

B1. COORDINATE SYSTEM

The measurements of the X- and Y-axis of the coordinates system are by pixels or scanned lines.

The PPLB coordinates system is depicted in Figure B1-1.

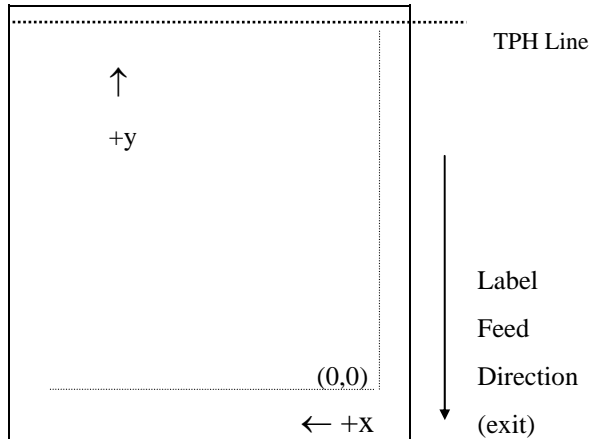


Fig. B1-1 Default Coordinate system

The origin point (0,0) of the coordinates system is at the bottom right corner under default condition (ZT). The origin point remains unchanged, while the texts, bar codes or other objects are being rotated. Negative coordinate value is not accepted. The ranges of X and Y coordinates are:

	Minimum	Maximum
X coordinate	0	811 (for 203 DPI models), or 1299 (for 300 DPI models) around 4 inches
Y coordinate	0	8728(43 inches for 203 DPI models, or 30 inches for 300 DPI models).

B2. COMMAND SYNTAX

All the commands of PPLB consist of one or two alpha characters to identify the specific function and some of them may require one or more additional parameters to supply the printer with sufficient information to complete the command. Each command line must be terminated with a LF (0AH) control code and no space is allowed within it, except in the section of the data string.

Basic Command Syntax

- Syntax I: commands with no parameters

Leading characters	Description
A<LF>	Command with single alpha character
AB<LF>	Command with two alpha characters

- Syntax II: commands with fixed number of parameters

Leading characters	Description
Ap ₁ p ₂ p ₃ ...p _n <LF>	Command with single leading alpha character
ABp ₁ p ₂ p ₃ ...p _n <LF>	Command with two leading alpha characters

- Syntax III: commands with optional parameters

A[p₁p₂p₃...p_n]<LF>

String

This printer language uses data string under the following conditions.

Name	for graphics, soft fonts and forms
Data	for fonts and barcodes
Prompt	An ASCII text that can be transmitted to the KDU (Keyboard Device Unit) or LCD display for X series.

The data string is led and ended by the character (“). The back slash character (\) designates that the character following is a literal and will encode into the data field. Refer to the following examples:

To print	Enter into Data Field
“	\“
\	\\

Notes:

1. The printer ignores <CR> and ctrl-Z (1AH) control codes. Many non-document editors on PC based system send CR and LF when the enter key is pressed. The carriage return (CR) code cannot be used in place of LF.
2. All commands and alpha character command, parameters are case sensitive.

B3. FONTS

This printer language defines three types of fonts according to their stored media.

- Internal Fonts
- Soft Fonts
- Cartridge Fonts

Internal Fonts

Five internal fonts are resident in the printer's ROM and each of them has a unique ID number. Different from the soft fonts, these fonts cannot be deleted.

<i>ID number</i>	<i>Font Size</i>	<i>Remark</i>
1	20 pitches, 6 points.	
2	17 pitches, 7 points.	
3	14.5 pitches, 10 points.	
4	13 pitches, 12 points.	
5	5.6 pitches, 24 points.	Upper case characters only

Soft Fonts

The soft fonts can be downloaded from the host by means of some utility or application software. Once the internal fonts cannot fulfill your requirements, soft fonts may be good solutions.

The advantages of using soft fonts:

- Save memory space (Graphics occupies more memory.)
- Have better performance (They can be called repeatedly.)
- Enable the Auto increment and decrement function
- Same as internal fonts, they can be scaled, rotated or reversed.
- They can be saved into either RAM or flash memory (permanent memory).
- They can be deleted, if no use or the memory space is full.

You can download the numbers of characters as many as you need.

Each soft font also has a unique ID number. By the ID number, the soft font can be downloaded, selected or deleted.

The soft font ID number may range from A to Z.

Cartridge Fonts

The font board or font cartridge is an optional item. The ID numbers reserved for extension cartridge fonts are 7 ~ 10. 7 and 8 are for Chinese fonts, 9 and 10 for Korean fonts.

Symbol Set

The code map (table) can be redefined to another symbol set or code page. Please refer to the user's manual for the code tables, defined by this printer language.

	<i>8-bit Character</i>	<i>7-bit Character</i>
<i>Symbol sets</i>	Code page 437, Code page 850, Code page 852, Code page 860, Code page 863 and Code page 865.	USASCII, British, Danish, French, German, Italian, Spanish, Swedish and Swiss

B4. COMMAND SET

The PPLB command sets can be categorized into the following four groups, according to functions and memory allocations.

- Setting commands
- Label formatting commands
- Interaction commands (through RS232)
- Object Downloading commands

Quick Reference

Command	Description	Command	Description
A	Prints Text	N	Clear Frame Buffer
B	Prints Bar Code	O	Select Options**
b	Prints 2D Bar Code	P	Print Label
C	Counter	PA	Print Automatic
D	Heat Setting**	Q	Set Label and Gap Length**
EI	Prints Soft Font Names	q	Set Label Width**
EK	Deletes Soft Font	R	Set Origin Point**
ES	Downloads Soft Font	S	Set Print Speed**
FE	Ends Form Store	TD	Define Date Layout
FI	Prints Form Names	TS	Set Real Time Clock
FK	Deletes Form	TT	Define Time Layout
FR	Executes Form	U	Print Configuration
FS	Saves Form	UN	Disable Error Report

GG	Prints Graphics	US	Enable Error Report
GI	Prints Graphic List	V	Define Variable
GK	Deletes Graphics	X	Draw Box
GM	Stores Graphics	Y	Setup Serial Port ⁺⁺
GW	Prints Immediate Graphics	Z	Set Print Direction
I	Selects Symbol Set ^{**}	ZS	Enable Store-to-Flash
JB	Disables Back Feed ^{**}	ZN	Disable Store-to-Flash
JF	Enables Back Feed ^{**}	?	Download Variables
LE	Lines Draw by Exclusive	d	Horizontal Shift
LO	Lines Draw by OR		
LW	Draws White Line		

Notes:

^{**} The parameter can be saved into permanent memory E^2PROM , that is, it will remain after the printer is restarted, until it is replaced by different parameter through command.

⁺⁺ The command is not valid for X series.

B5. COMMAND REFERENCE

This section lists all of the commands and their descriptions in alphabetical order.

A	Prints Text
----------	--------------------

Syntax

$A_{p_1,p_2,p_3,p_4,p_5,p_6,p_7}, "DATA" \downarrow$

$A_{p_1,p_2,p_3,p_4,p_5,p_6,p_7}, C_n \downarrow$

$A_{p_1,p_2,p_3,p_4,p_5,p_6,p_7}, V_n \downarrow$

$A_{p_1,p_2,p_3,p_4,p_5,p_6,p_7}, "DATA" C_n \downarrow$

$A_{p_1,p_2,p_3,p_4,p_5,p_6,p_7}, "DATA" V_n \downarrow$

Description Prints a text string, counter or variable.

Parameters

p_1 : X coordinate in dots. p_2 : Y coordinate in dots.

p_3 : Orientation or Print Direction.

p_3 value	Description
0	No rotation (portrait)
1	90° rotation
2	180° rotation
3	270° rotation

p_4 : ID number for font selection

p_4 value	Description
1~5	Selects resident fonts, font number 1 ~ 5. Refer to the startup self-test printout to see the font list.

A ~ Z	Downloaded soft fonts, A ~ Z. Before selecting a soft font, first download it.
-------	--

p₅: Horizontal scale factor.

p₆: Vertical scale factor.

The acceptable values for both p₅ and p₆ are from 1 to 24.

p₇: N for normal text or R for reverse text image.

“DATA”: A text string

Cn: A counter value. Refer to C command.

Vn: A variable string. Refer to V command.

Example

```
N↵
A50,30,0,1,1,1,N,"This is font 1." ↵
A50,70,0,2,1,1,N,"This is font 2." ↵
A50,110,0,3,1,1,N,"This is font 3." ↵
A50,150,0,4,1,1,N,"This is font 4." ↵
A50,200,0,5,1,1,R,"FONT 5"↵
P1↵
```

Output



Fig. B5-1

Notes :

1. All PPLB samples in this manual are printed from the 300 DPI printers.
2. The sub-string of counter and variable can be applied to the A command.

Syntax Vn[st,len]
 Cn[st,len]

Where : n is the counter or variable ID.
 st is the start location (the first location is 0),
 len is the length of the sub-string.

Example V00[0,3] ; A sub-string of variable 0, starting from 0 and length is 3.

B	Prints Bar Code
----------	------------------------

Syntax

Bp₁,p₂,p₃,p₄,p₅,p₆,p₇,p₈,"DATA"↵
 Bp₁,p₂,p₃,p₄,p₅,p₆,p₇,p₈,C_n↵
 Bp₁,p₂,p₃,p₄,p₅,p₆,p₇,p₈,V_n↵
 Bp₁,p₂,p₃,p₄,p₅,p₆,p₇,p₈,"DATA"C_n↵
 Bp₁,p₂,p₃,p₄,p₅,p₆,p₇,p₈,"DATA"V_n↵

Description Prints a specific bar code.

Parameters p₁: X coordinate in dots. p₂: Y coordinate in dots.
 p₃: Orientation or print direction.

<i>p₃ value</i>	<i>Description</i>
0	No rotation (portrait)
1	90° rotation
2	180° rotation
3	270° rotation

p₄: Bar code selection

<i>p₄ Value</i>	<i>Bar Code Type</i>
0	Code 128 UCC (shipping container code)
1	Code 128 subset A, B and C
1E	UCC/EAN
2	Interleaved 2 of 5
2C	Interleaved 2 of 5 with check sum digit
2D	Interleaved 2 of 5 with human readable check digit

2G	German Postcode
2M	Matrix 2 of 5
2U	UPC Interleaved 2 of 5
3	Code 3 of 9
3C	Code 3 of 9 with check sum digit
9	Code 93
E30	EAN-13
E32	EAN-13 2 digit add-on
E35	EAN-13 5 digit add-on
E80	EAN-8
E82	EAN-8 2 digit add-on
E85	EAN-8 5 digit add-on
K	Codabar
P	Postnet
UA0	UPC-A
UA2	UPC-A 2 digit add-on
UA5	UPC-A 5 digit add-on
UE0	UPC-E
UE2	UPC-E 2 digit add-on
UE5	UPC-E 5 digit add-on

p₅: Narrow bar width in pixels. ++

p₆: Wide bar width in pixels. ++

p₇: Bar code height in pixels.

p₈: N - No text is printed or B – The human readable text is printed.

"DATA": A text string.

C_n: A counter value. Refer to C command.

V_n: A variable string. Refer to V command.

Notes: ⁺⁺According to the bar ratio, the bar codes can be classified into two categories.

Type	Ratio	Narrow vs Wide (<i>p5</i> vs <i>p6</i>)	Bar code
B2	1:2 ~ 1:3	narrow < wide	Code 3 of 9, Codabar, Interleaved 2 of 5, Matrix 2 of 5, Postnet and German Postcode.
B3	2 : 3 : 4	narrow=wide. 2 x narrow, 3 x narrow and 4 x narrow.	Code 93, Code 128, EAN8, EAN 13, UPC-A, UPC-E, UCC/EAN and Code 28UCC.

Example

```

N.
B20,20,0,E80,3,3,41,B,"0123459".
B20,120,0,K,3,5,61,B,"A0B1C2D3".
B190,300,2,1,2,2,51,B,"0123456789".
B20,330,0,UA0,2,2,41,B,"13579024680".
P1.

```

Output



Fig. B5-2

Note:

The sub-string of counter and variable can be applied to the B command.

Syntax *Vn*[st,len]
 Cn[st,len]

Where : *n* is the counter or variable ID.
 st is the start location (the first location is 0),
 len is the length of the sub-string.

Example C00[1,2] ; A sub-string of counter 0, starting from 1 and length is 2.

b	Prints 2D Bar Code
----------	---------------------------

Syntax `bp1,p2,p3,[specific parameters and data]↵`

Description Prints a specific 2D bar code.

Parameters `p1`: X coordinate in dots. `p2`: Y coordinate in dots.
 `p3`: 2D bar code type.

<i>p₃ Value</i>	<i>Bar Code</i>
P	PDF-417
M	Maxi Code

Maxi Code `[“CL,CC,PC,Data”]`
 `CL`: Class code, 3 digits.
 `CC`: Country code, 3 digits.
 `PC`: Post code, 4 or 5 digits for USA and 6 characters for
 other countries.
 `Data`: Up to 84 characters.

PDF-417 `[w,v,s,c,p,x,y,r,l,t,o],”Data”`
 `w`: Maximum print width in dots.
 `v`: Maximum print height in dots.
 `s`: Error correction level, 0 ~ 8.
 `c`: Data compression level, 0 or 1. The default value is 0.
 `x`: Module width, 2 ~ 9 in dots.
 `y`: Module height, 4 ~ 99 in dots.
 `r`: Maximum row count.

`l`: Maximum column count.
`t`: Truncation flag, 0=normal and 1=truncated.
`o`: Rotation. 0-0°, 1-90°, 2-180° and 3-270°.

Note: The specifications of PDF-417 and Maxi Code are released by AIM International, Inc..

Example `N↵`
 `b10,10,P,400,300,s0,x3,y7,r10,l2,t0,`
 `→"ARGOXINFO"↵`
 `A10,150,0,3,1,1,N,"ARGOXINFO"↵`
 `P1↵`

Output



ARGOXINFO

Fig. B5-3

C	Counter
----------	----------------

Syntax	Cp ₁ ,p ₂ ,p ₃ ,p ₄ ,"MSG"␣
Description	<p>This command defines a counter variable. It is useful in printing the labels numbered in sequence. In general, it will be used together with the Form function.</p> <p>To print the contents of the counter, you may use A (print text) or B (print bar code) commands.</p>
Parameters	<p>p₁: Counter ID. Acceptable value ranges from 00 to 99.</p> <p>p₂: Maximum digit number. Acceptable values are from 1 to 29.</p> <p>p₃: Justification code. L for left justification, R for right justification, N for no justification and C for centralization.</p> <p>p₄: Amount to increment or decrement the field by. There should be a + or - sign before the step value.</p> <p>“MSG”: A text string that will be sent to KDU or host.</p>

Example	<p>N␣</p> <p>FK"TEST"␣</p> <p>FS"TEST"␣</p> <p>C0,6,N,+1,"Enter Code:"␣</p> <p>A100,100,0,4,1,1,N,"Label: "␣</p> <p>A300,100,0,4,1,1,N,C0␣</p> <p>FE␣</p>
----------------	---

Above example stores a form to the printer. If you retrieve this form and enter the counter value like the following way, the printer will print two labels by the input counter value.

```
FR"TEST"␣
? ␣
1000␣
P2␣
```

Output

Label: 1000

Label: 1001

Fig. B5-4

D	Sets Darkness
----------	----------------------

Syntax	Dp1↵
Description	This command is used to set the print darkness. In general, the proper darkness value is depending on the media, print-out pattern and speed.
Parameters p1:	Darkness. Acceptable values ranges from 0 to 15. The default darkness value is 8.
Example	N↵ D10↵ A100,100,0,3,1,1,N,"DARKNESS=10"↵ P1↵

EI	Prints Soft Font List
-----------	------------------------------

Syntax	EI↵
Description	This command causes the printer to print the list of soft fonts that have been downloaded to RAM or flash memory from the host.
Parameters	None
Example	EI↵
Output	If no soft font exists, the output will be

Soft Font Information:
No Soft Font Stored

Fig. B5-5

If soft fonts with ID C, D, E, F and G are stored in the printer, the output will be

Soft Font Information:
C
D
E
F
G

Fig. B5-6

EK	Deletes Soft Font
-----------	--------------------------

Syntax EK"ID"↵
EK"*"↵

Description This command causes the printer to delete the soft fonts that are currently stored in RAM or flash memory.

Once a soft font is deleted, it cannot be selected or printed out, unless downloaded again.

Parameters ID Font ID, A ~ Z.
* All fonts will be deleted from RAM or flash memory.

Example EK"B"↵
This causes printer to delete a soft font with ID B.

ES	Downloads Soft Font
-----------	----------------------------

Syntax ES"ID"......

Description This command is used to download a soft font and store it in RAM or flash memory. The soft font can be deleted by EK command. If it is stored in RAM, it will be automatically cleared when the printer is turned off. The soft fonts can remain, if you store it in the flash memory.

Refer to the A command for selecting a soft font and printing it.

Parameters ID One upper case letter from A to Z.
......

The basic format of a soft font is

Font Descriptor
Character 0
...
Character N-1

Font Descriptor

Byte 0	0
Byte 1	No. of characters to be downloaded
Byte 2	0
Byte 3	Image height, IV
Byte 4	Width in pixels for space code
Byte 5	0
Byte 6 ~ 0FH	0

Character Parameters and Image

Byte 0	Movement in pixel
Byte 1	Character width in bytes, BW
Byte 2 ~	Image data, the length is BW*IV

Note: No line separator (LF) is required.

Example

```

EK"A" ↵
ES"A" ...
N↵
A50,30,0,A,1,1,N,"SOFT FONT A" ↵
P1↵

```

FE	Ends Form Store
----	-----------------

Syntax FE↵

Description This command is used to end a form store sequence. When the printer receives such command, it will save the form data into RAM or flash memory. The form data is started by FS command and ended by FE command.

Parameters None.

Example FS"FORMA" ↵
...
FE↵

FI	Prints Form List
-----------	-------------------------

Syntax	FI↵
Description	This command causes the printer to print the list of forms that have been downloaded to RAM or flash memory from the host.
Parameters	None
Example	FI↵
Output	If no form exists the output will be

Form Information:
No Form Stored

Fig. B5-7

If the forms with names FORMA, FORMB and FORMC are stored in printer the output will be

Form Information:
FORMA
FORMB
FORMC

Fig. B5-8

FK	Deletes Form
-----------	---------------------

Syntax	FK"FORMNAME"↵ FK"*"↵
Description	This command causes the printer to delete forms currently stored in RAM or flash memory. Once a form is deleted it can not be retrieved and printed except it is reloaded again.
Parameters	FORMNAME: Form name with a maximum of 16 characters. *: All forms will be deleted from RAM or flash memory.
Example	FK " * " ↵ This causes the printer to delete all forms stored in RAM or flash memory.

FR	Executes Form
-----------	----------------------

Syntax	FR"FORMNAME"␣
Description	<p>This command is used to retrieve a form that is currently saved in printer and execute it.</p> <p>The major advantage of using form is that you may retrieve and execute at any time as long as it exists in printer.</p>
Parameters	FORMNAME Form name with a maximum of 16 characters.
Example	<pre>FK"FRMA"␣ ; delete form "FRMA" FS"FRMA"␣ ; start loading a new form A50,30,0,4,1,1,N,"THIS IS FRMA." ␣ FE␣ ; end form store FR"FRMA"␣ ; retrieve and execute Pl␣ ; a copy of form "FRMA"</pre>

Output

THIS IS FRMA.

Fig. B5-9

FS	Stores Form
-----------	--------------------

Syntax	FS"FORMNAME"␣
Description	<p>This command begins a form store sequence until the FE command is received.</p> <p>The destination of storing depends on ZS or ZN command. If flash memory is enabled(ZS) the form will be saved to flash memory, otherwise it is saved to RAM.</p>
Parameters	FORMNAME Form name with a maximum of 16 characters.

- Notes:*
1. When updating a form with the same form name, use the FK command to delete the old one before storing the new one.
 2. Refer to the example at FR command for the whole form related commands.

GG	Prints Graphics
-----------	------------------------

Syntax	GGp ₁ ,p ₂ ,"GNAME"↵
Description	This command is used to print a graphic with PCX format that has been previously downloaded and saved in printer.
Parameters	p ₁ : X coordinate in dots. p ₂ : Y coordinate in dots. GNAME: Graphic name with a maximum of 16 characters.
Example	N↵ GG100,50,"PCXGRAPH"↵ P1↵

GI	Prints Graphic List
-----------	----------------------------

Syntax	GI↵
Description	This command causes the printer to print the list of graphics that had been download to RAM or flash memory from host.
Parameters	None.
Example	GI↵
Output	If no PCX graphics exist the output will be Graphics Information: No Graphics Stored.

Fig. B5-10

If the graphics with names GRAPH A, GRAPH B and GRAPH C are stored in printer the output will be

Graphics Information:
GRAPH A
GRAPH B

Fig. B5-11

GK	Deletes Graphics
-----------	-------------------------

Syntax	GK"GNAME"↵ GK"*"↵
Description	<p>This command causes the printer to delete graphics currently stored in RAM or flash memory.</p> <p>Once a graphic is deleted it can not be retrieved and printed except it is reloaded again.</p>
Parameters	<p>GNAME: Graphic name with a maximum of 16 characters.</p> <p>*: All graphics will be deleted from RAM or flash memory.</p>
Example	<p>GK " * " ↵</p> <p>This causes printer to delete all graphics stored in RAM or flash memory.</p>

GM	Stores Graphics
-----------	------------------------

Syntax	GM"GNAME"p1↵ PCX file
Description	<p>This command causes the printer to store graphics object in RAM or flash memory.</p> <p>The destination of storing depends on ZS or ZN command. If flash memory is enabled(ZS) the graphics will be saved to flash memory, otherwise it is saved to RAM.</p> <p><i>Note: To verify that the graphic was successfully stored you may send a GI command after downloading.</i></p>
Parameters	<p>GNAME: Graphic name with a maximum of 16 characters.</p> <p>p1: The size (decimal) in bytes of PCX files.</p> <p>PCX file: The graphics should be in PCX format.</p> <p>Refer to the appendix for the specification of PCX graphics.</p>
Example	<p>GK " PCXA " ↵</p> <p>GM " PCXA " 3858 ↵</p> <p>...[PCX file for PCXA graphics]...</p> <p>N↵</p> <p>A30,30,0,4,1,1,R,"PCXA..." ↵</p> <p>GG30,100,"PCXA"↵</p>

P1↵
GK " * " ↵

First delete PCXA graphics, download a new one, print some texts and the PCXA. After printing, delete all graphics stored in printer.

Output



Fig. B5-12

GW	Prints Immediate Graphics
----	---------------------------

Syntax	GWp ₁ ,p ₂ , p ₃ ,p ₄ [...raster image...]
Description	<p>This command is used to print a graphic with binary format. Note that the graphic format is not a PCX one. You should send row by row without compression. The ‘1’ represents blank pixel and ‘0’ for black pixel.</p> <p>After printed the graphic image will be cleared immediately. You can not recall or reprint it again.</p>
Parameters	<p>p₁: X coordinate in dots.</p> <p>p₂: Y coordinate in dots.</p> <p>p₃: Byte count in width of a row.</p> <p>p₄: Height in pixels.</p>

I	Selects Symbol Set
----------	---------------------------

Syntax I_{p_1, p_2, p_3}

Description This command is used to select the proper symbol set.
The factory default symbol set is Code page 437 (English).

Parameters p_1 : data bit number. 8 for 8-bit data and 7 for 7-bit data.
 p_2 : Symbol set.
 p_3 : KDU country code.

8 bit data ($p_1=8$)	Symbol Set (Code page)	7 bit data ($p_1=7$)	Symbol set
0	English(437)	0	USASCII
1	Latin 1(850)	1	British
2	Slavic(852)	2	German
3	Portugal(860)	3	French
4	Canadian/French (863)	4	Danish
5	Nordic(865)	5	Italian
		6	Spanish
		7	Swedish
		8	Swiss

Note: See the code table list in the User's manual for additional information, symbols and codes.

Example

N
 $I7, 5, 001$
 $A50, 30, 0, 3, 1, 1, N, "£100"$
 $P1$

This example selects 7 bit data, Italian symbol set.

Output

£100

Fig. B5-13

JB/JF	Disables/Enables Back Feed
--------------	-----------------------------------

Syntax	JB↵ JF↵
Description	This command is used to adjust the stop position. The back feed action is disabled at factory settings. After JF the printer will feed about one more inch so that the user can see the whole label.
Parameters	None.

LE	Line Draw by Exclusive OR Operation
-----------	--

Syntax	LEp ₁ ,p ₂ ,p ₃ ,p ₄ ↵
Description	This command is used to draw a line by an “exclusive OR” operation.
Parameters	p ₁ : X coordinate in dots. p ₂ : Y coordinate in dots. p ₃ : Horizontal length in dots. p ₄ : Vertical height in dots.
Example	N↵ LE50,30,100,10↵ LE100,20,5,110↵ P1↵

Output



Fig. B5-14

LO	Line Draw by OR Operation
-----------	----------------------------------

Syntax	<code>LOp₁,p₂,p₃,p₄↵</code>
Description	This command is used to draw a line by an “OR” operation.
Parameters	<p>p₁: X coordinate in dots.</p> <p>p₂: Y coordinate in dots.</p> <p>p₃: Horizontal length in dots.</p> <p>p₄: Vertical height in dots.</p>
Example	<pre>N↵ LO50,30,100,10↵ LO100,20,5,110↵ P1↵</pre>
Output	



Fig. B5-15

LW	Draws White Line
-----------	-------------------------

Syntax	<code>LWp₁,p₂,p₃,p₄↵</code>
Description	This command is used to draw a white line, so it may erase previous image.
Parameters	<p>p₁: X coordinate in dots.</p> <p>p₂: Y coordinate in dots.</p> <p>p₃: Horizontal length in dots.</p> <p>p₄: Vertical height in dots.</p>
Example	<pre>N↵ LE50,30,100,10↵ LE50,60,100,10↵ LE50,90,100,10↵ LE50,120,100,10↵ LW100,20,5,110↵ P1↵</pre>
Output	



Fig. B5-16

N	Clears Image Buffer
----------	----------------------------

Syntax N,␣

Description This command is used to clear the image buffer before filling any image.

Parameters None.

Note: Since this printer automatically clears the image buffer after a P command is execute, the N command may not be necessary. But for other compatible printers, this command can be accepted to clear the image buffer.

O	Selects Options
----------	------------------------

Syntax O[D,C,N],␣

Description This command is used to select various printer options. In general, it depends on the configuration of your printer.

Parameters D: Enable Direct thermal (without ribbon).
C: Enable cutter.
N: Enable dispenser.

Every time when the printer is started up, the defaults are cutter disabled, and dispenser disabled.

Example O,␣ ; thermal transfer, disables cutter
and dispenser

OD,␣ ; direct thermal, disables cutter and
; dispenser

OC,␣ ; thermal transfer, enables cutter and
; disables dispenser

Notes:

1. The cutter and dispenser cannot be enabled at the same time.

2. *nce the options are incorrectly selected, the LEDs at panel may become blinking after printing. Please refer to the trouble-shooting section to correct the errors.*
3. For X series the thermal transfer and direct thermal are set via DIP switches, not by this command.

P	Prints Label
---	--------------

Syntax	Pp ₁ [,p ₂] _↵
Description	This command is used to output the contents of the image buffer.
Parameters	p ₁ : Number of label sets, 1 ~ 65535. p ₂ : Number of copies per label, 1 ~ 65535.
Example	<pre> FK"TEST"_↵ FS"TEST"_↵ C0,6,N,+1,"Enter Start No.:"_↵ A20,50,0,4,1,1,N,"Label: "_↵ A120,50,0,4,1,1,N,C0_↵ FE_↵ N_↵ Q20,0_↵ FR"TEST"_↵ ?_↵ 100_↵ P2,3_↵ </pre> <p>This example downloads a form and prints 2 label sets with 3 pieces per set.</p>

Output

Label: 100

Label: 100

Label: 100

Label: 101

Label: 101

Label: 101

Fig. B5-17

Fig.B5-17

PA	Prints Automatically
Syntax	PAp ₁ [,p ₂] ↵
Description	This command is used for form application. It prints the form, as soon as all variable data have been input.
Parameters	p ₁ : Number of label sets, 1 ~ 65535. p ₂ : Number of copies per label, 1 ~ 65535.
Example	FK"TEST1 " ↵ FS"TEST1 " ↵ C0,6,N,+1,"Enter Start No.:" ↵ A20,50,0,4,1,1,N,"Label: " ↵ A120,50,0,4,1,1,N,C0 ↵ PA2 ↵ FE ↵ N ↵ Q20,0 ↵ FR"TEST1 " ↵ ? ↵ 100 ↵

Output

Label: 100

Label: 101

Fig. B5-18

Q	Sets Label and Gap Length
---	---------------------------

Syntax	Qp ₁ ,p ₂ ↵
Description	This command is used to set the label and gap length.
Parameters	p ₁ : Form length after the last image line. p ₂ : Gap length. For continuous media(without gap), this field should be set to 0.
Example	N↵ Q100,20↵ A20,30,0,2,1,1,N,"Q command:"↵ A20,60,0,2,1,1,N,"Label with gap"↵ A20,90,0,2,1,1,N,"Gap length: 20 dots"↵ P1↵

Note: If the label size is not properly set, the printer may print off the edge of the label or tag and onto the backing or platen roller, while showing error message.

q	Sets Label Width
----------	-------------------------

Syntax qp₁↵

Description This command sets the label width. This command is an alternative to sending the R command for center labels that are narrower than the print head.

Parameters p₁: Label width in dots.

Example N↵
 q250↵
 A20,30,0,2,1,1,N,"q command:"↵
 A20,60,0,2,1,1,N,"Label width: 250 dots"↵
 P1↵

Note: This command will automatically set the left margin. The incorrect label width will cause the image shift to the left or right, even lost.

R	Sets Origin Point
----------	--------------------------

Syntax R p₁,p₂↵

Description This command moves the origin point for the X and Y axes. After this command is sent, all coordinates are set according to the new origin.

Parameters p₁: Horizontal margin measured in dots.
 p₂: Vertical margin measured in dots.

The print direction commands(ZB and ZT) will affect the location of the origin point. Refer to the Z command for details.

S	Sets Print Speed
----------	-------------------------

Syntax Sp₁↵

Description This command is used to set a particular speed for a label or batch of labels to be printed.

Parameters p₁: A single character (0 to 6) representing a particular speed setting. The range depends on your printer model.

p ₁ Value	Speed
0 or 1	1 ips (25 mmps)
2	2 ips (50 mmps)
3	3 ips (75 mmps)
4	4 ips (100 mmps)
5	5 ips (125 mmps)
6	6 ips (150 mmps)

Example S2↵

The sample above sets the printer to a speed of 2 ips.

TD	Defines date format
-----------	----------------------------

Syntax TD[p1][p2][p3]↵

Description This command defines the date format for printing. You may define special characters as separators.

Parameters p1 : y2 or y4.
p2 : me (month displayed as 3 letters) or mn (2 letters).
p3 : dd (day).

Example TDdd-me-y4↵ ; 07-OCT-2000
TDdd,mn,y4↵ ; 07,10,2000

TT	Defines time format
-----------	----------------------------

Syntax	TT[p1][p2][p3]↵
Description	This command defines the time format for printing. You may define special characters as separators.
Parameters	<p>p1 : h (hours). If a '+' exists the hour is in 12 hour format and 'PM' or 'AM' will be printed.</p> <p>p2 : m (minutes).</p> <p>p3 : s (seconds).</p>
Example	<pre>TTh:m:s↵ ; 13:30:20 TTh/m↵ ; 13/30</pre>

TS	Sets RTC
-----------	-----------------

Syntax	TSp1,p2,p3,p4,p5,p6↵
Description	This command is used to set the RTC if it is installed.
Parameters	<p>p1 : Month, 01 ~ 12.</p> <p>p2 : Day, 01 ~ 30.</p> <p>p3 : Year, 00 ~ 99.</p> <p>p4 : Hour in 24 hour format. 00 ~ 23.</p> <p>p5 : Minutes, 00 ~ 59.</p> <p>p6 : Seconds, 00 ~ 59.</p>
Example	<pre>TS10,06,00,12,30,00↵ ; Sets the time to ; Oct. 6, 00 ; 12:30:00 PM</pre>

U	Prints Configuration
---	----------------------

Syntax U_

Description This command is used to print the printer configuration including settings, firmware version, accessories, etc..

Parameters None.

Example U_

Output

```
Label Printer with Firmware PPLB.S3B0-1.00 072498 13
STANDARD RAM: 524288 BYTES      7 bit data: Italian
EXPANSION RAM: 0 BYTES
AVAILABLE RAM: 357248 BYTES
DIRECT THERMAL
NO. OF DL SOFT FONTS : 0
H. POSITION ADJUST.: 0000
RS232: 8, N, 1P, 9600
CHECKSUM: 0000 0000
```

This is internal font 1. 0123456789 ABCabcXyz

This is internal font 2. 0123456789 ABCabcXyz

This is internal font 3. 0123456789 ABCabcXyz

This is internal font 4. 0123456789 ABCXYZ

THIS IS INTERNAL FONT 5

Fig. B5-19: Printout from OS Series (*The printout pattern depends on the models.*)

```
Label Printer with Firmware PPLB.X2B0-0.5 071898
STANDARD RAM: 2097152 BYTES  8 bit data:
AVAILABLE RAM: 1942080 BYTES Code Page 437
LABEL COUNT: 106
FLASH MEMORY: NONE
H. POSITION ADJUST.: 0000
CHECKSUM: 0000
LAB LEN(TOP TO TOP): 41 mm.  2
MEDIA SENSOR LEVEL: 5
```

DIP SWITCH CONFIGURATION:

BIT	ON..OFF	DESCRIPTION
1	X	DIRECT THERMAL
2	X	EURO MARK DISABLED
3	X	WITHOUT CUTTER
4	X	WITH NORMAL GAP OR CONT.
5	X	RESERVED
6	X	9600: N, 8, 1P. SCANNER
7	X	
8	X	

This is internal font 1. 0123456789 ABCabcXyz

This is internal font 2. 0123456789 ABCabcXyz

This is internal font 3. 0123456789 ABCabcXyz

This is internal font 4. 0123456789 ABCXYZ

THIS IS INTERNAL FNT5

Fig. B5-20: Printout from X series

UN/US	Disables/Enables Error Reporting
--------------	---

Syntax	UN↵ US↵
Description	This command is used to enable/disable the feedback from the printer. The printer send its feedback through the RS232 port. The default is disabled.
Parameters	None.
Example	US↵

If an error occurs the printer will send a NACK(15H), followed by the error number to the host. If no error, the printer will echo an ACK(06H), after a P command is received. For major problems, e.g. media out, the LEDs on the panel of the printer will blink.

Error Code	Description
01	Command parser error
03	Data error for bar code
04	Memory full
06	RS232 error
07	Media or ribbon out

V	Defines Variable
----------	-------------------------

Syntax	Vp ₁ ,p ₂ ,p ₃ ,"MSG"↵
Description	This command defines the variable in forms. This command is useful to print labels numbered in sequence. To print the contents of the variable, you may use A (print text) or B (print bar code) commands.
Parameters	p ₁ : Variable ID. Acceptable values from 00 to 99. p ₂ : Maximum digit number for the variable. Acceptable value ranges from 1 to 99. If you use KDU, the length should be limited under 16. p ₃ : Justification code. L for left justification, R for right justification, N for no justification and C for center alignment. "MSG": A text string that will be sent to KDU or host.
Example	N↵ FK"TEST2"↵ FS"TEST2"↵ V0,16,L,"Enter Title:" ↵ C0,6,N,+1,"Enter Code:" ↵ A100,100,0,4,1,1,N,V0↵ A400,100,0,4,1,1,N,C0↵ FE↵

This example stores a form to the printer, if you retrieve the form and enter the counter and variable with the following procedure, the printer will print two labels with the input data.

```
Q100,0↵
FR"TEST2"↵
?↵
Part Number:↵
1234↵
P1,2↵
```

Output

Part Number: 1234

Part Number: 1234

Fig. B5-21

X	Draws Box
----------	------------------

Syntax	Xp ₁ ,p ₂ ,p ₃ ,p ₄ ,p ₅ ↵
Description	This command is used to draw a box by an “OR” operation.
Parameters	p ₁ : X coordinate of start point in dots. p ₂ : Y coordinate of start point in dots. p ₃ : Thickness of four edges. p ₄ : X coordinate of end point in dots. p ₅ : Y coordinate of end point in dots.

Example	N↵ A50,30,0,4,1,1,R,"BOXES"↵ X50,120,5,250,150↵ X120,100,3,180,280↵ P1↵
----------------	---

Output

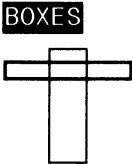


Fig. B5-22

Y	Sets Serial Port
----------	-------------------------

Syntax Yp₁,p₂,p₃,p₄↵

Description This command is used to setup the serial port on the printer for matching with the host. The protocol between the host and the printer should be same otherwise unpredictable results will occur.

Parameters p₁: Baud rate. Acceptable values are:

p ₁ Value	Speed
38	38,400 baud
19	19,200 baud
96	9,600 baud
48	4,800 baud
24	2,400 baud

p₂: Parity. O - odd parity, E - even parity and N - none parity.

p₃: Data bit number, 7 or 8.

p₄: Stop bit number, 1 or 2.

Notes:

1. For some printers p₂, p₃ and p₄ are ignored. The data format for such printers is always 8 bit data, none parity and 1 stop bit.
2. The factory defaults for RS232 are 9600 baud, 8 data bits, none parity and 1 stop bit.
3. This command is not used for those model with DIP switches, For X2000+/X3000+, you can set baud rate via the DIP switches on the rear of the printer.

Example Y19,N,8,1↵

Z	Sets Print Direction
----------	-----------------------------

Syntax Zp₁↵

Description This command is used to set the print direction for all graphics, texts, bar codes, lines and boxes.

Parameters p₁: Direction. Acceptable values are B or T. The graphics, images or texts etc. that are sent from the top are diagonally symmetrical with those sent from the bottom. The default value is T.

Example N↵
ZT↵
A50,30,0,4,1,1,R,"ZT"↵
P1↵

ZN/ZS	Disables/Enables Flash Memory
--------------	--------------------------------------

Syntax ZN↵
 ZS↵

Description This command is used to disable/enable the flash memory. Every time when the printer is turned on, the flash memory is disabled. To enable the flash memory, first install the flash memory board, then send the ZS command.

All PCX graphics, soft fonts and forms can be stored to RAM or flash memory. But the objects that are stored in RAM will be cleared after the printer is turned off.

Example ZS↵
 FK"TEST3"↵
 FS"TEST3"↵
 A100,100,0,4,1,1,N,"Test Flash"↵
 FE↵

If the flash memory is installed and you send the example file, then restart the printer and retrieve the form. The printer will print out the correct result.

FR"TEST3"↵
P1↵

?	Downloads Variables and Counters
----------	---

Syntax ?↵

Description This command is used to inform the printer that the data following are input variables or counter values.

This command is used to send data variables or counters to the printer after a form is stored. The amount of data following the question mark and LF must exactly match with the total number and order of variables and counters in that specific form.

Refer to the C and V commands for examples.

APPENDIX BA: PCX SPECIFICATION

This section contains the basic PCX format that will be accepted by your printer. The raster image data at PCX file are compressed. It reduces the file size and saves the time for communication between the host and the printer.

Note that all of the word (16 bits) or long word (32 bits) data are in Intel formats, i.e. the most significant byte is at highest address.

PCX Header (128 bytes)
First raster line
...
Last raster line

Header

The header includes 128 byte data.

<i>Location</i>	<i>Contents</i>
0H	0AH, PCX mark
1H	Version
2H	0
3H	Bits per pixel, this should be 1.
4H ~ 5H	X coordinate at upper left point, 0.
6H ~ 7H	Y coordinate at upper left point, 0.
8H ~ 9H	X coordinate at lower right point
0AH ~ 0BH	Y coordinate at lower right point

0CH ~ 0DH	Horizontal resolution. Ignored.
0EH ~ 0FH	Vertical resolution. Ignored.
10H ~ 3FH	All 0s
40H	0
41H	Plane no., this should be 1.
42H ~ 43H	Bytes per raster line
44H ~ 45H	0
46H ~ 47H	Horizontal pixel count - 1
48H ~ 49H	Vertical pixel count - 1
4AH ~ 7FH	All 0

Note: The alignment of word or long word for PCX file is at Intel format. That is the most significant bytes is located at highest location and least significant byte is located at lowest location.

Raster Data

There are two types of raster data.

- CC, pattern0
- pattern1

The control byte must be greater than C0H and pattern1 is less than C0H.

rep=CC & 3FH

rep represents the repeat count of pattern0 after expansion. For example, a raster line data,

3AH, C0H, C1H, 41H, 41H, 41H, 41H, 41H

After compression, they become

3AH, **C1H**, C0H, **C1H**, C1H, **C5H**, 41H

1 at pattern byte stands for white pixel and 0 for black pixel. If the width in pixels is not a multiple of 8, the bits of “1” must be filled at the end of each row to form an integral part of bytes.

APPENDIX BB: HOW TO SELECT A FONT FROM FONT BOARD

The font IDs for fonts at font board are 7 ~ 10. 7 and 8 are for Chinese fonts, 9 and 10 for Korean fonts.

Example:

A50,30,0,**7**,1,1,N,"FONT AT FONT BOARD." ↵

Note: For two-byte language, like Chinese a character is composed of two bytes.

APPENDIX BC: HOW TO MAKE A FORM

In general a form contains texts, bar codes and graphics. Some of the fields are fixed, while the others are subject to change. While making a form, you may need to perform some of the following tasks:

- Download graphics
- Download a form
- Define variables and counters
- Set positions for texts, bar codes and graphics
- Retrieve and execute a form

Download graphics

```
GK"LOGO"␣           ; delete the previous one if it exists
GM"LOGO"1024␣        ; start pcx graphics. 1024 is the total
                      ; size of the graphics
...graphics...        ; 1024 does not include LF code, ␣.
```

Refer to the appendix BA for the PCX specification.

Download a Form

```
FK"TICKET"␣          ; delete the previous one if it exists
FS"TICKET"␣          ; start the form store sequence of the
                      ; form "TICKET"
FE␣                  ; end a form sequence
```

Define Variables and Counters

```
V00,15,N,"Start From"␣ ; variable 00 with a maximum length of 15
V01,15,N,"Destination"␣ ; variable 01 for destination
C0,6,N,+1,"Ticket no."␣ ; counter 0, stepped by +1
```

Set Positions

The positions are depending on the label dimension and the output format.

```
q700␣                ; set label width
ZT␣                  ; set print direction
GG50,100,"LOGO"␣      ; place "LOGO" to position x=50, y=100
A100,150,0,4,1,1,N,"From"␣ ; fixed text at x=100, y=150, font 4
A250,150,0,4,1,1,N,"to"␣ ; fixed text at x=250, y=150, font 4
A200,150,0,3,1,1,N,V00␣ ; variable at x=200, y=150, font 3
A415,150,0,3,1,1,N,V01␣ ; variable at x=415, y=150, font 3
B250,200,0,1,3,3,96,B,C0␣ ; counter using code 128 with bar code
                           ; height 96, print digits too
```

Retrieve and Execute

```
FR"TICKET"␣          ; retrieve form "TICKET"
?␣                   ; start download of variables and counter
New York␣             ; V00 value
Mexico␣               ; V01 value
100200␣               ; C0 value
P3,1␣                 ; print 3 label sets, 1 copy of each label
```

Once a form or graphics is stored, you can print labels just by sending a few commands.

Program List

GK"LOGO"↵

GM"LOGO"1024↵

...graphics...

FK"TICKET"↵

FS"TICKET"↵

V00,15,N,"Start From"↵

V01,15,N,"Destination"↵

C0,6,N,+1,"Ticket no." ↵

q700↵

ZT↵

GG50,100,"LOGO"↵

A100,150,0,4,1,1,N,"From"↵

A350,150,0,4,1,1,N,"to"↵

A200,150,0,3,1,1,N,V00↵

A415,150,0,3,1,1,N,V01↵

B250,200,0,1,3,3,96,B,C0↵

FE↵

FR"TICKET"↵

? ↵

New York↵

Mexico↵

100200↵

P3,1↵

APPENDIX BD: ADDITIONAL COMMANDS

There are some extra PPLB commands for special functions on OS, X and G series printers. Their characteristics are

- They can be saved in the printer permanently, unless to be changed or reset via the panel.
- Once the emulation is changed, you had better reset them to factory defaults via the panel.
- They are pseudo commands.
- They are not defined in all printer models. You can set them via panel or DIP switches on X2000+/X3000+/G6000/G7000 printers.

Command	Description	Models
d0,1↵	Enables Euro mark. ++	OS214/204/202/X1000+*
d0,0↵	Disables Euro mark.	* Default: d0,0
d1,__ ↵	Horizontal shift. Where __ is a positive or negative integer, e.g. -100. It is in terms of pixels.	OS214/204/202/X1000+/ 2000+/3000+/G6000/ 7000 Default: d1,0

d5,0␣ d5,1␣	Normal cut (with back-feed). Cut without back-feed.	X2000+/3000+/G6000/ 7000 Default: d5,0
<esc>KX____	Label length of continuous labels when using Label Dr. under Windows. ____ is a 4 digit integer and in terms of pixels.	OS214/204/202/X1000+* * Default: <esc>KX0000
<esc>KI;_	Cut or peel offset. Where _ is a signed byte and in term of pixels.	OS214/204/202/X1000+* * Default: <esc>KI;<00H>
<esc>@0	Clears the flash memory that contains forms, soft fonts or graphics.	OS214/204/202/X1000+/ 2000+/3000+/G6000/ 7000

** : For X2000+/X3000+/G6000/G7000, these functions can be set via panel or DIP switches.

++ : Once the Euro dollar sign is enabled the ‘_’ will be replaced by Euro dollar symbol.

APPENDIX BE: HOW TO SEND THE COMMANDS TO THE PRINTER

If you are using a PC system to edit a command file under MS-DOS, at final stage, you may send it to the printer to get the printout. However, the way that you send the revised file is varied from the computer environment.

1. Suppose you connect the serial cable to COM1:

- Set the baud rate and data format (the default baud rate under DOS is 2400)
- Copy the command file to COM1 port

```
>MODE COM1:9600,N,8,1,P
```

```
>COPY/B CMDFILE COM1:
```

2. Suppose you connect the Centronics cable to LPT1:

- Just copy the command file to LPT1: port

```
>COPY/B CMDFILE LPT1:
```

3. Suppose you connect the serial cable to COM1: and use Quick Basic

- Open a device file and set related parameters
- Run your Basic program

Basic program example:

```
10 OPEN "LPT1" FOR RANDOM AS #1
20 PRINT #1, "q480" ' Label width
30 PRINT #1, "Q40,30" ' Label with gap
40 PRINT #1, "N"
50 PRINT #1, "D8" ' Darkness
60 PRINT #1, "B55,80,0,2,3,7,50,N,"; ' Barcode I25
70 PRINT #1, CHR$(34)+"000851802807"+CHR$(34)
75 ' bar code data="000851802807"
80 PRINT #1, "A110,140,0,3,1,1,N,"; ' Text="0008"
90 PRINT #1, CHR$(34)+"0008"+CHR$(34)
100 PRINT #1, "A220,140,0,3,1,1,N,"; ' Text="518028"
110 PRINT #1, CHR$(34)+"518028"+CHR$(34)
120 PRINT #1, "A50,10,0,4,1,1,R,"; ' Text="Printout:"
130 PRINT #1, CHR$(34)+"Printout:"+CHR$(34)
140 PRINT #1, "P1" ' Single copy
150 END
```

Printout:



Appendix BF : FONTS AND BAR CODES FOR PPLB

Internal Fonts

There are 5 internal fonts for the PPLB emulation.

Each has 6 eight-bit and 9 seven-bit symbol sets. Font 5 does not contain any lower-case characters.

8 bit symbol sets	Code page 437,850,852,860,863 and 865
7 bit symbol sets	USA, British, German, French, Danish, Italian, Spanish, Swedish and Swiss

Font 1

ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz

Font 2

ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz

Font 3

ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz

Font 4

ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz

Font 5

ABCDEFGHIJKLM
NOPQRSTUVWXYZ

Symbol

Code Page 437

```

20-3F:  !"#%&'()*+,-./0123456789:;<=>?
40-5F: @ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_
60-7F: `abcdefghijklmnopqrstuvwxyz
80-9F: ÇüëååååâçëëëïïïÄÅÆæøöôûÿÜÖÇ£ ¢ ¤ ¥ ¦ § ¨ © ª « ¬ ® ¯ ° ± ² ³ ´ µ ¶ · ¸ ¹ º » ¼ ½ ¾
AO-BF: áîóúñÑªº
EO-FF: ß µ

```

Code Page 850

```

20-3F:  !"#$%&'()*+,-./0123456789:;<=>?
40-5F:  @ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_
60-7F:  `abcdefghijklmnopqrstuvwxyz
80-9F:  ÇüëääåäçëëëïïïÄÆæøöüÿÜÖØ f
A0-BF:  áíóúñÑªº½¼ AAA  ¢
C0-DF:  äÅ  ÈÊë ìí  î
E0-FF:  ÓÐÒóðŒ, Û Ü  =¾¼$

```

Code Page 852

```

20-3F:  !"#$%&'()*+,-./0123456789:;<=?
40-5F: @ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_
60-7F: `abcdefghijklmnopqrstuvwxyz
80-9F:  Çüëää ç ë î Æ É öø ÕÜ
A0-BF:  áíóú                ÅÄ
C0-DF:                È É Ê Ë
E0-FF:  ÓÔ        Ù        ` $ %

```

Code Page 860

```

20-3F:  !"#%&'()*+,-./0123456789:;<=>?
40-5F: @ABCDEFGHIJKLMNPOQRSTUVWXYZ[\]^_
60-7F: `abcdefghijklmnopqrstuvwxyz
80-9F: ÇüëääåÀæÊëÏîÄÅÆøöðÙúÏÜø£Ü Ö
AO-BF: áóúñÑªº£ º ½¼
EO-FF:  ß      µ

```

Code Page 863

```

20-3F:  !"#%&'()*+,-./0123456789:;<=>?
40-5F: @ABCDEFGHIJKLMNPOQRSTUVWXYZ[\]^_
60-7F: `abcdefghijklmnopqrstuvwxyz
80-9F: ÇüëÄÅä!çëëëïï=ÀŠÉÊËëÊËüü ÖÜø£U f
AO-BF:  óú î ÿ ¼½¾
EO-FF:  ß µ

```

Code Page 865

```

20-3F:  !"#%&'()*+,-./0123456789:;<=>?
40-5F:  @ABCDEFGHIJKLMNPQRSTUVWXYZ[\]^_
60-7F:  `abcdefghijklmnopqrstuvwxyz
80-9F:  `ćüéàáâäåçèéëëíîïïĀĀĒæĀōōōūÿŸŮŮŮŮ f
A0-BF:  áíóúñÑāōŁ ½¼
E0-FF:  ß      μ      •

```

USASCI I

```
20-3F: !"#$%&'()*+,-./0123456789:;<=>?
40-5F: @ABCDEFGHIJKLMNopqrstuvwxyz[\]^_
60-7F: `abcdefghijklmnopqrstuvwxyz
```

UK

```
20-3F: !"£$%&'()*+,-./0123456789:;<=>?
40-5F: @ABCDEFGHIJKLMNPOQRSTUVWXYZ[\]^_
60-7F: `abcdefghijklmnopqrstuvwxyz
```

German

```
20-3F: !"#$%&'()*+,-./0123456789:;<=>?
40-5F: §ABCDEFGHIJKLMN O PQRST UVWXYZ Ä Ö Ü ^ _
60-7F: `abcdefghijklmnopqrstuvwxyzäöüß
```

French

```
20-3F: !"£$%&'()*+,-./0123456789:;<=>?
40-5F: àABCDEFGHIJKLMNPOQRSTUVWXYZ`ç$^_
60-7F: `abcdefghijklmnopqrstuvwxyzèùè"
```

Danish

```
20-3F: !"#$%&'()*+,-./0123456789:;<=>?  
40-5F: @ABCDEFGHIJKLMNPOQRSTUVWXYZÆØÅÜ_  
60-7F: `abcdefghijklmnopqrstuvwxyzæøåü
```


Italian

20-3F: !"£\$%&'()*+,-./0123456789:;<=>?
40-5F: \$ABCDEFGHIJKLMNPOQRSTUVWXYZ`çé^_
60-7F: `abcdefghijklmnopqrstuvwxyzàòèì

Spanish

20-3F: !"£\$%&'()*+,-./0123456789:;<=>?
40-5F: ¡ABCDEFGHIJKLMNPOQRSTUVWXYZñ¿ü_
60-7F: áabcdefghijklmnopqrstuvwxyzéíóú

Swedish

20-3F: !"£\$%&'()*+,-./0123456789:;<=>?
40-5F: ÉABCDEFGHIJKLMNPOQRSTUVWXYZÄÖÅÜ_
60-7F: éabcdefghijklmnopqrstuvwxyzäöåü

Swiss

20-3F: !"£\$%&'()*+,-./0123456789:;<=>?
40-5F: \$ABCDEFGHIJKLMNPOQRSTUVWXYZäçè^_
60-7F: `abcdefghijklmnopqrstuvwxyzäöüé

Internal Bar Codes

The PPLB support 26 one dimensional bar codes and 2 two dimensional bar codes.

** Code 39 **



C39

** Code 93 **



ARGOX

** Code 128UCC shipping container **



(A2) 3 4567890 123456788 3

** Code 128 **



0123456789

** Codabar **



ABCD

** EAN-8 **



01234596

** EAN-8 2 add-on **



12345670 89

** EAN-8 5 add-on **



98398126 93891

** EAN-13 **



0123456789012

** EAN-13 2 add-on **



71676798787909 98

** EAN-13 5 add-on **



71219192929294 29838

** German postcode **



01234.567.891.23 1

** Int 2 of 5 **



0123456789

** Postnet **



** UCC/EAN **



(12)3456789

** UPC-A **



1 35790 24680 9

** UPC-A 2 add-on **



6 76908 93489 3 59

** UPC-A 5 add-on **



5 98676 12761 4 83754

** UPC-E **



0 438959 0

** UPC-E 2 add-on **



0 432328 0 32

** UPC-E 5 add-on **



0 438959 0 09274

** UPC I25 **



1 23 45678 90122 4

** Maxi Code **



** PDF-417 **

