

# **Software Developer's Manual**

**CPCL Emulation Guide**

**RJ-2035B/RJ-2055WB/RJ-3035B/RJ-3055WB**

**Version 1.00**

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## Table of Contents

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<b>1. Introduction .....</b>	<b>2</b>
<b>2. CPCL Emulation Support Commands .....</b>	<b>3</b>
2.1 Printer Commands.....	3
2.2 Pre-scaled Text .....	3
2.3 Scalable Text .....	4
2.4 Linear Barcode .....	5
2.5 Reduced Space Symbology and Composite Symbols.....	5
2.6 Two Dimensional Barcodes .....	5
2.7 Graphics .....	6
2.8 Advanced Commands .....	7
2.9 Line Print Mode.....	7
2.10 Escape Commands .....	9
<b>Appendix A: Font Specification.....</b>	<b>10</b>
<b>Appendix B: Supported Barcodes .....</b>	<b>11</b>
<b>Appendix C: Line Mode and Page Mode.....</b>	<b>12</b>

# 1. Introduction

CPCL emulation allows RJ Printers to interpret CPCL commands.

## 2. CPCL Emulation Support Commands

### 2.1 Printer Commands

Function	CPCL	Description
Printer Command	<b>!</b> {offset} <200> <200> {height} {qty}	Enter and configure a CPCL label session.
PRINT	<b>PRINT</b>	Terminate a CPCL label session and print the file.
END	<b>END</b>	Terminate a command and execute it without printing.
ABORT	<b>ABORT</b>	Terminate the current control session without printing.
FORM	<b>FORM</b>	Instruct the printer to feed to top of form after printing.
JOURNAL	<b>JOURNAL</b>	Disable the automatic correction of media alignment.
UNITS	<b>IN-INCHES</b>	Set the printer's measurement system to inches.
	<b>IN-CENTIMETERS</b>	Set the printer's measurement system to centimeters.
	<b>IN-MILLIMETERS</b>	Set the printer's measurement system to millimeters.
	<b>IN-DOTS</b>	Set the printer's measurement system to dots.
Adding Comments	<b>;</b>	Remark line. Comments are illegal between the <b>CONCAT</b> and <b>ENDCONCAT</b> commands.

### 2.2 Pre-scaled Text

Function	CPCL	Description
TEXT	<b>TEXT (or T)</b> {font} {size} {x} {y} {data}	Print text horizontally.
	<b>VTEXT (or VT)</b> {font} {size} {x} {y} {data}	Print text vertically, rotated 90 degrees counterclockwise.
	<b>TEXT90 (or T90)</b> {font} {size} {x} {y} {data}	Print text vertically, rotated 90 degrees counterclockwise.
	<b>TEXT180 (or T180)</b> {font} {size} {x} {y} {data}	Print text upside down, rotated 180 degrees counterclockwise.
	<b>TEXT270 (or T270)</b> {font} {size} {x} {y} {data}	Print text vertically, rotated 270 degrees counterclockwise.

Function	CPCL	Description
FONT-GROUP (FG)	<b>FG</b> {fg fn fs} [fn fs] ...	Define font groups.
TEXT CONCATENATION	<b>CONCAT</b> {x} {y} {font} {size} {offset} {data} " "" " {font} {size} {offset} {data} <b>ENDCONCAT</b>	Assign different character styles to strings, printing them with uniform spacing on the same text line.
	<b>VCONCAT</b> {x} {y} {font} {size} {offset} {data} " "" " {font} {size} {offset} {data} <b>ENDCONCAT</b>	Assign different character styles to strings, printing them with uniform spacing on the same text line.
MULTILINE (ML)	<b>MULTILINE (or ML)</b> {height} {text} {font} {size} {x} {y} {data} " "" " {data} <b>ENDMULTILINE</b>	Assign different character styles to strings, printing them with uniform spacing on the same text line.
COUNT	<b>COUNT</b> {numeric value}	Increment or decrement a numeric text field or numeric data encoded in a barcode.
SETMAG	<b>SETMAG</b> {w} {h}	Magnify a resident font to the magnification factor specified.

### 2.3 Scalable Text

Function	CPCL	Description
SCALE-TEXT	<b>SCALE-TEXT (or ST)</b> {name} {width} {height} {x} {y} {data}	Print scaled text horizontally.
	<b>VSCALE-TEXT (or VST)</b> {name} {width} {height} {x} {y} {data}	Print scaled text vertically.
SCALE-TO-FIT	<b>SCALE-TO-FIT (or STF)</b> {name} {width} {height} {x} {y} {data}	Scale horizontal scalable text to fit inside a window.
	<b>VSCALE-TO-FIT (or VSTF)</b> {name} {width} {height} {x} {y} {data}	Scale vertical scalable text to fit inside a window.
SCALABLE CONCATENATION	<b>CONCAT</b> {x} {y} <b>ST</b> {name} {width} {height} {offset} {data} " "" " <b>ST</b> {name} {width} {height} {offset} {data} <b>ENDCONCAT</b>	Assign different character styles to strings, printing them with uniform spacing on the same text line. Both scalable and bitmap text can be combined between a <b>CONCAT/ENCONCAT</b> command. See also <b>Text Concatenation</b> commands.

## 2.4 Linear Barcode

Function	CPCL	Description
BARCODE	<b>BARCODE (or B)</b> {type} {width} {ratio} {height} {x} {y} {data}	Print barcodes in both vertical and horizontal orientations at specified widths and heights.
	<b>VBARCODE (or VB)</b> {type} {width} {ratio} {height} {x} {y} {data}	

**Note:** For more information on the barcode type and ratio, see [Appendix B: Supported Barcode](#).

## 2.5 Reduced Space Symbology and Composite Symbols

Function	CPCL	Description
RSS Barcode	<b>BARCODE (or B) RSS</b> {x} {y} {width} {lin_height} {sep_height} {segments} {subtype} {linear_data 2D_data}  {subtype}: RSS/Composite subtype 1: RSS-14 2: RSS-14 Truncated 3: RSS-14 Stacked 4: RSS-14 Stacked Omnidirectional 5: RSS Limited 6: RSS Expanded 7: UPCA Composite 8: UPCE Composite 9: EAN-13 Composite 10: EAN-8 Composite 11: UCC-128 Composite A/B 12: UCC-128 Composite C	Print a RSS/Composite symbologies.

## 2.6 Two Dimensional Barcodes

Function	CPCL	Description
PDF417	<b>BARCODE (or B) PDF-417</b> {x} {y} [XD n] [YD n] [C n] [S n] {data} <b>ENDPDF</b>	Print a PDF417 barcode.



Function	CPCL	Description
MAXICODE	<b>BARCODE (or B) MAXICODE</b> {x} {y} {tag} {options} "" {tag} {options} <b>ENDMAXICODE</b>	Print a MaxiCode.
QR Code	<b>BARCODE (or B) QR</b> {x} {y} [M n] [U n] {data} <b>ENDQR</b>	Print a QR Code.
Aztec Barcode	<b>BARCODE (or B) AZTEC</b> {x} {y} [XD n] [EC n] {data} <b>ENDAZTEC</b>	Print an Aztec Barcode.

## 2.7 Graphics

Function	CPCL	Description
BOX	<b>BOX</b> {x0} {y0} {x1} {y1} {width}	Insert rectangular shapes and specify their line thickness.
LINE	<b>LINE (or L)</b> {x0} {y0} {x1} {y1} {width}	Draw lines of different length, thickness, and angular orientation.
INVERSE-LINE	<b>INVERSE-LINE (or IL)</b> {x0} {y0} {x1} {y1} {width}	Overdraw an inverse horizontal or vertical line.
GRAPHICS	<b>XPANDED-GRAPHICS (or EG)</b> {width} {height} {x} {y} {data}	Print expanded graphics horizontally.
	<b>VEXPANDED-GRAPHICS (or VEG)</b> {width} {height} {x} {y} {data}	Print expanded graphics vertically.
	<b>COMPRESSED-GRAPHICS (or CG)</b> {width} {height} {x} {y} {data}	Print compressed graphics horizontally.
	<b>VCOMPRESSED-GRAPHICS (or VCG)</b> {width} {height} {x} {y} {data}	Print compressed graphics vertically.
PCX	<b>PCX</b> {x} {y} {data}	Print PCX graphics data.

## 2.8 Advanced Commands

Function	CPCL	Description
CONTRAST	<b>CONTRAST</b> {level} {level}: Contrast level 0: Default 1: Medium 2: Dark 3: Very Dark	Specify the print darkness for the entire label. The <b>tone</b> and <b>CONTRAST</b> commands cannot be used together.
tone	<b>tone</b> {level}: select a value from -99 to 200	Specify the print darkness for all labels. The <b>tone</b> and <b>CONTRAST</b> commands cannot be used together.
CENTER	<b>CENTER</b> [end]	Center all subsequent fields.
LEFT	<b>LEFT</b> [end]	Left-align all subsequent fields.
RIGHT	<b>RIGHT</b> [end]	Right-align all subsequent fields.
PAGE-WIDTH	<b>PAGE-WIDTH (or PW)</b> {width}	Specify the page width.
WAIT	<b>WAIT</b> {delay-time}	Pause after a label is printed.
SPEED	<b>SPEED</b> {speed level}	Set the highest motor speed level.
SETSP	<b>SETSP</b> {spacing}	Change the spacing between text characters. The default spacing is zero.
ON-FEED	<b>ON-FEED</b> {action}	Ignore, form-feed, or reprint the last label when the Feed key is pressed or when it receives the form-feed character (0x0c).
PRESENT-AT	<b>PRESENT-AT</b> {length} {delay}	Position the media on the Tear bar of the printer or at a location where the printed label can be easily removed by the operator.
BEEP	<b>BEEP</b> {beep_length}	Sound the beeper for a given time length.

## 2.9 Line Print Mode

Function	CPCL	Description
BEGIN-PAGE	<b>! U1 BEGIN-PAGE</b> <cr><lf>	Clear line print memory and line print information to initialize a line print session.
END-PAGE	<b>! U1 END-PAGE</b> <cr><lf>	Close a line print session and print the

Function	CPCL	Description
		contents of line print memory.
SETLP	<b>! U1 SETLP</b> {font name or number} {size} {unit height}	Change the font that the printer uses for Line Mode. It also specifies the amount of space the printer will move down when the printer receives a carriage return (hex value 0x0d).
SETLF	<b>! U1 SETLF</b> {unit height}	Change the height of each line without changing the font.
Moving with X and Y Coordinates	<b>! U1 X</b> {unit value}	Even though the printer is in Line Mode, it can still move down and across the paper using the X and Y values.  X: Move right absolute Y: Move down absolute XY: Move right and down absolute RX: Move right relative to the present position RY: Move down relative to the present position RXY: Move right and down relative to the present position
	<b>! U1 Y</b> {unit value}	
	<b>! U1 XY</b> {x unit value} {y unit value}	
	<b>! U1 RX</b> {unit x value to move relative to the present position}	
	<b>! U1 RY</b> {unit y value to move relative to the present position}	
	<b>! U1 RXY</b> {unit x value to move relative to the present position} {unit y value to move relative to the present position}	
LMARGIN	<b>! U1 LMARGIN</b> {dots to offset from left}	Set the left margin in Line Mode.
SETBOLD	<b>! U1 SETBOLD</b> {value}	Set text darkness or width.
SETSP	<b>! U1 SETSP</b> {unit to separate characters}	Change spacing between text characters.
PAGE-WIDTH	<b>! U1 PAGE-WIDTH (or PW)</b> {unit width}	Specify the page width.
SETLP-TIMEOUT	<b>! U1 SETLP-TIMEOUT</b> {time in 1/8 second units}	Print after a delay.

**Note:** For more information about Line Mode, see [Appendix C: Line Mode](#).

## 2.10 Escape Commands

Item	CPCL	Description
Get Printer Status	<b>ESC (0x1b) 'h' (0x68)</b> bit 4: Printer reset bit 3: Battery status bit 2: Latch status bit 1: Paper status bit 0: Printer status	Request a status byte from the printer.
Get Printer Information	<b>ESC (0x1b) 'v' (0x76)</b> bit 4: Paper Jam	Request the printer information.
Get Extended Printer Status	<b>ESC (0x1b) 'i' (0x69)</b>	Request the extended status byte from the printer.
Get User Label Count	<b>ESC (0x1b) 'J' (0x4a) 'R' (0x52)</b> <b>'U' (0x55)</b>	Request the current user label count from the printer.
Reset User Label Count	<b>ESC (0x1b) 'J' (0x4a) 'W' (0x57)</b> <b>'a' (0x61) 'c' (0x63) 'c' (0x63)</b> <b>'N' (0x4e) 'V' (0x56) 'M' (0x4d)</b> <b>'U' (0x55)</b>	Set the label count to zero.
Off	<b>ESC (0x1b) 'p' (0x70)</b>	Shut down the printer.

## Appendix A: Font Specification

The font specifications compatible with RJ Printer CPCL Emulation are as follows:

		Font Name	Font Size
Built-in Font	Fixed Font	0	0 / 1 / 2 / 3 / 4 / 5 / 6
		1	0
		2	0 / 1
		4	0 / 1 / 2 / 3 / 4 / 5 / 6 / 7
		5	0 / 1 / 2 / 3
		6	0
		7	0 / 1

## Appendix B: Supported Barcodes

Select the barcode type and ratio you want when using **BARCODE** command. See [section 2.4: Linear Barcode](#).

{type}

Barcode Name	CPCL
UPC-A	UPCA, UPCA2, UPCA5
UPC-E	UPCE, UPCE2, UPCE5
EAN/JAN-13	EAN13, EAN132, EAN135
EAN/JAN-8	EAN8, EAN82, EAN 85
Code 39	39, 39C, F39, F39C
Code 93/Ext. 93	93
Interleaved 2 of 5	I2OF5
Interleaved 2 of 5 with checksum	I2OF5C
German Post Code	I2OF5G
Code 128 (Auto)	128
UCC EAN 128	UCCEAN128
Codabar	CODABAR, CODABAR16
MSI/Plessey MSI	MSI10, MSI1010, MSI1110
Postnet	POSTNET
FIM	FIM

{ratio}

0 = 1.5 : 1	23 = 2.3 : 1
1 = 2.0 : 1	24 = 2.4 : 1
2 = 2.5 : 1	25 = 2.5 : 1
3 = 3.0 : 1	26 = 2.6 : 1
4 = 3.5 : 1	27 = 2.7 : 1
20 = 2.0 : 1	28 = 2.8 : 1
21 = 2.1 : 1	29 = 2.9 : 1
22 = 2.2 : 1	30 = 3.0 : 1

## Appendix C: Line Mode and Page Mode

Your printer can send CPCL commands in either Page Mode or Line Mode. Make sure that you set the printer to the mode suitable for your print job.

The printer enters Page Mode automatically when you launch the Brother Printer Management Tool (BPM). In this mode you can also change the printer settings.

- To enter Line Mode  
Click **Printer Function > Enter Line Mode** in the BPM.
- To return to Page Mode  
Restart the BPM or click **Printer Function > Exit Line Mode** in the BPM.

### Note:

You can download the Brother Management Tool (BPM) from your model's **Downloads** page at [support.brother.com](http://support.brother.com).

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