"fname"*	Enclose in quotation marks all fname specifications and limit to 127 characters only. Fname is composed of a file name, a unique identifier for a file, and a file type. The format is *filename.filetype*. *Filename* must be one of the following: • macro ID—PCL macros • symbol set ID—PCL symbol sets • font ID—PCL fonts • actual filename—data, Type 1 fonts, demo files (case sensitive) *Filetype* must be one of the following: • tl—PostScript font • sFnt5—PCL scalable font • bFnt5—PCL bitmap font • MAC5—PCL macro • data—User data • type1—PostScript font • demo—Demo • p5scalable—PCL scalable font • p5bitmap—PCL bitmap font • p5macro—PCL macro • p5symset—PCL symbol set • ppdsbm—PPDS bitmap font • xlmacro—PCL XL user stream
location	**START** = *location*	The location in the file to begin writing or reading. Use an integer that represents an offset in bytes from the beginning of the file.

LOPENFILE command

Use this command to open a file on a storage device.

Syntax:

```
@PJL LOPENFILE DEVICE=filedevice FILENAME="fname" ACCESS= accesstype[<CR>]<LF>
```

LCLOSEFILE command

Use this command to close a file on a storage device. If the file does not exist on the device or is not open, then the command is ignored.

Syntax:

```
@PJL LCLOSEFILE DEVICE=filedevice FILENAME="fname"[<CR>]<LF>
```

LREADFILE command

Use this command to read data from a file on a storage device.

Syntax:

```
@PJL LREADFILE DEVICE=filedevice FILENAME="fname" [START=location][LENGTH=bytecount][<CR>]<LF>
```

Response syntax:

```
@PJL LREADFILE DEVICE=filedevice FILENAME="fname" START=location LENGTH=bytecount <CR><LF><requested da
```

Notes:

- Close the file using the **LCLOSEFILE** command after completing all operations.
- If the file does not exist on the device or is not already open with **LOPENFILE** with an *accesstype* or RO, RW, or AP, then the command is ignored.
- If the **START** = *location* parameter is omitted, then location 0 (beginning of the file) is assumed.
- If a **START** location is provided but it is greater than the file size, then the response contains no file data.
- If the **LENGTH** parameter is omitted, then *bytecount* is assumed to be equal to the entire file beginning at the **START** location.
- If the **LENGTH** is greater than the file size on an**LREADFILE** command, then it is assumed to be the entire file beginning at the **START** location.

LWRITEFILE command

Use this command to write data to a file on a storage device.

Syntax:

```
@PJL LWRITEFILE DEVICE=filedevice FILENAME="fname" [START=location][LENGTH=bytecount][<CR>]<LF><data>[@
```

Notes:

- If all operations are complete, then close the file using the **LCLOSEFILE** command.
- If the file does not exist on the device or is not already open with a write *accesstype*, then the command is ignored.
- If the **START** = *location* parameter is omitted on a file with an *accesstype* of RW, then location 0 is assumed.
- If the **START** = *location* is greater than file size and the *accesstype* is RW, then it positions the file pointer at the end of the file.

- If the **LENGTH** parameter is omitted from a **LWRITEFILE** command, then place an **@PJL END DATA** at the end of the data. All data up to @ in **@PJL END DATA** is written to the file. The command requires either the **LENGTH** parameter or the **@PJL END DATA** to be specified, but not both.

LRUNFILE command

Use this command to load and execute a file on a storage device.

Syntax:

```
@PJL LRUNFILE DEVICE=filedevice FILENAME="fname"[<CR>]<LF>
```

LRENAMEFILE command

Use this command to rename a file on a storage device. If the file name specified as **OLDFILENAME** does not exist on the device, or if the file name specified as **NEWFILENAME** exists on the device, then the command is ignored.

Syntax:

```
@PJL LRENAMEFILE DEVICE=filedevice OLDFILENAME="fname" NEWFILENAME="fname"[<CR>]<LF>
```

LDELETEFILE command

Use this command to delete a file on a storage device. If the file does not exist on the device, then the command is ignored.

Syntax:

```
@PJL LDELETEFILE DEVICE=filedevice FILENAME="fname"[<CR>]<LF>
```

LFORMAT command

Use this command to format a device for storage.

Syntax:

```
@PJL LFORMAT DEVICE=filedevice[<CR>]<LF>
```

LDEFRAG command

Use this command to recover storage space on a flash memory.

Syntax:

```
@PJL LDEFRAG DEVICE=filedevice[<CR>]<LF>
```

File and device protection commands

File and device protection commands

Use the **DEFAULT** command to set a password on the entire flash memory, hard disk, or on an individual macro or font in a flash memory.

Password protection for a file

LRWLOCK with **DEFAULT** specified locks a file or device for reading and writing.

LWLOCK with **DEFAULT** specified locks a file or device for writing only.

Syntax:

```
@PJL DEFAULT LRESOURCE : "device:filename.filetype" LRWLOCK = "password" [<CR>]<LF>
@PJL DEFAULT LRESOURCE : "device:filename.filetype" LWLOCK = "password" [<CR>]<LF>
```

The file name used depends on whether you want to put a password on a font or a macro.

The file name for a font is a five-digit ID from the print directory page (add zeros to the left of the ID to fill the five digits) followed by a three-digit instance number. The first time a font is downloaded after a flash memory has been formatted, the instance number is 0. File types are described under **filename**. For more information, see "Printer-unique LRESOURCE variables" on page 55.

For example, to write password protect a PCL emulation bitmapped font (file type of **p5bitmap**) with an ID of 127, which has not been downloaded since flash was formatted:

```
@PJL DEFAULT LRESOURCE: "flash:00127000.p5bitmap" LWLOCK = "password" [<CR>]<LF>
```

To password protect a macro, the file name is the ID taken from the print directory page, followed by the file type. For example, to password protect a PCL emulation macro (file type is **p5macro**) saved to flash with an ID of 1023:

```
@PJL DEFAULT LRESOURCE: "flash:1023.p5macro LRWLOCK = "password" [<CR>]<LF>
```

Note: If the file name is incorrect, then the printer applies the password to the entire device.

Password for an entire device

If you want to set a password for a device, not just a single file, then omit the file name. **LRWLOCK** with **DEFAULT** specified locks a device for reading and writing. **LWLOCK** with **DEFAULT** specified locks a device for writing only.

Syntax:

```
@PJL DEFAULT LRESOURCE: "device:" LRWLOCK = "password" [<CR>]<LF>
@PJL DEFAULT LRESOURCE: "device:" LWLOCK = "password" [<CR>]<LF>
```

Unlocking a protected file or device command

Use the **LDECLARE** command to specify a password to access or unlock a protected file or device. This command is only allowed within a JOB/EOJ combination.

LRWLOCK with **LDECLARE** specified unlocks a file or device for reading and writing. **LWLOCK** with **LDECLARE** specified unlocks a file or device for writing only.

Note: The file or device must be relocked using the **LDELETEPASSWORD** command after the job is completed. The file or device is not automatically relocked with the EOJ command.

Syntax:

```
@PJL LDECLARE LRESOURCE : "device:filename.filetype" LRWLOCK = "password" [<CR>]<LF>
@PJL LDECLARE LRESOURCE : "device:filename.filetype" LWLOCK = "password" [<CR>]<LF>
```

Values for **"device:filename.filetype"**:

- The **device** is a file storage device, such as a hard disk or flash memory.
- The **filename** is a unique identifier for a file, such as the macro ID for a PCL macro, the symbol set ID for a PCL symbol set, or the font ID for a PCL font. This variable is case-sensitive.
- The **filetype** is an identifier which categorizes the file, such as *sFnt5* for PCL scalable font, *bFnt5* for a PCL bitmap font, *MAC5* for a PCL macro, *data* for user data, or *demo* for a demo file. This variable is case-sensitive.

Relocking a protected file or device command

Use the **LDELETEPASSWORD** command to relock a password-protected file or device that has been unlocked using the **LDECLARE** command.

Note: If **LRESOURCE** is not specified, then all unlocked files or devices are relocked.

Syntax:

```
@PJL LDELETEPASSWORD [LRESOURCE : "device:filename.filetype"][<CR>]<LF>
```

Values for **"device:filename.filetype"**:

- The **device** is a file storage device, such as a hard disk or flash memory.
- The **filename** is a unique identifier for a file, such as the macro ID for a PCL macro, the symbol set ID for a PCL symbol set, or the font ID for a PCL font. This variable is case-sensitive.
- The **filetype** is an identifier which categorizes the file, such as *sFnt5* for PCL scalable font, *bFnt5* for a PCL bitmap font, *MAC5* for a PCL macro, *data* for user data, or *demo* for a demo file. This variable is case-sensitive.

Unlocking a protected file or device for a current job command

The file or device unlocked by the execution of this command is automatically relocked upon execution of the EOJ command or by a printer language change.

Syntax:

```
@PJL LDECLARE LRESOURCE : "device:filename.filetype" LRWLOCKJ = "password" [<CR>]<LF>
@PJL LDECLARE LRESOURCE : "device:filename.filetype" LWLOCKJ = "password" [<CR>]<LF>
```

Values for **"device:filename.filetype"**:

- The **device** is a file storage device, such as a disk or flash.
- The **filename** is a unique identifier for a file, such as the macro ID for a PCL macro, the symbol set ID for a PCL symbol set, or the font ID for a PCL font. This variable is case-sensitive.
- The **filetype** is an identifier which categorizes the file, such as *sFnt5* for PCL scalable font, *bFnt5* for a PCL bitmap font, *MAC5* for a PCL macro, *data* for user data, or *demo* for a demo file. This variable is case-sensitive.

Recovering lost passwords

Use the **LQUERYSEED** and **LBYPASSPASSWORD** commands to recover lost password.

Syntax:

```
@PJL LQUERYSEED [<CR>]<LF> @PJL LBYPASSPASSWORD KEY = key [<CR>]<LF>
```

```
@PJL LBYPASSPASSWORD KEY = key [<CR>]<LF>
```

1. Send the **LQUERYSEED** command to the printer by one of the host computer interfaces.

   This command displays a value called the *seed* on the control panel through MarkVision Enterprise. If the printer does not have a control panel, then the *seed* is printed on the Menu Settings Page. The value of the *seed* determines the *key*.

2. Obtain the *key* from the Lexmark Customer Support Center.

3. Send the **@PJL LBYPASSPASSWORD** command to the printer by any port.

   If the correct *key* is specified, then a modified version of the directory is produced. The directory indicates the appropriate password for the flash or disk.

PostScript emulation

Selecting PostScript emulation

Using SmartSwtich

When SmartSwitch is enabled for both printer languages on an interface, the printer automatically switches to the printer language that your software program sends. The printer is shipped with SmartSwitch enabled for both printer languages in all interfaces. The printer examines all print jobs and switches dynamically between PostScript emulation and PCL emulation.

Using the control panel or MarkVision Enterprise

You may select PostScript emulation from the control panel or through MarkVision Enterprise. To disable the automatic switching and have all input interpreted as PostScript language, turn off PCL SmartSwitch and set the printer language default to PostScript emulation. See your printer documentation for information on changing menu settings.

Using a software program

Warning—Potential Damage: When you change printer languages, you may lose previously downloaded resources, unless Resource Save is set to On or the resources are stored in flash memory or on hard disk.

To select PostScript emulation, use the **`ENTER LANGUAGE`** command, which is a Printer Job Language (PJL) command. For more information, see “Printer job language” on page 41.

Supported paper size in PostScript

For more information on supported paper size in PostScript, see the *Technical Reference* for your printer model at **http://support.lexmark.com**.

PostScript emulation supplemental operators

Paper tray support

For more information on PostScript paper tray support, see the *Technical Reference* for your printer model at **http://support.lexmark.com**.

manualfeed

If a manual feed source has been selected, then **`/manualfeed`** *boolean def* indicates in **statusdict**.

The Boolean value can be:

- True—Prints from a manual feed source
- False—Prints from an automatic feed source

This Boolean key can be redefined to affect manual feed for the current job. If the value of the **manualfeed** operator or the ManualFeed page device parameter is *true* when showpage or copypage is executed, then the page is fed manually. If both have a value of *false* when showpage or copypage is executed, then the page is fed from an automatic source. These two values are independent from each other.

Note: If **manualfeed** is redefined between printing the front and back page of a duplexed page, then the information for the front and back pages is printed on the same page.

Error: **stackoverflow**

papertray

– papertray *integer*

Queries the paper tray that is currently selected. An *integer* is returned on the stack indicating which paper tray is in use.

Valid *integers* are:

- 0—Tray 1
- 1—Tray 2
- 2—Envelope feeder (not supported)
- 3—Manual paper
- 4—Manual envelope
- 5—Tray 3
- 7—Multipurpose feeder
- 8—Tray 4
- 9—Tray 5

Error: **stackoverflow**

setpapertray

integer **setpapertray –**

Changes the active paper source for the next page through the end of job through:

- Setting the PageSize entry in the page device to the size loaded in the selected source
- Setting MediaPosition to the selected source

This operator executes a **setpagedevice**. This operator does not alter the PageSize policy page device parameter.

Use the following *integers* to set the paper tray:

- 0—Tray 1
- 1—Tray 2
- 2—Envelope feeder (not supported)
- 3—Manual paper
- 4—Manual envelope
- 5—Tray 3
- 7—Multipurpose feeder
- 8—Tray 4
- 9—Tray 5

Notes:

- If the Manual Paper or Manual Envelope source is selected, then the Manual Feed page device parameter is set to *true*.
- If a paper source that is not installed is selected, then a **rangecheck** error is returned.
- If a **setpapertray** operator is issued for the back of the duplexed page, then the printer ejects a blank back page, changes the paper source, and prints the information for the back side to the front side of the page from the new paper source.
- The setting returns to the set default setting for the Paper Source menu item at the end of the print job.

Error: **rangecheck**, **stackunderflow**, **typecheck**

Envelope size and tray support

For more information on PostScript envelope size and tray support, see the *Technical Reference* for your printer model at **http://support.lexmark.com**.

Interpreter parameters

User parameters

The following user parameters are used by **setuserparams** and **currentuserparams**.

To determine which parameters your printer supports, see the *Technical Reference* for your printer model at **http://support.lexmark.com**.

Key	Type	Default	Definition
AccurateScreens	Boolean	false	Controls whether the accurate screen algorithm is used during subsequent executions of the **setscreen** and **setcolorscreen** operators.
CollatedCopies	integer	Collation - Collated Copies (QTY) value	Request the number of collated copies to print for the job. Set this parameter before the first page of the job has been rendered. Legal value: Any integer between 0 and 999, inclusive.

Key	Type	Default	Definition
HalftoneMode	integer	0	Affects the result of subsequent halftone setting operators such as **setscreen**, **setcolorscreen**, and **sethalftone**. This parameter has no effect on the current halftone. Legal values: • 0 is the normal mode of operation. the behavior of **setscreen**, **setcolorscreen**, and **sethalftone** are not affected. • 1 executes **setscreen**, **setcolorscreen**, or**sethalftone** that causes a default screen to be used rather than the screen given by the job. • 2 is not supported. HalftoneMode is set to 1.
IdiomRecognition	Boolean	true	Legal values: • If true, procedure substitution is enabled during execution of the **bind** operator. • If false, idiom recognition is disabled.
JobName	string	( )	Name of the current job for status responses. Legal values: Any alphanumeric characters in the ASCII printable range (‘0x20’ through ‘0xFE’) excluding “;” and “rbrk” characters. Maximum length supported for JobName is 80 characters. Additional characters are truncated.
JobTimeout	integer	JobTimeout system parameter	Number of seconds a job is allowed to execute before it is terminated and a PostScript emulation **timeout** error is generated. Legal value: Any non-negative integer.
MaxDictStack	integer	255	Maximum elements in a dictionary stack. Legal value: Any integer between 40 and 255, inclusive.
MaxExecStack	integer	10015	Maximum elements in an execution stack. Legal value: Any integer greater than or equal to 75.
MaxFontItem	integer	12500	Maximum number of bytes occupied by the pixel array of a single character in the font cache. Legal value: Any non-negative integer.

Key	Type	Default	Definition
MaxFormItem	integer	100000	Maximum number of bytes occupied by a single cached form. Legal value: Any integer between zero and half of RamSize.
MaxLocalVM	integer	2147483647	Maximum number of bytes occupied by values in local VM. Legal value: Any integer greater than or equal to the greater of 76800 of the amount of local VM currently in use plus a small margin.
MaxOpStack	integer	100000	Maximum elements in the operand stack. Legal value: Any integer greater than or equal to 75.
MaxPatternItem	integer	20000	Maximum bytes occupied by a single cached pattern. Legal value: Any integer between zero and half of RamSize.
MaxScreenItem	integer	48000	Maximum bytes occupied by a single halftone screen. Legal value: Any non-negative integer.
MaxSuperScreen	integer	1024	Establish an upper limit for the number of pixels in the supercell. Supercells affect type 1 and type 2 halftones. If MaxSuperScreen is set to zero, then the use of supercells is prevented. Legal value: Any integer between zero and half of RamSize.
MaxUPathItem	integer	5000	Maximum bytes occupied by a single user path. Legal value: Any integer between zero and half of RamSize.
MinFontCompress	integer	2147483647	(Read-only) This value is always the value of MAXINTEGER.
PageCount	integer	0	(Read-only) This value is a running sum which equals the number of pages submitted by the PostScript interpreter to the print engine for printing. This parameter is not valid for tracking pages between jobs.

Key	Type	Default	Definition
UseOldcopypage	Boolean	false	Legal values: • If true, the copypage command is processed as defined in the PostScript level 2 description. • If false, the copypage command is processed as defined in the PostScript level 3 description.
VMReclaim	integer	0	Legal values: • 0 enables automatic garbage collection. • -1 disables automatic garbage collection for local Virtual Memory (VM). • -2 disables automatic garbage collection for both local and global VM.
VMThreshold	integer	25000 per MB of RAM	Frequency of automatic garbage collection, which occurs when the specified number of bytes have been allocated since the previous collection. Legal value: Any integer from 8192 to 500000, inclusive.
WaitTimeout	integer	WaitTimeout system parameter	Number of seconds the interpreter waits to receive additional characters from the host before it terminated the current print job by executing a PostScript emulation **timeout** error. A value of 0 indicates an infinite timeout. WaitTimeout is initialized to the value of the WaitTimeout system parameter at the beginning of each print job. Legal value: Any non-negative integer.

System parameters

The **setsystemparams** operator sets the values of the specified system parameters. If one is set, then this operator requires a password. The **currentsystemparams** operator returns a dictionary of the current values of the system parameters.

Values supplied to **setsystemparams** that are outside the range or limits for the specified integer parameter do not cause **rangecheck** or **limitcheck** errors. An appropriate value is used. Values supplied to **setsystemparams** that do not match the type of specified parameter cause **typecheck** errors.

Parameters that the printer does not support are ignored. An attempt to change the value of a read-only parameter has no effect on the parameter. The **currentsystemparams** does not return write-only parameters.

To determine which parameters your printer supports, see the *Technical Reference* for your printer model at **http://support.lexmark.com**.

Key	Type	Definition
BuildTime	integer	(Read-only) Time stamp identifying the specific build of the PostScript emulation interpreter.
ByteOrder	Boolean	(Read-only) Native (preferred) order of multiple-byte numbers in binary encoded tokens. Values: • False—High-order first • True—Low-order first
CurDisplayList	integer	(Read-only) This value is always zero.
CurFontCache	integer	(Read-only) Bytes currently occupied by the font cache.
CurFormCache	integer	(Read-only) Bytes currently occupied by the form cache.
CurInputDevice	string	(Read-only) The name of the communications device corresponding to the current input file for the PostScript emulation program which is executing. Possible values: • %LocalTalkB% • %SerialA% • %ParallelA% • %IR_A% • %USB_A% • %EtherTalkB% • %TokenTalkB% • %PrintServerB% • %RemotePrinterB% • %AppSocketA% • %LPR_B%
CurOutlineCache	integer	(Read-only) This value is always zero.
CurOutputDevice	string	(Read-only) The name of the communications device corresponding to the current output file for the currently executing PostScript language program. This value is always the same as CurInputDevice.
CurPatternCache	integer	(Read-only) Bytes currently occupied by the pattern cache.
CurScreenStorage	integer	(Read-only) This value is always zero.
CurSourceList	integer	
CurUPathCache	integer	(Read-only) Bytes currently occupied by the user path cache.
DisableFastProcs	integer	This bit field allows precompiled PostScript procedures to be selectively disabled. These precompiled procedures speed the execution time of some application generated jobs. The PostScript procedures are substituted in the job ProcSet with fast functions which are built into the printer firmware.
DoPrintErrors	Boolean	Specifies whether to print error pages using a built-in error handler when a PostScript language error occurs.
DoStartPage	Boolean	(Read-only) Always returns false.

Key	Type	Definition
EnableExtraFonts	Boolean	• True—All 75 resident fonts are enabled. • False—Original 39 PostScript fonts are available. **Note:** Changes to this parameter take effect when PostScript is restarted.
EngineBoot	string	(Read-only) The version of the boot code.
EngineCode	string	(Read-only) The version of the engine code.
EngineSpeed	integer	(Read-only) The maximum speed of the print engine in pages per minute.
EnvironmentSave	Boolean	This parameter indicates or modifies the Resource Save User Default value. **Note:** When a job changes this parameter from false to true, all interpreter tasks are terminated and restarted at the end of the current job.
FactoryDefaults	Boolean	If set to true and the printer is immediately turned off, then this key causes all non-volatile parameters to revert to factory default values at the next power-on. The job that sets FactoryDefaults to true must be the last job executed before power-off; otherwise, the request is ignored.
FatalErrorAddress	integer	The address at which a fatal system software error occurred. This address is stored in the parameter FatalErrorAddress before execution is stopped. This address is also transmitted to the host over the communications channel.
FontResourceDir	string	Specifies the location in the file system for font resource files. Maximum length is 17 characters.
FontVersion	string	(Read-only) The version of the font ROM.
GenericResourceDir	string	Specifies the location in the file system for resource files. Maximum length is 17 characters.
GenericResourcePath Sep	string	Concatenated to the GenericResourceDir and the category name, and followed by the resource name to get the external location of the resource. Maximum length is 17 characters.
InstalledRam	integer	(Read-only) Indicates in bytes the total amount of installed printer memory (RAM) in the system.
JobTimeout	integer	The value in seconds to which the user parameter JobTimeout is initialized at the beginning of each print job. If you set the system parameter JobTimeout to a negative value, then it is ignored. The previous setting of JobTimeout is used. A value of zero indicates that the timeout is infinite. If you set a number between 1 and 14, then 15 is set. Legal values: x=0, 15 <= x <= 65355.
languagelevel	integer	The value of languagelevel integer in systemdict always matches the value of this system parameter. If set to 2, then the printer behaves as though /UseOldcopypage and /UseOldfonts are both true. The latter two parameters return their actual values when queried. Legal values: 2,3.

Key	Type	Definition
MaxDisplayList	integer	(Read-only) Always have the same value as InstalledRam.
MaxDisplayAndSourceList		
MaxFontCache		
MaxFormCache	integer	Maximum bytes occupied by the form cache. Legal value: Any non-negative integer.
MaxImageBuffer	integer	(Read-only) Always have the same value as InstalledRam.
MaxOutlineCache		
MaxPatternCache	integer	Maximum bytes occupied by the pattern cache. Legal value: Any non-negative integer.
MaxPermanentVM	integer	(Read-only) Always have the same value as InstalledRam.
MaxRasterMemory		
MaxScreenStorage		
MaxSourceList		
MaxUPathCache	integer	Maximum bytes occupied by the user path cache. Legal value: Any non-negative integer.
PageCount	integer	(Read-only) Total number of pages that have been printed.
PanelCode	string	(Read-only) Version of the control panel code.
PrinterCode	string	(Read-only) Firmware version of the printer controller board.
PrinterName	string	Initialized from the printer name stored in NVRAM. If this parameter is set to a zero length string, then the PrinterName is set to the value of the product string in **statusdict**. Legal value: Any string of 32 or fewer non-null characters.
RamSize	integer	(Read-only) Total amount of memory in bytes installed in the printer.
RealFormat	string	(Read-only) Preferred representation for real numbers in binary encoded tokens.
Revision	integer	(Read-only) The current revision level of the machine-dependent portion of PostScript emulation.
SearchBuiltinFontsFirst	Boolean	Controls the device search order that the interpreter uses to locate fonts.
SerialNumber	string	(Read-only) Serial number of the printer.
StartJobPassword	string	(Write-only) Controls the ability of the **startjob** operator to alter initial Virtual Memory (VM). Legal values: Any integer or string of 32 or fewer non-null characters. An integer is converted to a string.

Key	Type	Definition
StartupMode	integer	Controls the system start file during PostScript emulation initialization and the job start file before each print job. Valid values: • 0—Disables the use of Sys/Start file and Job/Start file. • 1—Executes Sys/Start file (if present on the hard disk or flash memory). • 10—Executes Job/Start before each user job. • 11—Executes both Sys/Start and Job/Start files. Legal values: 0 <= x <= 255. Values other than the four listed are equivalent to 0.
StaticRamSize	integer	(Read-only) Amount of static memory (in bytes) on the controller board.
SystemParams Password	string	(Write-only) Controls the ability of **setsystemparams** to change the values of system parameters and **setdevparams** to change the values of device parameters. Legal values: Any integer or string of 32 or fewer non-null characters. An integer is converted to a string.
UseOldcopypage	Boolean	True indicates that the copypage command is processed as defined in PostScript level 2 description. False indicates that the copypage command is processed as defined in PostScript level 3 description.
UseOldfonts	Boolean	True redefines the following PostScript resident fonts to match the character designs and metrics defined in PostScript level 2: • AntiqueOlive (AntiqueOlive-Roman) • AntiqueOlive-Bold • AntiqueOlive-Italic • LetterGothic • LetterGothic-Italic (LetterGothic-Slanted) • Univers-Bold • Marigold False restores the font compatibility to PostScript level 3.
ValidNV	Boolean	(Read-only) Indicates whether non-volatile memory is used to store persistent parameters. If this memory is found defective during system initialization, then factory defaults are used. If further testing reveals this memory is defective, then it is not used and ValidNV is false.
WaitTimeout	integer	The value in seconds the user parameter WaitTimeout initializes at the beginning of each job. Negative values are ignored and the previous setting is used. A value of zero (0) indicates an infinite timeout. If you set a number between 1 and 14, then 15 is set. Legal values: x = 0, 15 <= x <= 65355.

Device parameters

The **currentdevparams** operator returns a dictionary of the current values of the system parameters.

The **setdevparams** operator sets the values of the specified device parameters.

- If one is set, then this operator requires a password.
- Values supplied to **setdevparams** that are outside the range or limits for the specified integer parameter do not cause **rangecheck** or **limitcheck** errors. The appropriate value is used.
- Values supplied to **setdevparams** that do not match the type of the specified parameter cause **typecheck** errors.
- If a parameter name is not known, then an **undefined** error occurs.
- An attempt to change the value of a read-only parameter has no effect on the parameter.
- To specify the parameters for a specific communications channel, use the appropriate suffix.

To determine which devices and device parameters your printer supports, see the *Technical Reference* for your printer model at **http://support.lexmark.com**.

Supported device parameters

Key	Type	Definition
Device Parameters for the Communication Device %Parallel%, %ParallelA%, %ParallelB%, %ParallelC%, %ParallelD%		
DelayedOutputClose	Boolean	Selects how the printer manages the port at the end of each print job. Supported values are: • True—An end-of-file message is not sent until the current job and all preceding jobs finish printing. • False—An end-of-file message is sent when a job finishes executing in the interpreter, whether the job has finished printing. **Note:** This value is set individually for each port.
Enabled	Boolean	(Read-only). Supported values are: • True • False
Filtering	name	Indicates that the input needs further filtering before the data can be correctly processed. Supported values are: • InterpreterBased • None
Handshake	integer	(Read-only) Always returns a value of 2.
HasNames	Boolean	(Read-only) Always returns a False value.
Interpreter	name	(Read-only). Supported values are: • PostScript • AutoSelect • PCL • PPDS

Key	Type	Definition
On	Boolean	Designates if the communication channel is ON and able to receive and send data. Supported values are: • True—Data is sent and processed. • False—Data is lost.
OutputDevice	string	(Read-only).
PCLSmartSwitch	Boolean	Supported values are: • True—PCL SmartSwitch is set to On. • False—PCL SmartSwitch is set to Off. For more information, see “Selecting PCL emulation” on page 6.
PortLocation	string	(Read-only) Designates the physical location of the port related to the parameter set. Supported values are: • Standard Port • Option Slot 1 • Option Slot 2 • Option Slot 3 • Option Slot 4
PSSmartSwitch	Boolean	Supported values are: • True—PS SmartSwitch is set to On. • False—PS SmartSwitch is set to Off. For more information, see “Selecting PostScript emulation” on page 91.
Type	name	(Read-only) Always returns the value of /Communications.
Device Parameters for the Communication Device %Serial%, %SerialA%, %SerialB%, %SerialC%, %SerialD%		
Baud	integer	Returns the value of the Baud menu item.
CheckParity	Boolean	(Read-only) Designates whether parity checking is done on the incoming data. Supported values are: • True—Parity menu item set to Even or Odd. • False—Parity menu item set to None or Ignore.
DataBits	integer	Returns the value of the Data Bits menu item.
DelayedOutputClose	Boolean	Selects how the printer manages the port at the end of each print job. Supported values are: • True—An end-of-file message is not sent until the current job and all preceding jobs finish printing. • False—An end-of-file message is sent when a job finishes executing in the interpreter, whether that job has finished printing. **Note:** This value is set independently for each port.

Key	Type	Definition
Enabled	Boolean	(Read-only). Supported values are: • True • False
Filtering	name	Indicates that the input needs further filtering before the data can be correctly processed. Supported values are: • InterpreterBased • None
FlowControl	name	Designates the serial flow control method between the host computer and the device. Returns a value corresponding to the Serial Protocol menu item. Supported values are: • Dtr • DtrDsr • XonXoff • XonXoffDtr • XonXoffDtrDsr
HasNames	Boolean	(Read-only) Always returns False.
HonorDSR	Boolean	Serial-Honor DSR. Supported values are: • True—Honor DSR is set to On. • False—Honor DSR is set to Off.
Interpreter	name	(Read-only). Supported values are: • PostScript • AutoSelect • PCL • PPDS
On	Boolean	Designates if the communication channel is On and able to receive and send data. Supported values are: • True—Data is sent and processed. • False—Data is lost.

Key	Type	Definition
Parity	name	Designates the parity to be used between the host computer and the device. Returns the value of the Parity menu item. Supported values are: • Even • Odd • None • Ignore **Note:** If Parity is set to Ignore, then CheckParity is set to False and Parity becomes Even.
PCLSmartSwitch	Boolean	Supported values are: • True—PCL SmartSwitch is set to On. • False—PCL SmartSwitch is set to Off. For more information, see “Selecting PCL emulation” on page 6.
PortLocation	string	(Read-only) Designates the physical location of the port related to the parameter set. Supported values are: • Standard Port • Option Slot 1 • Option Slot 2 • Option Slot 3
PSSmartSwitch	Boolean	Supported values are: • True—PS SmartSwitch is set to On. • False—PS SmartSwitch is set to Off. For more information, see “Selecting PostScript emulation” on page 91.
RobustXon	Boolean	Supported values are: • True—RobustXon is set to On. • False—RobustXon is set to Off.
SerialMode	name	Designates the serial communication configuration: RS232C or RS422. Returns the value of the Serial RS-232/RS-422 menu item. Returns RS232 on a printer that is attached with a cable that does not support RS-422. Supported values are: • RS232 • RS422
StopBits	integer	(Read-only). Supported values are: • 1 • 2
Type	name	(Read-only) Always returns the value of /Communications.

Key	Type	Definition
Device Parameters for the Communication Device %LocalTalk%, %LocalTalkA%, %LocalTalkB%, %LocalTalkC%, %LocalTalkD%		
DelayedOutputClose	Boolean	Selects how the printer manages the port at the end of each print job. Supported values are: • True—An end-of-file message is not sent until the current job and all preceding jobs finish printing. • False—An end-of-file message is sent when a job finishes executing in the interpreter, whether the job has finished printing. **Note:** This value is set individually for each port.
Enabled	Boolean	(Read-only). Supported values are: • True • False
Filtering	name	Indicates that the input needs further filtering before the data can be correctly processed. Supported values are: • InterpreterBased • None
HasNames	Boolean	(Read-only) Always returns False.
Interpreter	name	(Read-only). Supported values are: • PostScript • AutoSelect • PCL • PPDS
LocalTalkType	string	Sets the type of the AppleTalk network entity name and the **Type** parameter to the same value. The **appletalktype** compatibility operator returns a new value. Legal values: Any string of 32 or fewer non-null characters. Default value is LaserWriter. **Note:** Setting this variable does not affect the value for other physical internal print servers. The **statusdict** string **appletalktype** is correct for the current job port.
NodeID	integer	(Read-only).
On	Boolean	Designates if the communication channel is On and able to receive and send data. Supported values are: • True—Data is sent and processed. • False—Data is lost.

Key	Type	Definition
PCLSmartSwitch	Boolean	Supported values are: • True—PCL SmartSwitch is set to On. • False—PCL SmartSwitch is set to Off. For more information, see "Selecting PCL emulation" on page 6.
PortLocation	string	(Read-only) Designates the physical location of the port related to the parameter set. Supported values are: • Standard Port • Option Slot 1 • Option Slot 2 • Option Slot 3 • Option Slot 4
PSSmartSwitch	Boolean	Supported values are: • True—PS SmartSwitch is set to On. • False—PS SmartSwitch is set to Off. For more information, see "Selecting PostScript emulation" on page 91.
Type	name	(Read-only) Always returns the value of /Communications.
Device Parameters for the Communication Device %EtherTalk%, %EtherTalkA%, %EtherTalkB%, %EtherTalkC%, %EtherTalkD%		
DelayedOutputClose	Boolean	Selects how the printer manages the port at the end of each print job. Supported values are: • True—An end-of-file message is not sent until the current job and all preceding jobs finish printing. • False—An end-of-file message is sent when a job finishes executing in the interpreter, whether the job has finished printing. **Note:** This value is set individually for each port.
Enabled	Boolean	(Read-only). Supported values are: • True • False
EthernetAddress	string	(Read-only) The Ethernet address of the Ethernet internal print server. Legal value: Any string of 17 or fewer non-null characters.
EtherTalkType	string	Sets the type of the EtherTalk interface entity name and the **LocalTalkType** parameter to the same value. The **appletalktype** compatibility operator compatibility operator returns a new value. Legal values: Any string of 32 or fewer non-null characters. Default value is LaserWriter. **Note:** Setting this variable does not affect the value for other physical internal print servers. The **statusdict** string **appletalktype** is correct for the current job port.

Key	Type	Definition
EtherTalkZone	string	The zone of the EtherTalk interface entity name. EtherTalkZone is read or written only to RAM. There is no NVRAM variable for EtherTalkZone. Legal value: Any string of 32 or fewer non-null characters.
Filtering	name	Indicates that the input needs further filtering before the data can be correctly processed. Supported values are: • InterpreterBased • None
HasNames	Boolean	(Read-only) Always returns False.
Interpreter	name	(Read-only). Supported values are: • PostScript • AutoSelect • PCL • PPDS
NodeID	integer	(Read-only).
On	Boolean	Designates if the communication channel is On and able to receive and send data. Supported values are: • True—Data is sent and processed. • False—Data is lost.
PCLSmartSwitch	Boolean	Supported values are: • True—PCL SmartSwitch is set to On. • False—PCL SmartSwitch is set to Off. For more information, see “Selecting PCL emulation” on page 6.
PortLocation	string	(Read-only) Designates the physical location of the port related to the parameter set. Supported values are: • Standard Port • Option Slot 1 • Option Slot 2 • Option Slot 3
PSSmartSwitch	Boolean	Supported values are: • True—PS SmartSwitch is set to On. • False—PS SmartSwitch is set to Off. For more information, see “Selecting PostScript emulation” on page 91.
Type		(Read-only) Always returns the value of /Communications.

Key	Type	Definition
Device Parameters for the Communication Device %IR%, %IR_A%, %IR_B%, %IR_C%, %IR_D%		
DelayedOutputClose	Boolean	Selects how the printer manages the port at the end of each print job. Supported values are: • True—An end-of-file message is not sent until the current job and all preceding jobs finish printing. • False—An end-of-file message is sent when a job finishes executing in the interpreter, whether the job has finished printing. **Note:** This value is set individually for each port.
Enabled	Boolean	(Read-only). Supported values are: • True • False
Filtering	name	Indicates that the input needs further filtering before the data can be correctly processed. Supported values are: • InterpreterBased • None
HasNames	Boolean	(Read-only) Always returns False.
Interpreter	name	(Read-only). Supported values are: • PostScript • AutoSelect • PCL • PPDS
On	Boolean	Designates if the communication channel is On and able to receive and send data. Supported values are: • True—Data is sent and processed. • False—Data is lost.
PCLSmartSwitch	Boolean	Supported values are: • True—PCL SmartSwitch is set to On. • False—PCL SmartSwitch is set to Off. For more information, see “Selecting PCL emulation” on page 6.
PortLocation	string	(Read-only) Designates the physical location of the port related to the parameter set. Supported values are: • Standard Port • Option Slot 1 • Option Slot 2 • Option Slot 3 • Option Slot 4

Key	Type	Definition
PSSmartSwitch	Boolean	Supported values are: • True—PS SmartSwitch is set to On. • False—PS SmartSwitch is set to Off. For more information, see "Selecting PostScript emulation" on page 91.
Type	name	(Read-only) Always returns the value of /Communications.
Device Parameters for the Communication Device %USB%, %USB_A%, %USB_B%, %USB_C%, %USB_D%		
DelayedOutputClose	Boolean	Selects how the printer manages the port at the end of each print job. Supported values are: • True—An end-of-file message is not sent until the current job and all preceding jobs finish printing. • False—An end-of-file message is sent when a job finishes executing in the interpreter, whether the job has finished printing. **Note:** This value is set individually for each port.
Enabled	Boolean	(Read-only). Supported values are: • True • False
Filtering	name	Indicates that the input needs further filtering before the data can be correctly processed. Supported values are: • InterpreterBased • None
HasNames	Boolean	(Read-only) Always returns False.
Interpreter	name	(Read-only). Supported values are: • PostScript • AutoSelect • PCL • PPDS
On	Boolean	Designates if the communication channel is On and able to receive and send data. Supported values are: • True—Data is sent and processed. • False—Data is lost.
PCLSmartSwitch	Boolean	Supported values are: • True—PCL SmartSwitch is set to On. • False—PCL SmartSwitch is set to Off. For more information, see "Selecting PCL emulation" on page 6.

Key	Type	Definition
PortLocation	string	(Read-only) Designates the physical location of the port related to the parameter set. Supported values are: • Standard Port • Option Slot 1 • Option Slot 2 • Option Slot 3 • Option Slot 4
PSSmartSwitch	Boolean	Supported values are: • True—PS SmartSwitch is set to On. • False—PS SmartSwitch is set to Off. For more information, see "Selecting PostScript emulation" on page 91.
Type	name	(Read-only) Always returns the value of /Communications.
Device Parameters for the Communication Device %TokenTalk%, %TokenTalkA%, %TokenTalkB%, %TokenTalkC%, %TokenTalkD%		
Address	string	(Read-only).
Bridging	name	(Read-only) Adaptive.
DelayedOutputClose	Boolean	Selects how the printer manages the port at the end of each print job. Supported values are: • True—An end-of-file message is not sent until the current job and all preceding jobs finish printing. • False—An end-of-file message is sent when a job finishes executing in the interpreter, whether the job has finished printing. **Note:** This value is set individually for each port.
Enabled	Boolean	(Read-only). Supported values are: • True • False
Filtering	name	Indicates that the input needs further filtering before the data can be correctly processed. Supported values are: • InterpreterBased • None
HasNames	Boolean	(Read-only) Always returns False.
Interpreter	name	(Read-only). Supported values are: • PostScript • AutoSelect • PCL • PPDS

Key	Type	Definition
NodeID	integer	(Read-only).
On	Boolean	Designates if the communication channel is On and able to receive and send data. Supported values are: • True—Data is sent and processed. • False—Data is lost.
PCLSmartSwitch	Boolean	Supported values are: • True—PCL SmartSwitch is set to On. • False—PCL SmartSwitch is set to Off. For more information, see "Selecting PCL emulation" on page 6.
PortLocation	string	(Read-only) Designates the physical location of the port related to the parameter set. Supported values are: • Standard Port • Option Slot 1 • Option Slot 2 • Option Slot 3 • Option Slot 4
PSSmartSwitch	Boolean	Supported values are: • True—PS SmartSwitch is set to On. • False—PS SmartSwitch is set to Off. For more information, see "Selecting PostScript emulation" on page 91.
TokenTalkType	string	Setting this variable does not affect the value of other physical internal print servers. **Note:** The **statusdict** string **appletalktype** is correct for the current job port.
Type	name	(Read-only) Always returns the value of /Communications.
Zone	string	Returns the value identified when the printer makes connection to the network at power-on.
Device Parameters for the Communication Device %AppSocket%, %AppSocketA%, %AppSocketB%, %AppSocketC%, %AppSocketD%		
DelayedOutputClose	Boolean	Selects how the printer manages the port at the end of each print job. Supported values are: • True—An end-of-file message is not sent until the current job and all preceding jobs finish printing. • False—An end-of-file message is sent when a job finishes executing in the interpreter, whether the job has finished printing. **Note:** This value is set individually for each port.

Key	Type	Definition
Enabled	Boolean	(Read-only). Supported values are: • True • False
Filtering	name	Indicates that the input needs further filtering before the data can be correctly processed. Supported values are: • InterpreterBased • None
HasNames	Boolean	(Read-only) Always returns False.
Interpreter	name	(Read-only). Supported values are: • PostScript • AutoSelect • PCL • PPDS
On	Boolean	Designates if the communication channel is On and able to receive and send data. Supported values are: • True—Data is sent and processed. • False—Data is lost.
PortLocation	string	(Read-only) Designates the physical location of the port related to the parameter set. Supported values are: • Standard Port • Option Slot 1 • Option Slot 2 • Option Slot 3 • Option Slot 4
Type	name	(Read-only) Always returns the value of /Communications.
Device Parameters for the Communication Device %RemotePrinter%, %RemotePrinterA%, %RemotePrinterB%, %RemotePrinterC%, %RemotePrinterD%		
DelayedOutputClose	Boolean	Selects how the printer manages the port at the end of each print job. Supported values are: • True—An end-of-file message is not sent until the current job and all preceding jobs finish printing. • False—An end-of-file message is sent when a job finishes executing in the interpreter, whether the job has finished printing. **Note:** This value is set individually for each port.

Key	Type	Definition
Enabled	Boolean	(Read-only). Supported values are: • True • False
Filtering	name	Indicates that the input needs further filtering before the data can be correctly processed. Supported values are: • InterpreterBased • None
HasNames	Boolean	(Read-only) Always returns False.
Interpreter	name	(Read-only). Supported values are: • PostScript • AutoSelect • PCL • PPDS
On	Boolean	Designates if the communication channel is On and able to receive and send data. Supported values are: • True—Data is sent and processed. • False—Data is lost.
PortLocation	string	(Read-only) Designates the physical location of the port related to the parameter set. Supported values are: • Standard Port • Option Slot 1 • Option Slot 2 • Option Slot 3
Type	name	(Read-only) Always returns the value of /Communications.
Device Parameters for the Communication Device %PrintServer%, PrintServerA%, PrintServerB%, %PrintServerC%, %PrintServerD%		
DelayedOutputClose	Boolean	Selects how the printer manages the port at the end of each print job. Supported values are: • True—An end-of-file message is not sent until the current job and all preceding jobs finish printing. • False—An end-of-file message is sent when a job finishes executing in the interpreter, whether the job has finished printing. **Note:** This value is set individually for each port.

Key	Type	Definition
Enabled	Boolean	(Read-only). Supported values are: • True • False
Filtering	name	Indicates that the input needs further filtering before the data can be correctly processed. Supported values are: • InterpreterBased • None
HasNames	Boolean	(Read-only) Always returns False.
Interpreter	name	(Read-only). Supported values are: • PostScript • AutoSelect • PCL • PPDS
On	Boolean	Designates if the communication channel is On and able to receive and send data. Supported values are: • True—Data is sent and processed. • False—Data is lost.
PortLocation	string	(Read-only) Designates the physical location of the port related to the parameter set. Supported values are: • Standard Port • Option Slot 1 • Option Slot 2 • Option Slot 3 • Option Slot 4
Type	name	(Read-only) Always returns the value of /Communications.
Device Parameters for the Communication Device %LPR%, %LPR_A%, %LPR_B%, %LPR_C%, %LPR_D%		
Enabled	Boolean	(Read-only). Supported values are: • True • False
Filtering	name	Indicates that the input needs further filtering before the data can be correctly processed. Supported values are: • InterpreterBased • None

Key	Type	Definition
HasNames	Boolean	(Read-only) Always returns False.
Interpreter	name	(Read-only). Supported values are: • PostScript • AutoSelect • PCL • PPDS
On	Boolean	Designates if the communication channel is On and able to receive and send data. Supported values are: • True—Data is sent and processed. • False—Data is lost.
PortLocation	string	(Read-only) Designates the physical location of the port related to the parameter set. Supported values are: • Standard Port • Option Slot 1 • Option Slot 2 • Option Slot 3
Type	name	(Read-only) Always returns the value of /Communications.
Device Parameters for the Communication Device %LexLink%, %LexLinkA%, %LexLinkB%, %LexLinkC%, %LexLinkD%		
DelayedOutputClose	Boolean	Selects how the printer manages the port at the end of each print job. Supported values are: • True—An end-of-file message is not sent until the current job and all preceding jobs finish printing. • False—An end-of-file message is sent when a job finishes executing in the interpreter, whether the job has finished printing. **Note:** This value is set individually for each port.
Enabled	Boolean	(Read-only). Supported values are: • True • False
HasNames	Boolean	(Read-only) Always returns False.
Interpreter	name	(Read-only). Supported values are: • PostScript • AutoSelect • PCL • PPDS

Key	Type	Definition
On	Boolean	Designates if the communication channel is On and able to receive and send data. Supported values are: • True—Data is sent and processed. • False—Data is lost.
PortLocation	string	(Read-only) Designates the physical location of the port related to the parameter set. Supported values are: • Standard Port • Option Slot 1 • Option Slot 2 • Option Slot 3
Type	name	(Read-only) Always returns the value of /Communications.
Device Parameters for the Communication Device %IP%, %IP_A%, %IP_B%, %IP_C%, %IP_D%		
GatewayAddress	string	(Read-only).
IPAddress	string	(Read-only).
IPAddressDynamic	Boolean	(Read-only). Supported values are: • True • False
NetworkMask	string	(Read-only).
On	Boolean	Designates if the communication channel is On and able to receive and send data. Supported values are: • True—Data is sent and processed. • False—Data is lost.
Physical	string	(Read-only).
PortLocation	string	(Read-only) Designates the physical location of the port related to the parameter set. Supported values are: • Standard Port • Option Slot 1 • Option Slot 2 • Option Slot 3
Type	name	(Read-only) Always returns the value of /Parameters.
Device Parameters for the Communication Device %EthernetPhysical%, %EthernetPhysicalA%, %EthernetPhysicalB%, %EthernetPhysicalC%, %EthernetPhysicalD%		
EthernetAddress	string	(Read-only).

Key	Type	Definition
On	Boolean	Designates if the communication channel is On and able to receive and send data. Supported values are: • True—Data is sent and processed. • False—Data is lost.
PortLocation	string	(Read-only) Designates the physical location of the port related to the parameter set. Supported values are: • Standard Port • Option Slot 1 • Option Slot 2 • Option Slot 3
Type	name	(Read-only) Always returns the value of /Parameters.
Device Parameters for the Communication Device %TokenRingPhysical%, %TokenRingPhysicalA%, %TokenRingPhysicalB%, %TokenRingPhysicalC%, %TokenRingPhysicalD%		
Address	string	(Read-only).
On	Boolean	Designates if the communication channel is On and able to receive and send data. Supported values are: • True—Data is sent and processed. • False—Data is lost.
PortLocation	string	(Read-only) Designates the physical location of the port related to the parameter set. Supported values are: • Standard Port • Option Slot 1 • Option Slot 2 • Option Slot 3
Speed	integer	Supported values are: • 4 • 16
Type	name	(Read-only) Always returns the value of /Parameters.
Device Parameters for the Parameters Device %Engine%		
BSizeStandard	name	(Read-only) Value of JIS.
Darkness	real	Designates the print darkness and toner saver setting. Legal value: Any non-negative real number from 0.0 to 1.0 inclusive.
PageCount	integer	(Read-only) Page Count.
TimeToStandby	integer	Power Saver. Supported values are: 0 to 120 minutes.
Type	name	(Read-only) Always returns the value of /Parameters.

Key	Type	Definition
Device Parameters for the Parameters Device %Console%		
Language	name	Display Language.
Type	name	(Read-only) Always returns the value of /Parameters.
Device Parameters for the Parameters Device %Calendar%, %CalendarA%, %CalendarB%, %CalendarC%, %CalendarD%		
Day	integer	Supported values are: 1–31.
Hour	integer	Supported values are: 0–23.
Minute	integer	Supported values are: 0–59.
Month	integer	Supported values are: 1–12.
Running	Boolean	Signifies whether time is available for the device.
Second	integer	Supported values are: 0–59.
Type	name	(Read-only) Value of /Parameters.
Year	integer	N/A
DateTime	string	Date and time in the format: YYYY-MM-DD HH:MM.
DayOfWeekLong	string	Long day name.
DayOfWeekNum	integer	Supported values are: 0–6 (0=Sunday).
DayOfWeekShort	string	Short day name.
Device Parameters for the Parameters Device %disk1%		
BlockSize	integer	(Read-only).
Free	integer	(Read-only) Indicates the amount of free space available (in pages) on the hard disk. Valid only if the hard disk is mounted (mounted is set to True). A value of zero indicates that either the hard disk is not mounted or is full.
HasNames	Boolean	(Read-only) Indicates that the hard disk supports named files. Valid only if the hard disk is mounted (mounted is set to True). If the hard disk is not mounted, the parameter has a value of False.
InitializeAction	integer	Specifies an action for initializing the hard disk. Supported values are: • 0—Indicates no action. The value returned when the parameter is read. • 1—Indicates that the current file system should be deleted and a new one of LogicalSize be created (the hard disk is assumed to have been formatted already). The hard disk must first be mounted; otherwise, an **ioerror** occurs. • 2—Reformats the entire hard disk before creating a file system of size LogicalSize. • 3 (or greater)—Has the same effect as the value 2 and also tests the hard disk x-2 times. **Note:** The current file system refers to /FileSystem.

Key	Type	Definition
LogicalSize	integer	Specifies the size of the file system to be created and is used as an argument by InitializeAction. • If 0, then InitializeAction uses the size of the entire hard disk. When queried, indicates the current size of the file system on the device (in pages). A value of 0 indicates that the device is not mounted. • If set with a certain value and the device is reformatted, then a query returns the value that was set. If queried before the hard disk is reformatted, a different value from the one set may be returned because it may return the current size. • If set to 1, 2, or 3, then an **ioerror** occurs. Legal values: Any non-negative integer, including 0. The value must be less than equal to the value of PhysicalSize. If set to a value greater that PhysicalSize, or less than zero, then a **rangecheck** error occurs.
Mounted	Boolean	A device must contain a valid file system to mount successfully. When a device is mounted, it is known to the system and is readable. To verify if the device is mounted, query this parameter immediately after setting it. Supported values are: • True—System attempts to mount the hard disk. • False—System attempts to dismount the hard disk.
PhysicalSize	integer	(Read-only) Indicates the size of the hard disk (in pages). Valid only when the hard disk is mounted. A value of 0 indicates that the device is not mounted.
Removable	Boolean	(Read-only) Indicates that the drive supports removable hard disks. Always returns False.
Searchable	Boolean	(Read-only) Indicates that the hard disk participates in searches in the file system operations that specify a file name without specifying a device.
SearchOrder	integer	(Read-only) If the Searchable parameter is True, then the value indicates that the priority assigned to the hard disk when searching for a file and no device has been specified. A lower integer indicates a higher priority. If the Searchable parameter is False, then this value is ignored.
Type	name	(Read-only) Always returns the value of /FileSystem.
Writeable	Boolean	(Read-only) Indicates that the files on the hard disk can be opened for write access. If the hard disk is write protected, then this parameter constant is equal to False. When the hard disk is not mounted, this parameter indicates that the drive supports writeable media.
Device Parameters for the Parameters Device %flash1%		
BlockSize	integer	(Read-only).
Free	integer	(Read-only) Indicates the amount of free space available (in pages) on the flash memory. Valid only if the flash memory is mounted (mounted is set to True). A value of zero indicates that either the flash memory is not mounted or is full.
HasNames	Boolean	(Read-only) Indicates that the flash memory parameter is only valid when flash memory is mounted (mounted is set to True). If flash memory is not mounted, then the parameter has a value of False.

Key	Type	Definition
InitializeAction	integer	Specifies an action for initializing the flash memory. Supported values are: • 0—Indicates no action. The value returned when the parameter is read. • 1—Indicates that the current file system should be deleted and a new one of PhysicalSize created (the flash memory must be formatted already). The flash memory must first be mounted; otherwise, an **ioerror** occurs. • 2—Reformats the entire flash memory before creating a file system of PhysicalSize. • 3 (or greater)—Has the same effect as the value 2 and also tests the flash memory x-2 times. Legal value: Any non-negative integer.
LogicalSize	integer	This parameter is not used for InitializeAction. InitializeAction always formats to PhysicalSize, regardless of what is specified in LogicalSize. A query returns the current size (in pages) of the file system on the device. A value of 0 indicates that the device is not mounted. Legal values: Any non-negative integer, including 0. The value of LogicalSize must be less than equal to the value of PhysicalSize. If set to a value greater that PhysicalSize, or less than zero, then a **rangecheck** error occurs.
Mounted	Boolean	A device must contain a valid file system to mount successfully. When a device is mounted, it is known to the system and is readable. To verify if the device is mounted, query this parameter immediately after setting it. Supported values are: • True—System attempts to mount the flash memory. • False—System attempts to dismount the flash memory.
PhysicalSize	integer	(Read-only) Indicates the size of the flash memory (in pages). Valid only when the flash memory is mounted. A value of 0 indicates that the device is not mounted.
Removable	Boolean	(Read-only) Indicates that the drive supports removable flash memory.
Searchable	Boolean	(Read-only) Indicates that a flash memory participates in searches in file system operations that specify a file name without specifying a device.
SearchOrder	integer	(Read-only) If the Searchable parameter is True, then the value indicates the priority at which the flash memory is searched for a file in operations where no device is specified. A lower integer indicates a high priority. If the Searchable parameter is False, then the value of this integer has no meaning.
Type	name	(Read-only) Always returns the value of /FileSystem.
Writeable	Boolean	(Read-only) Indicates that the files on the flash memory can be opened for write access. A write-protected flash memory returns False. When the flash is not mounted, this parameter indicates that the device supports writeable media.
Device Parameters for the Parameters Device %rom%		
BlockSize	integer	(Read-only).

Key	Type	Definition
Free	integer	(Read-only) Indicates the amount of free space available (in pages) in ROM. Valid only if the ROM is mounted (mounted is set to True). A value of zero indicates that either the ROM is not mounted or is full.
HasNames	Boolean	(Read-only) Indicates that the ROM supports names files. Valid only if ROM is mounted (mounted is set to True). If ROM is not mounted, then this parameter has a value of False.
InitializeAction	integer	(Read-only) Always returns a value of 0, which indicates no action.
LogicalSize	integer	(Read-only).
Mounted	Boolean	When a device is mounted, it becomes known to the system and is readable, depending on the nature of the device. A device must contain a valid file system or it will not mount successfully. To verify if the device is mounted, query this parameter immediately after setting it. If the ROM device is dismounted, then unpredictable results occur.
PhysicalSize	integer	(Read-only) Indicates the size of the ROM (in pages) that is mounted. A value of 0 indicates that the device is not mounted. This parameter is only valid when ROM is mounted.
Removable	Boolean	(Read-only) Always False.
Searchable	Boolean	(Read-only) Indicates that ROM participates in searches in file system operations that specify a file name without specifying a device.
SearchOrder	integer	(Read-only) If the Searchable parameter is True, then the value indicates the priority assigned to the ROM when searching for a file and no device has been specified. All lower integer indicates a higher priority. If the Searchable parameter is False, then the value of this integer has no meaning.
Type	name	(Read-only) Always returns the value of /FileSystem.
Writeable	Boolean	(Read-only) Indicates that the files on the ROM can be opened for write access. Always False.

Status and error messages

Tagged Binary not active

Your printer responds and processes a Ctrl+T (x'14') command as a status query when:

- The PostScript emulation interpreter is processing a print job.
- The printer is idle and the PostScript emulation interpreter is the selected interpreter.

Your printer responds and processes a Ctrl+T (x'14') command as normal data and not a status query when:

- Another interpreter is processing a print job.
- The printer is idle and another interpreter is the selected interpreter.

  Notes:

  - Status queries cannot be received while the printer is in an error state.

– Your printer always selects the PostScript emulation interpreter, and processes a Ctrl+T (x'14') command as a status query when receiving data through the LocalTalk interface.

Tagged Binary active

When Tagged Binary is active, your printer always responds to Ctrl+T (x'14') command as a status query and selects the PostScript emulation interpreter to process the current print job. Tagged Binary mode is immediately exited at the end of the print job.

Note: Status queries cannot be received while the printer is in an error state.

Status messages

Your printer responds to a Ctrl+T (x'14') status query on an interface by sending a one-line message back to the host computer over the same interface. If the status query is received between print jobs and the printer is idle with no error conditions, then an idle response is returned to the host computer.

The characters **%%[** and **]%%** enclose the status messages, so the computer software can extract them from other data generated by the current print job. The status message follows a machine-readable format which consists of one or more key plus value pairs separated by semicolons.

Example:

```
%%[job: Project report; status: busy; source: serial]%%
```

To determine which status message keys your printer supports, see the *Technical Reference* for your printer model at **http://support.lexmark.com**.

Key	Value description
job	The name of the print job, as stored in the JobName entry in **statusdict**. If the current print job has no defined JobName, then this field is omitted.
status	Printer activity while sending the message: • Idle—No job in progress • Busy—Executing a PostScript emulation program or printing pages • Waiting—I/O wait in mid-job
source	Source of the job the server is executing: • Serial • Parallel • Network • LocalTalk • Infrared • USB • Internal **Note:** If the server is idle, then the source field is omitted.

Switching languages

SmartSwitch

Setting SmartSwitch for different interfaces

Enable your printer to send particular print jobs to particular interfaces.

For example, sending all PostScript emulation jobs to the network interface and all PCL emulation jobs to the parallel interface. Choose a different language for each interface from the control panel or through MarkVision Enterprise, and then set the selected language to On for the interface you want.

For more information, see the documentation that came with your printer.

If you have turned off a particular language for an interface, but decided to send a job to that interface using that language, begin the job with a PJL command to override the settings.

For example, if you set PCL emulation to Off for the serial interface, but decided to send a job in that language through that interface, then preface the job with a PJL command to override the Off setting. End the job with a Universal Exit Language (UEL) command.

Datastream

Set Initial Condition (SIC) **<ESC>[K** is parsed by the PCL interpreter on a normal command sequence boundary. It is parsed by PostScript after a job boundary. The SIC command allows dynamic switching of the emulation.

Universal Exit Language (UEL) **<ESC>%-12345X** is parsed by all emulators on normal command sequence boundaries in either binary or non-binary mode.

SIC and PJL can be used to switch emulators while in binary mode.

Sniffing

Sniffing is enabled when any End-of-Job point occurs, and is disabled when a SIC or PJL with a valid printer language is received. The printer examines the datastream that is being sent and attempts to determine the type of datastream it is receiving and automatically switches to the proper interpreter.

When various events occur, the printer examines the active printer language on an interface and determines when an End-of-Job point occurs.

The following are the End-of-Job points or events:

- SIC command
- UEL command
- Print timeout
- Wait timeout
- PostScript internal link flushing timeout
- Ctrl+D in PostScript or Tagged Binary
- Sniffing boundary if sniffing is active

- INIT *
- NPA job boundary

Default printer language for an interface port

Default printer language	PS SmartSwitch setting	PCL SmartSwitch setting	NVRAM default printer language
Sniffing	On	On	Not applicable
PS	On	Off	Not applicable
PCL	Off	On	Not applicable
PS	Off	Off	PS
PCL	Off	Off	PCL

Flash memory and hard disk

Resource data collection (download target)

Resource Data Collection command

Use the Resource Data Collection (Download Target) mode to save the following information to a flash memory or hard disk:

- Permanent bitmapped and scalable fonts for PCL emulation
- Permanent macros for PCL emulation macros
- Permanent symbol sets for PCL emulation
- Type 1 fonts for PostScript emulation
- Other PostScript resources

The following commands are valid in any emulation and allows flash collection mode to be turned on or off.

```
<ESC>[K<Ln><Hn><Mode><PID><Cmd>
```

Parameter	Description	Hex code
Mode	Select initialization defaults to retain all resources	0x06
PID	Distinguish the command from a normal ISM 4019 and 4029 LaserPrinters SIC	0xC0
Cmd	Begin Resource Collection	0x31
	End Resource Collection	0x32
	Format flash	0x46
	Print directory	0x50

Storing resources on a flash memory or hard disk

1. Set the download target to flash memory or hard disk.

   Note: Resource Data Collection mode is enabled on the selected device.

2. Download the resources to a flash memory or hard disk using PCL emulation or PostScript emulation.

   Notes:

   - PCL emulation collects and stores the currently defined font, macro, or symbol set information in the RAM. These resources are written to the flash memory or hard disk when Resource Data Collection is disabled, and when a printer language switch occurs.
   - PostScript emulation writes Type 1 fonts or other resources to the flash memory or hard disk after successfully parsing a **definefont** operator.

3. Set Download Target to RAM.

   Note: Resource Data Collection mode is disabled.

Viewing the contents of a flash memory or hard disk

- Send the PJL LPRINTDIRECTORY command. For more information, see “Unique PJL commands” on page 81.
- Select Print Directory from the control panel menus.
- Use the MarkVision Enterprise utility.

The directory lists the storage device (flash memory or hard disk), the names of the files, and the file size.

Example of directory

```
Optional Font Memory Size 1048576 bytes
Part Name:  FLASH
Part Number: (none)
Write password protected

     ID               Type             Size       Prot.           Description
==========   ==================   ========   ========   ========================
1000          PCL bitmap font       32140      W          ITClublnGrphBkOb
1002          PCL bitmap font       52550                 Courier
1003          PCL scalable font     254491                CG Times
              PostScript font       134572                Courier
              User data              1000                  My Program
              Demo                   1000                  My Demo
              Unknown file type      1000                  My Unknown
248           PCL macro             10          R/W
249           PCL macro              10                    mydescription


              9 files               476773 bytes used
                                          0 bytes unavailable
                                    571803 bytes free
```

Optional font memory

Expression used to indicate that a flash memory or hard disk is installed.

Part name

Part Name as it is stored in the flash memory card header. If the printer formats the flash memory, then the part name field is shown as **FLASH**. The part name field for the hard disk is not printed.

Part number

Part Number as it is stored in the flash memory card header. If the printer formats the flash memory, then the part number field is shown as (**none**). The part number field for the hard disk is not printed.

Write password protected

Indicates that the entire flash memory or hard disk is write protected.

If the device is read or write protected, then **"Read/Write password protected"** is printed. If the device is write protected, then **"Write protected"** is printed. If the device is not protected, then this line is blank.

For more information, see "File and device protection commands" on page 87 and "Password protection" on page 128.

ID

Valid for PCL emulation macros, fonts, and symbol sets only. Use the ID when adding a description to a macro or a symbol set. If two files with the same file type have duplicate IDs, then the following occurs:

- If multiple macros or symbol sets have been created with duplicate download IDs, then only the last macro or symbol set is listed. It is the only one that can be selected. On flash memory, the number listed for **bytes unavailable** includes the unlisted macros and symbol sets. The **bytes unavailable** field is not applicable for the hard disk device.
- PostScript emulation fonts, and files created by PostScript emulation file operators, do not have IDs.

Type

File types that can be stored on flash memory or hard disk have unique extensions.

The flash format used on earlier printer models recognizes the following file types. The name of the file type printed in the directory appears in parentheses.

- .t1 (PostScript font)
- .sFnt5 (PCL scalable font)
- .bFnt5 (PCL bitmap font)
- .Mac5 (PCL macro)

Except as noted in the following list, the flash format used in your printer recognizes the file types in the preceding list. In addition, the flash format in your printer also recognizes the following formats:

- .data (user data)—Any file written with PostScript operators
- .type1 (PostScript font)—Replaces the earlier .t1 extension
- .demo (demo—Used for demonstration prints or forms
- .p5scalable (PCL scalable font)
- .p5bitmap (PCL bitmapped font)
- .p5macro (PCL macro)—Replaces the earlier .Mac5 extension
- .p5symset (PCL symbol set)

Usually the PostScript file operators can only read or write files with the extension *.data*. Use the **setfilenameextend** operator to read or write other file types, including *.demo*. Any other file type appears in the list as Unknown File Type. The description column then contains the full file name with the file type (extension).

Size

The size listed for each resource includes the size of the file header.

Protection (Prot.)

Indicates if the file is password protected.

- **R/W**—Read/write protection
- **W**—Write protection

If this field is blank, then this resource in flash memory or hard disk is not password protected. For more information on file protection, see "File and device protection commands" on page 87 and "Password protection" on page 128.

Description

The description field for fonts comes from the font header. The description field for macros or symbol sets is blank unless the description field in the file header is set by the PJL LRESOURCE command. For more information, see "Printer-unique LRESOURCE variables" on page 55.

The description for macros or symbol sets can be set only once for files stored in a flash memory. The description can be set any number of times for macros or symbol sets stored on a hard disk. The limitation for flash files is due to flash technology. For more information, see "Printer-unique LRESOURCE variables" on page 55.

Password protection

Use any of the following to protect your flash memory or hard disk or the files stored on it.

- **Read/Write**—Protects the file or device against reading and writing unless the user specifies the password (applies only to actual file data).
- **Write**—Ensures that data cannot be changed on a file or device unless the user specifies the password. A read/write password takes precedence over a write password.

Each file or device can have a separate password. Write passwords ensure that files cannot be deleted, renamed, or updated. A device cannot be formatted or specified as a download target. Read/write password protection provides the same protection as write, but also ensures that data cannot be read from the file or device.

By using passwords, administrators can ensure data integrity and proper authorization. The PJL commands or the MarkVision Enterprise utility sets, declares, retracts, and deletes the passwords. For more information, see "File and device protection commands" on page 87.

Rewriting the flash memory content

After turning a bit on the flash memory from 1 (binary 1) to 0 (binary 0), it cannot be changed back to binary 1 without formatting the flash memory. As PostScript emulation file operators write data to flash memory, the printer microcode software verifies that none of the bits that are set to binary 1 is binary 0. If a 0 bit is changed back to 1, then a PostScript emulation **ioerror** occurs.

When a device is formatted, all locations are set to binary 1. The formatting causes the descriptions and passwords for the files on flash memory to be set only once.

Accessing files with PostScript emulation

File naming conventions

For any PostScript emulation operator that requires a file name parameter, the file name can be one of the following:

- **%device%filename**—References a file on a particular device. If the file name does not exist on %device%, then no other %device% is accessed for a duplicate file name.
- **filename**—Does not reference a device.

  The following actions occur when a device is not referenced:

  – For the PostScript emulation operator **deletefile**, only the first device in the search order is checked for file name.
  – For all other PostScript emulation operators, and all other combinations of search order and available devices, each installed %device% is checked in the search order for the existence of file name. The operator acts upon the first file name that it finds.

Device names

A device can be a flash memory, hard disk, or ROM. For PostScript emulation, some of the operators require or return device names. These operators are **deletefile, filenameforall, devforall, devdismount, devmount, devformat, devstatus**. The device always begins and optionally ends with a % character. The following are the valid device names:

- **%rom%**
- **%flash%**
- **%flash1%**
- **%disk%**
- **%disk1%**

The same file name can exist on more than one device. The device prefix determines the actual file to use. For example, **%rom%myfile** and**%flash%myfile** designate, respectively, a file called **myfile** both on the ROM and on the flash memory. The device name distinguishes which file to use. Device names are case-sensitive.

Each device (except for the hard disk) has one synonym. For example, the flash memory can be referred to as **%flash%** or **%flash1%**. The name with the **1** is a unique identifier. This system allows for future expansion of multiple flash memory or hard disk devices. The disk device name provides for multiple physical units and multiple logical units. Thus, **%disk1_0%** indicates the first physical unit and the first **(0)** logical partition on the device. Currently, one physical device (for ROM, flash memory, and hard disk) is supported. The hard disk supports only the first **(0)** logical partition.

File names

Each file on a device has a unique name to identify the information contained within the file. The name can be up to 127 characters in length. All character codes from X'01' to X'FF' are valid (X'00' is not valid). File names are case-sensitive. For example, **%flash%myfile** and **%flash%MYFILE** indicate different files on the flash memory.

File name extensions

By default, all files referenced when using the PostScript emulation file operators are given a *.data* extension. For example, if the following PostScript emulation command occurs,

(%flash%myfile) (w) file

the file *myfile.data* is opened on the flash memory.

The *.data* extension is added for the following reasons:

- Enable the Print Directory feature to identify files as PostScript emulation data files.
- Ensure the integrity of files, such as resource collection files and demonstration files.

It is sometimes necessary to access files by their *real* name through PostScript emulation. For example, you may want to remove old versions of PCL language resource collection fonts (without formatting the entire device).

To do this, use the PostScript emulation **setfilenameextend** operator. This operator is in the **statusdict** dictionary.

The value of this operator adds the extension *.data* to all file names referenced when using PostScript emulation file operators. To prevent the *.data* extension from being added, issue the following PostScript emulation command:

```
statusdict begin
false setfilenameextend
end
```

To add the *.data* extension automatically again, issue:

```
statusdict begin
true setfilenameextend
end
```

The following example shows how to remove a file for the font *myfont* from the disk. The PostScript emulation resource collection file name is **myfont.type1**. The PostScript emulation command to remove the file is:

```
statusdict begin
false setfilenameextend
(%disk%myfont.type1) deletefile
true setfilenameextend
end
```

For other file types, see “Type” on page 127.

Note: Enable **setfilenameextend** when possible after you disable it. For example, the following PostScript emulation commands generate an **undefinedfilename** error:

(%disk%iconimage) (w) file dup

(0f0606060686c6ff) writestring closefile

statusdict begin

false setfilenameextend

end

(%disk%iconimage) (r) file

%%[Error: undefinedfilename; OffendingCommand: file]%%

This occurs because the file name actually written is *iconimage.data*. When **setfilenameextend** is enabled (the default), all PostScript emulation file operators treat file name operands as *filename.data*; when disabled, they treat file name operands literally.

If you receive unexpected **undefinedfilename** or similar errors, try toggling **setfilenameextend** and sending your print job again.

Device search order

If you are using the PostScript emulation operators **run, file, renamefile, status,** or **eexec**, then you do not need to specify the device. If you omit the device name, devices are searched in the default order: hard disk, and then flash memory. If the PostScript emulation code **`(myfile) (w) file`** is encountered, then the file on the hard disk is used.

Note: Files cannot be created in ROM.

If a device is not specified, then the operator **deletefile** searches only the first device in the default search order.

Use the PostScript emulation operators **devmount**, **devdismount** to change the order. The order the devices are mounted determines the default search order. For example, if you want to place the disk device after the flash memory in the default search order, then use the following command sequence:

```
(%disk%) devdismount
(%disk%) devmount
```

To change the order so the devices are searched as hard disk, flash memory, and then ROM, use the following PostScript emulation command sequence:

```
(%rom%) devdismount
(%flash%) devdismount
(%disk%) devdismount
(%disk%) devmount
(%flash%) devmount
(%rom%) devmount
```

If the device is already mounted, then the following operators may change the search order:

- **`initializedisk`**
- **`devformat`**
- **`<</InitializeAction>>setdevparams`**

Sending these operators has the following effect on the devices in the search order:

1. If mounted, **`(%device%)`** devdismount.
2. Formats the device.
3. If dismounted in step 1, **`(%device%)`** devmount.

If you do not want a device searched, unmount it and leave it unmounted.

Note: *Do not* leave the ROM device unmounted. All internal fonts are contained on the ROM device.

In the previous examples, use the **devmount** and **devdismount** operators outside the server loop. We recommend that you place the requests in a **stop** context so that if the devices do not exist, error recovery can take place.

Changes made to the search order remain in effect.

Performance

Some performance degradation may occur during initial access to a resource on a hard disk (as opposed to flash memory or RAM). However, the information is put in cache, and further references to that resource occur at RAM speed.

Device performance retrieval speed

Device	Retrieval speed	Write
Hard disk	70KB/second	70KB/second
Flash memory	1MB/second	200KB/second

Job buffering

Creating a partition

Before enabling job buffering for a port, allocate a portion of the hard disk for job buffering functions. The minimum size for a job buffering partition is 10 percent of the hard disk storage space. When a new partition is created, the entire hard disk is formatted. All resources previously downloaded to the hard disk are lost.

Note: After a partition is defined, the hard disk space is reserved for job buffering.

Enabling job buffering

After allocating a partition, job buffering to a hard disk may be enabled for each active link port. You can enable job buffering from the control panel menus or through MarkVision Enterprise. You cannot enable a port before the partition is allocated. When buffering is enabled from the control panel, a power-on reset (POR) automatically occurs. When buffering is enabled through MarkVision Enterprise, perform a full POR before job buffering can occur.

Disabling job buffering

When you disable job buffering, it takes effect immediately on the port that you disabled. A POR occurs when job buffering is disabled for any port. The unused memory resources can be reallocated. When buffering is disabled on a port, any jobs on the hard disk are printed before normal processing of incoming jobs continues.

Note: To delete or resize a job buffer partition, delete or print all jobs, and then disable job buffering on all ports.

Recovering from a power loss

If the printer loses power, then the job being spooled to the hard disk may be lost. Jobs already stored on the hard disk remain intact. When power is restored, you are asked if you want to print the jobs held in the buffer. For more information on how to cancel or print held jobs, see the documentation that came with your printer.

Note: Partially printed jobs are reprinted when power is restored.

Printer interfaces

Setting up the communications port

1. Open the device manager.
2. Configure the following to match your printer settings:
   - Bits per second
   - Data bits
   - Parity
   - Stop bits
   - Flow Control

   Note: For Flow Control, select Hardware to enable DTR protocol or XON/XOFF to enable XON/XOFF protocol.
3. Apply the changes.

Choosing an interface

On some printers, you can attach multiple interface cables at the same time. The printer automatically switches to the interface receiving a job. Then it prints the job and begins searching the interfaces for the next job.

One or more of the following is built into your printer: a standard parallel connector, USB, or network connector. To use a port, connect a cable from the printer to the computer, then set the appropriate values. For more information, see the documentation that came with your printer.

Use a parallel interface when you:

- Attach your printer to a personal computer.
- Attach your printer to a host system with a Centronics-compatible parallel port.
- Attach your printer to a Lexmark external print server.

Use a USB interface when you:

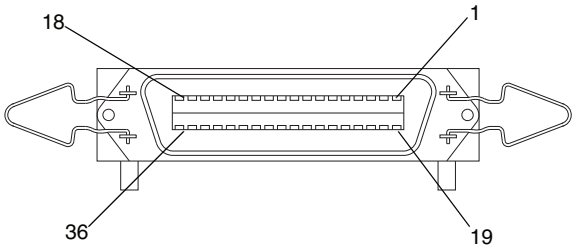
- Attach your printer to a personal computer, iMac, Sun Ray, or Sun Blade.
- Connect the printer to a computer that does not have an available parallel port.
- Attach your printer to a Lexmark external print server.

Note: Attach network cables to Ethernet print servers installed in your printer.

Parallel interface

Standard parallel connector

The standard IEEE 1284-B compliant parallel connector on the printer is a 36-pin D-shell female receptacle, as shown.



INIT* signal

When the printer is using the parallel interface and it receives an INIT* signal, it initializes as follows:

- It prints the data received before INIT*, and then initializes.
- It returns variable defaults to the values stored in the user default settings.
- It returns fixed default settings to the factory values.
- It retains permanent downloaded fonts and macros, but deletes temporary downloaded fonts and macros.
- The link buffer remains intact.
- Variable default paper size settings become the active paper formatting size.
- If paper is loaded with auto size sensing, then the printer resets the default paper formatting size to the size of the paper in the tray.

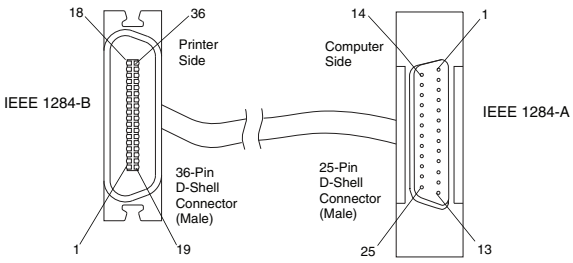
Notes:

- INIT* is not honored when Hex Print is active.
- INIT* causes the parallel interface to go busy. The printer processes INIT* when the parallel interface becomes active and all preceding characters have been processed.

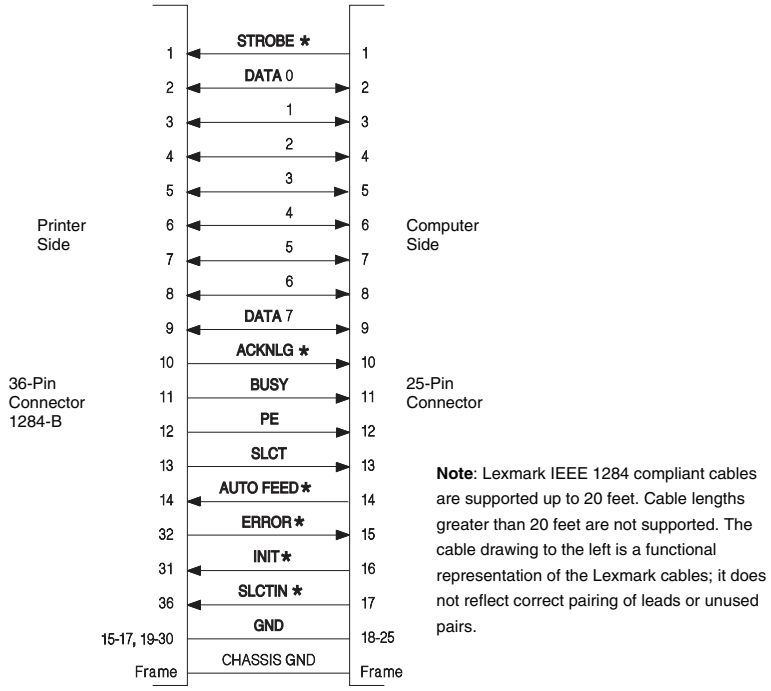
Computer-to-printer communications

Standard parallel connector

The cabling in the following illustration supports Standard and Fastbytes protocols and IEEE 1284 Nibble, Byte, and ECP protocols.



The following illustration shows the pin assignments for connecting the 25-pin connector to the 36-pin connector. The symbol * indicates an active low signal.



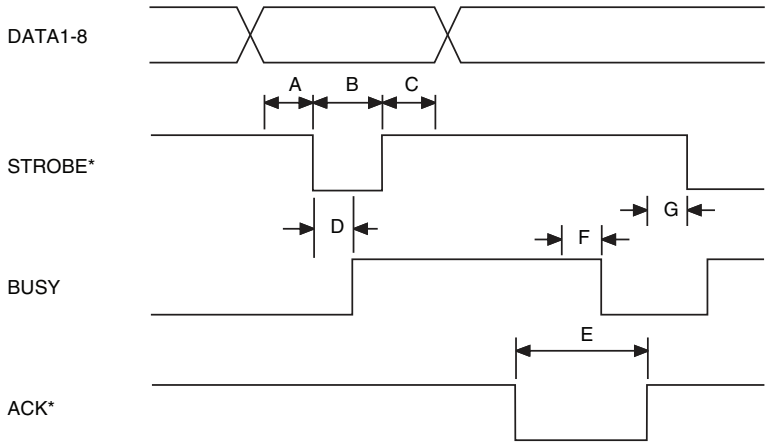
Note: Lexmark IEEE 1284 compliant cables are supported up to 20 feet. Cable lengths greater than 20 feet are not supported. The cable drawing to the left is a functional representation of the Lexmark cables; it does not reflect correct pairing of leads or unused pairs.

The parallel interface consists of an 8-bit parallel data bus with the following characteristics:

- Uses 17 of the 36 positions on the printer connector, as follows:
  - The host system controls 12 lines, which it uses to send data and commands to the printer.
  - The printer controls five lines. The printer uses two lines to notify the computer of successful data transfer, and three lines to report printer status.
- Controls synchronization with an externally supplied STROBE* pulse.
- Controls data flow control with BUSY and ACKNLG* signals. Does not carry out data transfer by ignoring the BUSY or ACKNLG* signal. (The system can carry out data transfer to the printer only when the level of the BUSY signal is low and after confirming the ACKNLG* signal is high.)
- Uses standard transistor-transistor logic (TTL) levels for all interface control signals and input data. Interface conditions are based on TTL levels. All printer outputs are totem-pole TTL devices. All printer input/output (I/O) are devices with an internal pull-up resistor to 5 V. Rise and fall times of each signal must be less than 1,500 nanoseconds (ns) without slope reversal.

Standard protocol data transfer sequence

The following illustration shows the typical data transfer sequence on the parallel interface. For more information on typical parallel interface timings, see “Typical parallel interface timings” on page 136.



The following table shows all protocol timings in nanoseconds.

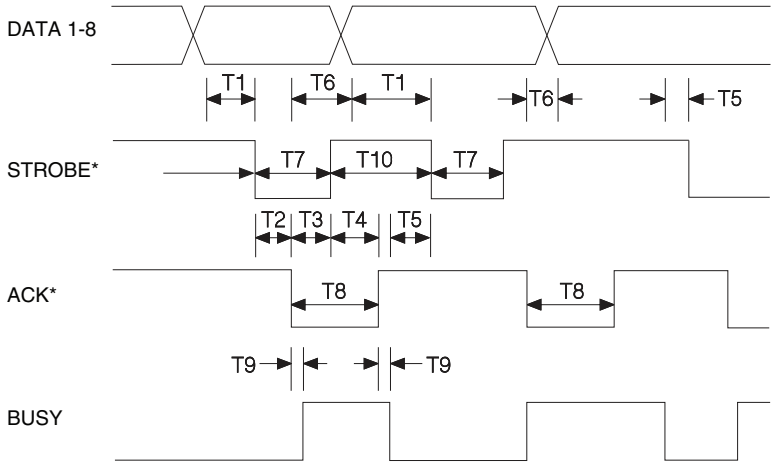
Time	Name	Minimum/Maximum
A	Data setup to STROBE* low	500 min.
B	STROBE* width	500 min.
C	Data hold after STROBE*	500 min.
D	STROBE* low to BUSY high	500 max.
E	ACKNLG* low until ACKNLG* high	500 min.
F	ACKNLG* high to BUSY low[1]	N/A
G	BUSY low and ACKNLG* high to STROBE* low	500 min.
[1] Relationship of ACKNLG* and BUSY is not consistent		

Fastbytes protocol data transfer sequence

The printer is equipped with *Fastbytes* protocol, which is an enhanced parallel interface protocol. Fastbytes protocol may give a faster data transfer time on some personal computers and operating systems. Fastbytes protocol is the printer default.

If there is data transmission problems between the personal computer and the printer, then change the parallel protocol to Standard. This protocol causes the printer to operate in IEEE-compliant compatibility mode.

The following illustration shows the typical timing sequence.



The following table shows all protocol timings in nanoseconds.

Time	Name	Minimum/Maximum
T1	Data setup to STROBE* low	400 min.
T2	STROBE* low to ACKNLG* low	0
T3	ACKNLG* low to STROBE* high	0
T4	STROBE* high to ACKNLG* high	0
T5	ACKNLG* high and BUSY low to STROBE* low	0
T6	ACKNLG* low to change data	50 min.
T7	STROBE* Timeout Max based on Auto Strobe Timer	500 min.
T8	ACKNLG* width Equal to Data Setup Time	400 min.
T9	ACKNLG* to BUSY Skew	+/ - 20 max.
T10	STROBE* high time Equal to Data Setup Time	400 min.

Printer-to-computer communication (Advanced Status)

The printer supports the following mode:

- Compatibility mode
- Nibble mode
- Byte mode
- ECP mode

When a parallel connection exists, the printer also supports a Device ID function. The printer returns the following information when queried for its ID:

- Manufacturer
- Command set
- Printer model

Open a Web browser, and then type **ftp://ftp.lexmark.com/pub/driver/technical_brief/LEXPARAL.EXE** in the address field.

When the Advanced Status menu item is set to On, the printer supports IEEE 1284 communication. If the attached host computer does not support IEEE 1284 communication, then you can turn Advanced Status to Off from the control panel or through MarkVision Enterprise. The SLCTIN* and AUTO FD XT* are ignored.

Note: Excessive device queries and status checks (Nibble and Byte modes) cause slow printer performance.

To get the IEEE 1284 documentation (order number DS02709), contact 1-800-678-IEEE.

Parallel Mode 1

When the host side of the interface is using an open collector driver to transmit data to the printer, set Parallel Mode 1 to Off. This setting increases the reliability of data transfer and equalizes all parallel interface signal impedances. For more information on Parallel Mode 1, see the documentation that came with your printer.

Parallel Mode 2

By default, Parallel Mode 2 is set to On. When set to Off, the printer shows the following behavior:

- The printer changes when data is valid.
- The printer takes data from the host computer at the trailing edge of STROBE.
- The printer automatically turns Advanced Status to Off, eliminating any IEEE 1284 data flow control.

Note: You can turn off Parallel Mode 2 from the control panel, through MarkVision Enterprise, or through a PJL command.

Serial interface

The serial interface allows data to flow back and forth between the computer and the printer. The serial interface transfers data at a slower rate than the parallel interface.

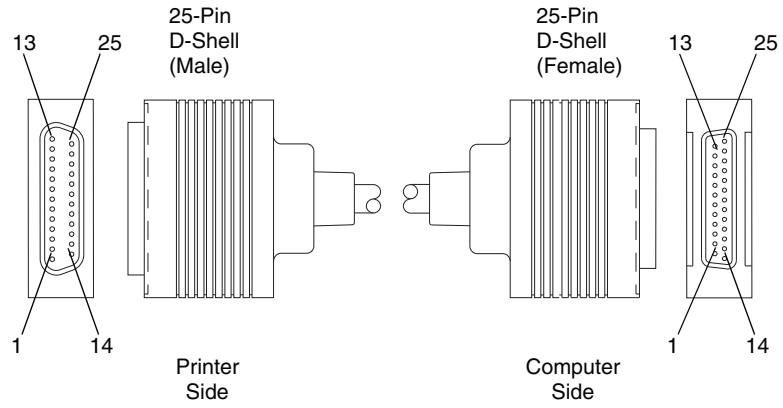
If a serial connector is required, then you may install an RS-232C serial interface card or an external serial adapter. For more information, see the documentation that came with your printer.

The following are differences from the serial interface on some other printers when using the serial interface:

- The printer returns XON/XOFF with two stop bits in all cases.
- The printer does not support DTR inversion.

Using the RS-232C serial interface

RS-232C serial cable pin assignments



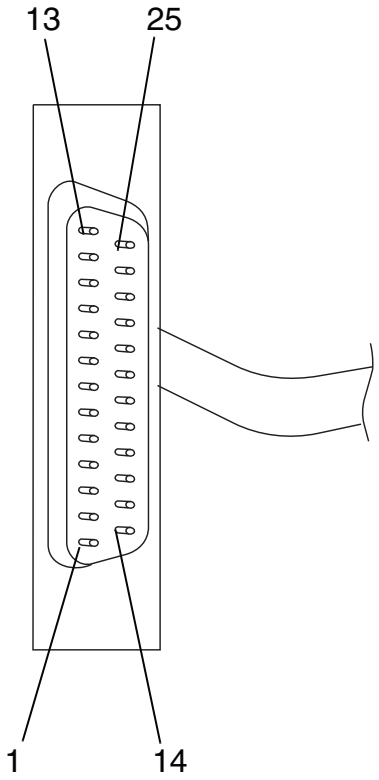
Pin	Signal	Direction	Description
1	GND	N/A	Frame Ground
2	TXD	Out	Transmit Data—Transmits data to your computer or terminal
3	RXD	In	Receive Data—Receives data from your computer or terminal
4	RTS	Out	Request to Send—Sets this signal high and the signal remains high while the printer is on
5	CTS	In	Clear to Send—Optionally used for serial data flow control protocol when in serial mode
6	DSR	In	Data Set Ready—Optionally used for data validation, depending on the Honor DSR setting, or flow control, depending on the serial protocol setting
7	GND	N/A	Logic Ground
20	DTR	Out	Data Terminal Ready—Optionally used for serial data flow control protocol when in serial mode

Using an IBM-compatible personal computer with serial interface RS-232C

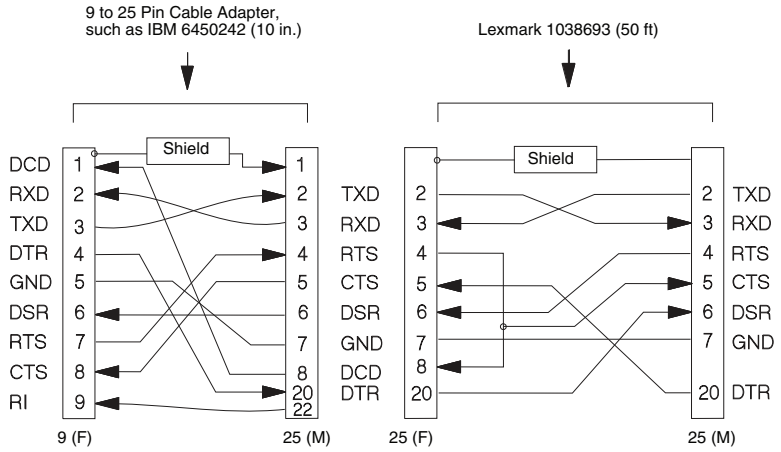
Note: These instructions are for connecting the printer to an IBM-compatible personal computer using a dual asynchronous adapter or an external print server.

If your computer has a 9-pin D shell connector that conforms to the IBM designed 9-pin serial port, use a 9-pin to 25-pin cable, such as IBM Part Number 6450242 (254 mm or 10 inches).

For null modem cables, such as Lexmark part number 1038693 [15.24 m (50 ft)], connect the converter cable to the printer. The illustration represents the 25-pin connectors for the RS-232C cable (1038693).



The following illustration shows the pin assignments for the 9-pin to 25-pin IBM EIA RS-232C serial cables.



Serial communication parameters (RS-232C)

Voltage level range

The maximum voltage level for control lines or data lines is +/- 25 positive V dc and +/- 25 negative V dc. A timing or control line is active if the voltage is more than +3 V, or inactive if the voltage is less than -3 V. The voltage reference point is the signal ground on pin 7.

A data signal greater than +3 V means that the bit is a logical 0. A signal less than -3 V means that the bit is logical 1.

For more information, see *Interface between Data Terminal Equipment and Data Communications Equipment Employing Serial Binary Data Interchange*, published by the Electronic Industries Association, publications EIA RS-232C and EIA\TIA-232-E.

Serial data frame considerations (RS-232C)

The computer sends serial data in data frames (also known as packets). You can create 10-bit, 11-bit, and 12-bit data frames and set the serial data transfer parameter so that each data frame contains 7 or 8 data bits. However, your printer is an 8-bit printer. Characters, controls, and All Points Addressable (APA) graphics need 8 bits of data. If you select 7-bit data transfer, some unexpected characters may print.

Data transmission

The list of acceptable data transfer rates (in bits per second) can be accessed from the control panel or through MarkVision Enterprise. For more information, see the documentation that came with your printer.

Data bits

The printer sends or receives 7 or 8 data bits in each transmission frame, depending on which one is selected.

Start and stop bits

The printer receives data with 1 start bit and either 1 or 2 stop bits. The printer always sends 1 start and 2 stop bits.

Parity

Settings	Description
Odd	The port expects to receive data frames with an odd number of logical 1s per byte. The printer transmits XOFF and XON with odd parity. If the printer detects a parity error, then the port sends X'5F' to the printer instead of the character sent by the host system.
Even	The port expects to receive data frames with an even number of logical 1s per byte. The port transmits XOFF and XON with even parity. If the port detects a parity error, then the port sends an inverted question mark to the printer instead of the character sent by the host system.
None	The port expects no parity bit when it receives data and transmits XON and XOFF without parity bits.
Ignore	The port expects a parity bit when the port receives a data frame. The port ignores the parity bit and uses even parity when it transmits XON and XOFF.

Some printers post a **`54 Standard Serial Error`** or a **`54 Serial Option [x] Error`** (x represents the number of the serial port) the first time they detect a transmission error (parity, overrun, or framing). The errors can be reset from the control panel or through MarkVision Enterprise. For more information, see the documentation that came with your printer.

If repeated serial errors occur, turn off the printer and then turn it back on to restore proper serial operation.

Data flow control

The following lines accomplish data flow control:

- Data Set Ready (DSR)
- Data Terminal Ready (DTR)

Available data flow control protocols:

- DTR pacing
- DTR/DSR
- XON/XOFF
- XON/XOFF/DTR
- XON/XOFF/DTR/DSR

Your printer supports two modes in which both hardware and software data flow control protocols are performed. In XON/XOFF/DTR mode, the printer uses both XON/XOFF and DTR pacing. When XON/XOFF/DTR/DSR mode is active, the printer uses both XON/XOFF and DTR/DSR pacing.

Robust XON may be selected when the data flow control protocol for the serial port is set to XON/XOFF, XON/XOFF/DTR, or XON/XOFF/DTR/DSR pacing. The printer sends a continuous stream of XON signals to the host computer to indicate that the serial port is ready to receive more data.

The following conditions exist when the signals continue:

- No data has been received across the serial port in the last second.
- The host computer accepted the last XON.
- The printer is ready to receive data.

For more information about selecting the protocol from the control panel or through MarkVision Enterprise, see the documentation that came with your printer.

Protocol (RS-232C)

The following table shows the state or function of each serial interface signal in the three data flow control protocols when the Honor DSR setting is On.

Printer	XON/XOFF protocol (Honor DSR on)	DTR protocol (Honor DSR on)	DTR/DSR protocol (Honor DSR on)
DTR	Always active	Flow control to computer	Flow control to computer
DSR	Data validity	Data validity	Flow control (transmit mode) to computer (receive mode)
CTS	Ignored	Flow control from computer	Ignored

The following table shows the state of each serial interface signal in the three data flow control protocols when the Honor DSR setting is Off.

Printer signal	XON/XOFF protocol (Honor DSR off)	DTR protocol (Honor DSR off)	DTR/DSR protocol (Honor DSR off)
DTR (Output)	Always active	Flow control to computer	Flow control to computer
DSR (Input)	Ignored	Ignored[1]	Flow control to computer
CTS (Input)	Ignored	Flow control from computer[1]	Ignored

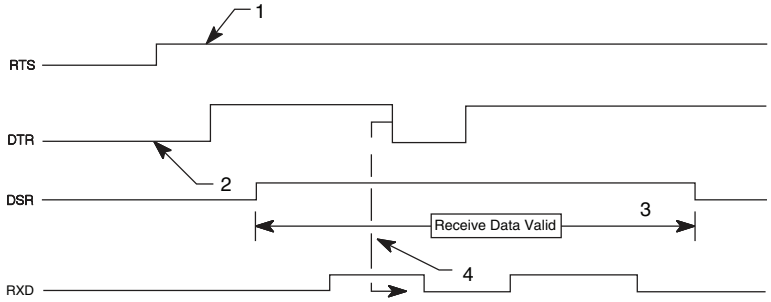
[1] These values are compatible with Hewlett-Packard Company LaserJet printers.

DTR and DTR/DSR protocol timing (RS-232C)

Use DTR to pace the data flow from the computer. DTR goes from high to low to indicate to the computer that the printer cannot receive more data when it detects the following busy conditions:

- Buffer full
- Attendance error
- Printer not in ready state

The following diagram illustrates DTR Protocol Timing.



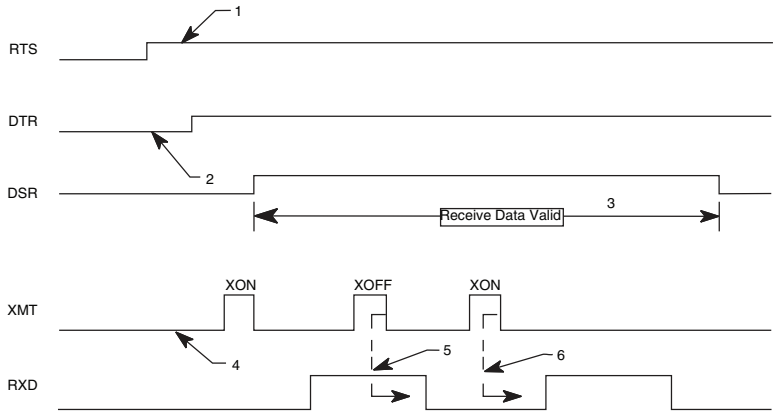
1	The RTS signal is driven active as long as power is supplied to the printer.
2	The DTR signal becomes active when initialization is complete, telling the computer that the printer is ready to receive data.
3	When Honor DSR is On, the printer considers data received invalid when DSR is low and discards the data. Only DTR/DSR is used for flow control from the printer to the host computer.
4	DTR drops to tell the computer that the receive buffer is nearly full or that the printer is busy and that data transmission should stop. About 640 free bytes remain in the buffer at this time. If the computer continues to send data after the printer has sent a low DTR signal, then data could be lost.

XON/XOFF protocol timing (RS-232C)

When you select this data flow control protocol, the printer sends an XOFF signal when it detects the following busy conditions:

- Buffer full
- Attendance error
- Printer not in ready state

The following diagram illustrates XON/XOFF Protocol Timing.



1	The RTS signal is driven active as long as power is supplied to the printer.
2	The DTR signal becomes active at the completion of initialization.
3	The printer considers data received invalid when DSR is low and discards the data. (This is conditional depending on the setting of Honor DSR.)
4	After you power on the printer and DTR is active, the printer sends an XON signal to the computer (DC1 control or X'11'). However, the computer does not need to detect this initial XON before sending data to the printer, because the printer can be powered on before the computer or terminal.
5	The printer sends an XOFF signal (DC3 control or X'13') to request that data transmission end until the buffer clears. About 640 free bytes remain in the buffer at this time. If the computer continues to send data after the printer sent an XOFF signal, then data could be lost.
6	The printer sends an XON signal to the computer when the buffer space is again available. The serial interface is ready to receive more data.

Serial errors

The printer places an underscore character in the link buffer when it detects an error. Some printers also display serial errors on the control panel or through MarkVision Enterprise as attendance messages. Examples of these errors are **54 Standard Serial Error** and **54 Serial Option [x] Error** (x represents the number of the serial port). Serial errors that do not generate such an error message are:

- Serial Break
- Framing error received simultaneously as a Break
- Turning on an IBM-compatible personal computer connected to the printer

Serial computer configuration recommendations (RS-232C)

For correct operation of the serial interface, configure identically your printer and your computer operating system. The following is an example of how to configure DOS for the printer using serial DTR protocol:

DOS:

From the DOS prompt, enter the following commands:

```
mode comy:9600,n,8,1,p
mode lptx :=comy
```

where **x** equals 1, 2, or 3, and **y** equals 1 or 2.

Include these two command statements in the AUTOEXEC.BAT file on the computer so they run each time your system starts operating.

When this is set, use the copy command to copy to the communications port again:

```
copy 'filename' lptx
```

Windows® 95/98/Me/2000, Windows NT 4.0, Windows XP, and Windows Vista®:

Select Hardware in the Flow Control field for correct operation of the RS-232C serial interface while setting up your communications port. For more information, see “Setting up the communications port” on page 133.

RS-232C port compatibility

The RS-232C port (on the RS-232C Serial Interface Card or the RS-232C Serial/Parallel 1284-C Interface Card) is compatible with the Plug and Play External COM Device Draft Specification, Rev. 0.86.

Devices that are compatible with Plug and Play COM can do the following:

- Detect attachment of serial devices
- Identify the device
- Locate a driver for the device
- Detect detachment of serial devices

Network support

The standard network connection or installed network connection enables you to connect your printer to a local area network (LAN). The following network interfaces are offered:

- 10BaseT—Conforms to the IEEE 802.3i standard
- 100BaseTX—Conforms to the IEEE 802.3u standard
- 10BaseFL—Conforms to the IEEE 802.3j standard
- 100BaseFX—Conforms to the IEEE 802.3u standard
- 1000BaseT—Conforms to the IEEE 802.3ab standard
- Wireless—Conforms to the IEEE 802.11b/g standard and the IEEE 802.11n draft 2.0 standard, if applicable

For information on installing a print server in your printer, see the documentation that came with your printer.

Input buffer

The maximum size of the input buffer for each printer interface depends upon the amount of RAM memory installed. The input buffers serve the same purpose as a print spooler. The printer can allocate automatically the input buffers.

Note: The size of the input buffer may be modified or disabled from the control panel menus or through MarkVision Enterprise.

If NPAP is active on a port, two-thirds of the buffer memory are reserved for NPAP and one-third is set aside for the input buffer. If NPAP is not active, all the memory is available for the input buffer.

The following table shows the sizes automatically selected for the buffers when the buffer size is set to Auto in the menus.

Memory size	Parallel buffer size	Serial buffer size	Network buffer size	LocalTalk	USB	Fax
2MB	12K	12K	12K	12K	12K	N/A
4MB	12K	12K	48K	12K	12K	350K
6MB	24K	12K	48K	24K	12K	350K
8, 10, or 12MB	48K	24K	48K	48K	24K	350K
16, 18, or 20MB	48K (1MB if no optional adapter is installed)	24K	1MB	1MB	24K	1MB
24, 28, 32, or 34MB	192K (1MB if no optional adapter is installed)	150K	1MB	1MB	150K	1MB
36, 38, or 40MB	384K (1MB if no optional adapter is installed)	300K	1MB	1MB	300K	1MB
44MB or larger	2MB	300K	2MB	2MB	300K	1MB

Notes:

- On a serial communication, the printer signals the host computer to stop transmitting bytes when the serial input buffer is within 640 bytes.
- Using XON/XOFF protocol, the printer signals the host computer to stop transmitting when the serial input buffer is 384, 256, and 128 bytes from full.

Index

C

commands supported
  PJL, common variables for both languages 43
  PJL, printer-unique variables for LRESOURCE 55
  PJL, printer-unique variables for PostScript emulation 54
  printer-unique variables for PCL emulation 52
commands, supported
  PJL, common variables for PCL emulation 51
  PJL, common variables for PostScript emulation 54
communications port, setting
  printer interfaces 133
creating macros 39

D

Device attendance commands 81

E

EOJ command 42

F

File and device protection commands
  relocking a protected file or device commands 89
  unlocking a protected file or device command 88
  unlocking a protected file or device for a current job commands 89
file and device protection commands 87
  recovering lost passwords 89
flash memory and hard disk
  device search order 131
  disabling job buffering 132
  enabling job buffering 132
  file naming conventions 129
  recovering from a power loss 132
  Resource Data Collection command 125
flash memory and hard disk performance 132
flash memory and hard disk, job buffering
  creating a partition 132
flash memory or hard disk
  example of directory 126
  password protection 128

I

informational messages 80
INIT* signal 134

J

JOB command 42

K

kernel commands 41

M

messages
  PJL, attendance conditions 65
  PJL, auto-continuable conditions 55

P

parallel interface 134
parameters
  PostScript, device 100
  PostScript, system 96
  PostScript, user 93
PCL emulation
  commands 8
  control codes 8
  GL/2 commands 32
  macros 39
  page formatting 6
  Print Area menu 6
  raster compression mode 34
PCL emulations, selecting
  using a software program 6
  using control panel or MarkVision Enterprise 6
  using SmartSwitch 6
PJL commands
  common variables, both languages 43
  common variables, PCL emulation 51
  common variables, PostScript emulation 54
  printer-unique variables, LRESOURCE 55
  printer-unique variables, PCL emulation 52
  printer-unique variables, PostScript emulation 54
PJL commands notation 41
PJL messages
  attendance conditions 65
  auto-continuable conditions 55
  informational messages 80
PostScript
  device parameters 100
  paper tray support 91
  status messages 122
  supported paper size 91
  system parameters 96
  user parameters 93
PostScript emulation
  using a software program 91
  using control panel or MarkVision Enterprise 91
  using SmartSwitch 91
PostScript, status and error messages
  Tagged Binary active 122
  Tagged Binary not active 121
PostScript, supplemental operators
  envelope size and tray support 93
printer interfaces
  choosing an interface 133
  computer-to-printer communications 134
  input buffer 145
  network support 145
  Parallel Mode 1 138
  Parallel Mode 2 138

printer-to-computer communication (Advance Status) 137
serial interface 138
setting up communications port 133
standard parallel connector 134
using the RS-232C serial interface 139
Printer Job Language
command notation 41
device attendance commands 81
file and device protection commands 87
file commands for flash memory or hard disk 84
job separation commands 42
kernel commands 41
recovering lost passwords 89
relocking a protected file or device commands 89
service errors 81
unique commands 81
unlocking a protected file or device command 88
unlocking a protected file or device for a current job commands 89
printer languages and interfaces
technical reference
introduction 5
protecting flash memory or hard disk 128

R

recovering print jobs 132
rewriting the flash memory content 128

S

storing resources on a flash memory or hard disk 125
switching printer languages
datastream 123
default printer language for an interface port 124
setting SmartSwitch for different interfaces 123
sniffing 123

U

unique PJL commands 81

V

viewing the contents of a flash memory or hard disk 126