

## B1. COORDINATE SYSTEM

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

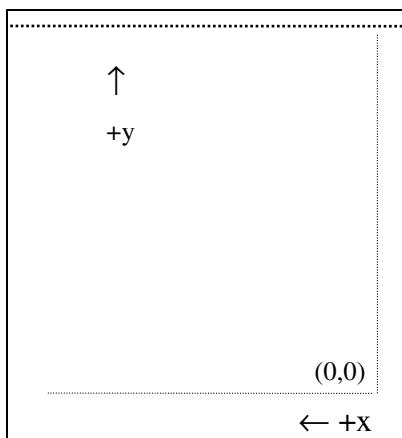


Fig. B1-1 Default Coordinate system

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	It depends on printer models.
Y coordinate	0	It depends on printer models.

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

## 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 <sub>1</sub> ,p <sub>2</sub> ,p <sub>3</sub> ,...,p <sub>n</sub> <LF>	Command with single leading alpha character
ABp <sub>1</sub> ,p <sub>2</sub> ,p <sub>3</sub> ,...,p <sub>n</sub> <LF>	Command with two leading alpha characters

- Syntax III: commands with optional parameters

A[p<sub>1</sub>,p<sub>2</sub>,p<sub>3</sub>,...,p<sub>n</sub>]<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 (IAH) 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’.

	<i>8-bit Character</i>	<i>7-bit Character</i>
<i>Symbol sets</i>	Code page: 437, 737, 850, 851, 852, 855, 857, 860, 861, 862, 863, 865, 866, 869, 1250, 1251, 1252, 1253, 1254, 1255,	USASCII, British, Danish, French, German, Italian, Spanish, Swedish and Swiss

## Cartridge Fonts

The font board or font cartridge is an optional item. The ID numbers reserved for extension cartridge fonts are 7 ~ 12. 7 and 8 are for Chinese fonts. 9 and 10 are for Korean fonts. 11 and 12 are for Japanese fonts. Details regarding the soft font ID and sizes, please refer to page 90 (Appendix BB: How to select a font from font board).

## 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. Details regarding symbol set settings, please refer to page 42: I command (Select Symbol Set).

## 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

<b>Command</b>	<b>Description</b>	<b>Command</b>	<b>Description</b>
A	Print Text	PA	Print Automatically
B	Print 1D Bar Code	Q	Set Label and Gap Length**
B	Print RSS-14 Bar Code (GS1 DataBar)	q	Set Label Width**
b	Print 2D Bar Code	R	Set Origin Point**
C	Counter	S	Set Print Speed**
C	Immediate Cut##	TD	Define Date Format
D	Heat Setting**	TS	Set Real Time Clock
EI	Print Soft Font List	TT	Define Time Format
EK	Delete Soft Font	U	Print Configuration
ES	Download Soft Font	UA	Enable Clear Print Buffer When Media-out/Ribbon-out Occurred##
FE	End Form Store	UB	Disable Clear Print Buffer When

<b>Command</b>	<b>Description</b>	<b>Command</b>	<b>Description</b>
			Media-out/Ribbon-out Occurred##
FI	Print Form List	UE	Soft Fonts Info Through RS232##
FK	Delete Form	UF	Forms Info Through RS232##
FR	Execute Form	UG	Graphics Info Through RS232##
FS	Store Form	UI	Current Codepage Info Through RS232
f	Adjust Cutting Position##	UM	Memory Allocation and Codepage Info Through RS232
GG	Print Graphics	UP	Memory Allocation, Codepage Info Through RS232 Port And Print Configuration##
GI	Print Graphic List	UQ	Printer Configuration Through RS232##
GK	Delete Graphics	US	Enable Error Report **
GM	Store Graphics	UN	Disable Error Report **
GW	Print Immediate Graphics	V	Define Variable
I	Select Symbol Set **	X	Draw Box
JB	Disable Back Feed **	xa	Auto Calibration##
JF	Enable Back Feed **	Y	Set Serial Port++
LE	Line Draw by Exclusive	Z	Set Print Direction
LO	Line Draw by OR	ZS	Enable Store-to-Flash
LW	Draw White Line	ZN	Disable Store-to-Flash
N	Clear Image Buffer	?	Download Variables And Counters
O	Select Options **	^@	Reset Printer##
oR	Euro Character	^ee	Immediate Error Report
P	Print Label	UI	Current Codepage Info Through

Command	Description	Command	Description
		RS232	

**Notes:**

- \*\* The parameter can be saved into permanent memory E<sup>2</sup>PROM, 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.
- ## The command is not valid for 300 DPI printers.

**B5. COMMAND REFERENCE**

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

A	Print Text
---	------------

**Syntax**

```
Ap1,p2,p3,p4,p5,p6,p7,”DATA”↓
Ap1,p2,p3,p4,p5,p6,p7,Cn↓
Ap1,p2,p3,p4,p5,p6,p7,Vn↓
Ap1,p2,p3,p4,p5,p6,p7,”DATA”Cn↓
Ap1,p2,p3,p4,p5,p6,p7,”DATA”Vn↓
```

**Description** Prints a text string, counter or variable.

**Parameters** p<sub>1</sub>: X coordinate in dots. p<sub>2</sub>: Y coordinate in dots.  
p<sub>3</sub>: Orientation or Print Direction.

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

p<sub>4</sub>: ID number for font selection

P <sub>4</sub> 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.
-------	--

p<sub>5</sub>: Horizontal scale factor.

p<sub>6</sub>: Vertical scale factor.

The acceptable values for both p<sub>5</sub> and p<sub>6</sub> are from 1 to 24.

p<sub>7</sub>: 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

```
This is font 1.
This is font 2.
This is font 3.
This is font 4.
FONT 5
```

Fig. B5-1

1. The resident font 5 does not support lower case characters.
2. The sub-string of counter and variable can be applied to the A command.

Syntax      Vn[st,len]↓

Cn[st,len]↓

Parameters    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      FK"TEST"↓

FS"TEST"↓

V00,10,N,""↓

C0,10,N,+1,""↓

A100,100,0,3,1,1,N,V00[2,4]↓

A100,150,0,3,1,1,N,C0[2,3]↓

FE↓

FR"TEST"↓

?↓

ABCDEF↓

12345↓

P3↓

Output

**CDEF**

**345**

**CDEF**

**346**

**CDEF**

**347**

Fig B5-2

B	Print Bar Code																														
<b>Syntax</b>	Bp <sub>1</sub> ,p <sub>2</sub> ,p <sub>3</sub> ,p <sub>4</sub> ,p <sub>5</sub> ,p <sub>6</sub> ,p <sub>7</sub> ,p <sub>8</sub> ,”DATA” Bp <sub>1</sub> ,p <sub>2</sub> ,p <sub>3</sub> ,p <sub>4</sub> ,p <sub>5</sub> ,p <sub>6</sub> ,p <sub>7</sub> ,p <sub>8</sub> ,C <sub>n</sub> Bp <sub>1</sub> ,p <sub>2</sub> ,p <sub>3</sub> ,p <sub>4</sub> ,p <sub>5</sub> ,p <sub>6</sub> ,p <sub>7</sub> ,p <sub>8</sub> ,V <sub>n</sub> Bp <sub>1</sub> ,p <sub>2</sub> ,p <sub>3</sub> ,p <sub>4</sub> ,p <sub>5</sub> ,p <sub>6</sub> ,p <sub>7</sub> ,p <sub>8</sub> ,”DATA”C <sub>n</sub> Bp <sub>1</sub> ,p <sub>2</sub> ,p <sub>3</sub> ,p <sub>4</sub> ,p <sub>5</sub> ,p <sub>6</sub> ,p <sub>7</sub> ,p <sub>8</sub> ,”DATA”V <sub>n</sub>																														
<b>Description</b>	Prints a specific bar code.																														
<b>Parameters</b>	p <sub>1</sub> : X coordinate in dots. p <sub>2</sub> : Y coordinate in dots. p <sub>3</sub> : Orientation or print direction.  <table border="1"> <thead> <tr> <th>p<sub>3</sub> value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>No rotation (portrait)</td> </tr> <tr> <td>1</td> <td>90° rotation</td> </tr> <tr> <td>2</td> <td>180° rotation</td> </tr> <tr> <td>3</td> <td>270° rotation</td> </tr> </tbody> </table> p <sub>4</sub> : Bar code selection <table border="1"> <thead> <tr> <th>p<sub>4</sub> Value</th> <th>Bar Code Type</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>Code 128 UCC (shipping container code)</td> </tr> <tr> <td>1</td> <td>Code 128 auto</td> </tr> <tr> <td>1A</td> <td>Code 128 subset A</td> </tr> <tr> <td>1B</td> <td>Code 128 subset B</td> </tr> <tr> <td>1C</td> <td>Code 128 subset C</td> </tr> <tr> <td>1E</td> <td>UCC/EAN</td> </tr> <tr> <td>2</td> <td>Interleaved 2 of 5</td> </tr> <tr> <td>2C</td> <td>Interleaved 2 of 5 with check sum digit</td> </tr> <tr> <td>2D</td> <td>Interleaved 2 of 5 with human readable check</td> </tr> </tbody> </table>	p <sub>3</sub> value	Description	0	No rotation (portrait)	1	90° rotation	2	180° rotation	3	270° rotation	p <sub>4</sub> Value	Bar Code Type	0	Code 128 UCC (shipping container code)	1	Code 128 auto	1A	Code 128 subset A	1B	Code 128 subset B	1C	Code 128 subset 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
p <sub>3</sub> value	Description																														
0	No rotation (portrait)																														
1	90° rotation																														
2	180° rotation																														
3	270° rotation																														
p <sub>4</sub> Value	Bar Code Type																														
0	Code 128 UCC (shipping container code)																														
1	Code 128 auto																														
1A	Code 128 subset A																														
1B	Code 128 subset B																														
1C	Code 128 subset 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

p<sub>5</sub>: Narrow bar width in pixels. <sup>++</sup>p<sub>6</sub>: Wide bar width in pixels. <sup>++</sup>p<sub>7</sub>: Bar code height in pixels.p<sub>8</sub>: N - No text is printed or B – The human readable text is printed.

“DATA”: A text string.

Cn: A counter value. Refer to C command.

Vn: A variable string. Refer to V command.

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

Type	Ratio	Narrow vs Wide (p5 vs p6)	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.



Fig. B5-3

#### Notes:

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

Syntax      *Vn[st,len]*

*Cn[st,len]*

Parameters    *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

```
N↓
B20,20,0,E80,3,3,41,B,"0123459"↓
B20,120,0,K,3,5,61,B,"A01234D"↓
B190,300,2,1,2,2,51,B,"0123456789"↓
B20,330,0,UA0,2,2,41,B,"13579024680"↓
P1↓
```

#### Output

Example      *FK"TEST"↓*

*FS"TEST"↓*

*V00,10,N,""↓*

*C0,10,N,+1,""↓*

*B100,100,0,3,2,4,51,B,V00[2,4]↓*

*B100,200,0,3,2,4,51,B,C0[2,3]↓*

FE ↵

FR"TEST" ↵  
 ? ↵  
 ABCDEF ↵  
 12345 ↵  
 P3 ↵

Output

**CDEF****345****CDEF****346****CDEF****347**

Fig. B5-4

<b>B</b>	<b>RSS-14 Bar Code (GS1 DataBar)</b>
----------	--------------------------------------

**Syntax** Bp<sub>1</sub>,p<sub>2</sub>,p<sub>3</sub>,p<sub>4</sub>,p<sub>5</sub>,p<sub>6</sub>,p<sub>7</sub>,p<sub>8</sub>,”DATA” ↵

**Description** Prints a RSS-14 bar code (GS1 DataBar).

**Parameters** p<sub>1</sub>: X coordinate in dots. p<sub>2</sub>: Y coordinate in dots.

p<sub>3</sub>: Orientation or print direction.

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

p<sub>4</sub>: Bar code selection

p <sub>4</sub> Value	Bar Code Type
R14	RSS-14 (GS1 DataBar Omnidirectional) <i>Width multiplier: 96 pixels;</i> <i>Min. Height Multiplier: 33 pixels (default)</i>
RL	RSS Limited (GS1 DataBar Limited) <i>Width multiplier: 74 pixels;</i> <i>Min. Height Multiplier: 10 pixels (default)</i>
RS	RSS Stacked (GS1 DataBar Stacked) <i>Width multiplier: 50 pixels;</i> <i>Min. Height Multiplier: 13 pixels (default)</i>
RT	RSS Truncated

	(GS1 DataBar Truncated)  Width multiplier: 96 pixels;  Min. Height Multiplier: 13 pixels (default)
RSO	RSS Stacked Omnidirectional  (GS1 DataBar Stacked Omnidirectional)  Width multiplier: 50 pixels;  Min. Height Multiplier: 69 pixels (default)
REX	RSS Expanded  (GS1 DataBar Expanded)  Width multiplier: 102~534 pixels;  Min. Height Multiplier: 34pixels (default)  Row:1~11

p<sub>5</sub>: Pixel multiplier. Default: 1; Accepted Values: 1-10

p<sub>6</sub>: Segments per row. (Only effective in RSS Expanded)

Default value: 22; Accepted Values: 2-22(even only)

p<sub>7</sub>: Bar code height in pixels.

Default value: refer to parameter p<sub>4</sub>

p<sub>8</sub>: N - No text is printed or B – The human readable text is printed.

“DATA”: A text string. <sup>+</sup>The data format: n...nlp...p

n...n: <sup>+</sup>Value:0~9, numeric ; numeric linear data, length 13.

|: Optional. Vertical bar separates primary data from secondary 2D data.

p...p: 2D data.

Notes: <sup>+</sup>Each barcode has different max. numeric value.

p <sub>4</sub> Value	Max. Numeric Value
R14	9999999999999
RL	1999999999999
RS	9999999999999
RT	9999999999999
RSO	9999999999999
REX	74 digits

### Example1

N↓

```
B100,100,0,R14,2,0,0,B,"19811219"↓
A100,200,0,3,1,1,N,"RSS-14"↓
B100,300,0,RL,2,0,0,B,"4545454545"↓
A100,350,0,3,1,1,N,"RSS Limited"↓
B100,450,0,RS,2,0,0,B,"89121121"↓
A100,520,0,3,1,1,N,"RSS Stacked"↓
B100,600,0,RT,2,0,0,B,"0911006072"↓
A100,660,0,3,1,1,N,"RSS-14 Truncated"↓
B100,720,0,RSO,2,0,0,B,"9876543210"↓
A100,900,0,3,1,1,N,"RSS-14 Stacked Omnidirectional"↓
B100,950,0,REX,2,0,0,B,"87984454546"↓
A100,1050,0,3,1,1,N,"RSS Expanded (Stacked)"↓
B100,1090,0,REX,2,4,0,B,"87984454545"↓
A100,1260,0,3,1,1,N,"RSS Expanded Stacked"↓
P1↓
```

## Output



A100,580,0,3,1,1,N,"RSS Stacked composite"↵  
B100,620,0,RT,4,4,13,B,"0911006072|TEST3"↵  
A100,730,0,3,1,1,N,"RSS-14 Truncated composite"↵  
B100,800,0,RSO,4,4,69,B,"9876543210|TEST4"↵  
A100,1060,0,3,1,1,N,"RSS-14 Stacked Omnidirectional composite"↵  
B100,1120,0,REX,4,4,34,B,"87984454545|TEST5"↵  
A100,1280,0,3,1,1,N,"RSS Expanded (Stacked) composite"↵  
B100,1350,0,REX,4,4,34,B,"87984454545|TEST6"↵  
A100,1520,0,3,1,1,N,"RSS Expanded Stacked composite"↵  
P1↵

## Example2

N↵

B100,100,0,R14,4,4,33,B,"19811219|TEST"↵  
A100,220,0,3,1,1,N,"RSS-14 composite"↵  
B100,280,0,RL,4,4,10,B,"4545454545|TEST1"↵  
A100,390,0,3,1,1,N,"RSS Limited composite"↵  
B100,440,0,RS,4,4,13,B,"89121121|TEST2"↵

**Output**

<b>b</b>	<b>Print 2D Bar Code</b>
----------	--------------------------

**Syntax** bp<sub>1</sub>,p<sub>2</sub>,p<sub>3</sub>,[specific parameters and data] ↴

**Description** Prints a specific 2D bar code.

**Parameters** p<sub>1</sub>: X coordinate in dots.      p<sub>2</sub>: Y coordinate in dots.  
p<sub>3</sub>: 2D bar code type.

p <sub>3</sub> Value	Bar Code
A	Aztec-Specific Options
M	Maxi Code
P	PDF-417
D	Data Matrix
Q or QR	QR Code

**Aztec-Specific Options**

[p4,p5,p6,p7,p8]"Data"

p4: Barcode scale

Default value: 3; Other values: 1~55

p5: Error correction level & Symbol layer

e0 = default value (23% +3 error correction)

e1~e99 = 1%~99% error correction

e101~e104 = 1~4 layers in compacted symbol

e201~e232 = 1~32 layers in full symbol

e300 = Rune symbol

p6: Enable ASCII (DEC 27); the default value is disabling.

- p7: Enable menu support option; the default value is disabling.  
 p8: Mirror image.

**Notes:**

1. Only OS-2140 series, A-2240 series, A-3140 series, X-2300E, X-3200 and CP series support Aztec bar code.

**Example**

```
N↓
b20,20,A,d7,"0123456789"↓
b220,20,A,r,d7,"0123456789"↓
P1↓
```

**Output**

Fig. B5-5

**Output****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.

**Example**

```
N↓
b80,80,M,"003,840,547017051,ARGOXINFO"↓
A120,300,0,4,1,1,N,"ARGOXINFO"↓
P1↓
```

**PDF-417**

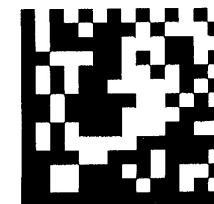
- [w,h,s,c,p,f,x,y,r,l,t,o],”Data”  
 w: Maximum print width in dots.  
 h: Maximum print height in dots.  
 s: Error correction level, 0 ~ 8.  
 c: Data compression level, 0 or 1. The default value is 0.  
 p(xxx,yyy,mm): Print human readable.  
 xxx: horizontal start location.  
 yyy: vertical start location.  
 mm: maximum characters per line.  
 f: Bar code origin point. 0= Upper left corner of barcode.  
 1= Center of barcode (default).  
 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°.

**Example**

```
N↓  
b80,80,P,p180,320,10,f1,x2,y10,r60,110,  
→t0,o0,"ARGOXINFO"↓  
A200,360,0,4,1,1,N,"PDF417"↓  
P1↓
```

**Output**

**ARGOXINFO**



**Output**



Fig. B5-6

**Data Matrix**

[c,r,h,v,o],"Data"

- c: Number of columns.
- r: Number of rows.
- h: Minimum square data module size, 1~40.  
The default value is 5.
- v: Inverse image of barcode.
- o: Rotation. 0-0°, 1-90°, 2-180° and 3-270°.

**Example**

```
N↓  
b120,100,D,h15,o0,"ARGOXINFO"↓  
A120,50,0,4,1,1,N,"ARGOXINFO"↓  
P1↓
```

*Notes:*

1. The specifications of PDF-417, Maxi Code and Data Matrix are released by AIM International, Inc.
2. Only OS-214plus, X-1000v and X-2000v support Data Matrix bar code.

**QR Code**

[p4,p5,p6,p7,p8,p9]"Data"

- p4: Code model -prefix **m**.  
Default value: Model 2  
Other values: 1= Model 1, 2= Model 2
- p5: Barcode scale- prefix **s**  
Default value: 3  
Other values: 1~99

p6: Error correction level- prefix **e**

Default value: M

Other values: L= Lower error correction, most data

M= Default

Q= Optimized for error correction over data

H= Highest error correction, latest data

p7: Data input mode- prefix **i**

Default value: A

Other values: A= Automatic data

M= It depends on initializing the manual date mode  
and the data type is set by the first character in  
the fixed data field.

p8: Append symbol- prefix **D**

Description	Sub-prefix	Values
Symbol	c	01~16
Number		
Divisions	d	01~16
Parity	p	00~FF Hex.

Notes:

2. Parameters from p4~p8 can be omitted.
3. Only OS-214plus, OS-2140, X-1000v, X-2000v and F1 support Data Matrix bar code.

p9: If the parameter p7 is = **iM**, the first character in the data must be one of the following:

N -Numeric (0~9)

A -Alphanumeric (0~9, A~Z, a~z and space, \$, %, \*, +, -, /, :)

K -Kanji

(Shift JIS character ranges 8410-9FFC and E040-EAA4Hex)

B xxxx –For 8-bit byte mode; xxxx is indicate number of characters. (A Simple or Traditional Chinese word is 2 characters)

data: Fixed data field.

Enter into data field	To Print
\"	"
\“TEST\”	“TEST”
\\\	\
\john\\	\john\
\↳	∅

#### Example

N↳  
ZT↳  
q832↳  
Q629,24↳  
JB↳  
D8↳  
S4↳  
OD↳  
b100,100,Q,"\\立象科技\\\"↳  
b100,300,Q,"小明伙"↳  
b250,100,Q,"\\123456\\\"↳  
b250,300,Q,"ABCDEFG"↳  
b400,100,Q,"立象 123 科 ABC 技"↳  
b400,300,Q,"小明 [ ] %\$伙\\ \\\"↳  
b550,100,Q,"\$%\*+-.: " ↳  
A500,300,0,3,1,1,N,"QR Code"↳  
P1↳

#### Output



QR Code

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

**Syntax** Cp<sub>1</sub>,p<sub>2</sub>,p<sub>3</sub>,p<sub>4</sub>,”MSG”↓

**Description** 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.

To print the contents of the counter, you may use A (print text) or B (print bar code) commands.

**Parameters**  
 p<sub>1</sub>: Counter ID. Acceptable value ranges from 00 to 99.  
 p<sub>2</sub>: Maximum digit number. Acceptable values are from 1 to 29.  
 p<sub>3</sub>: Justification code. L for left justification, R for right justification, N for no justification and C for centralization.  
 p<sub>4</sub>: Amount to increment or decrement the field by. There should be a + or - sign before the step value.  
 “MSG”: A text string that will be sent to KDU or host.

**Example**  
 N↓  
 FK"TEST"↓  
 FS"TEST"↓  
 C0,6,N,+1,"Enter Code:" ↓  
 A100,100,0,4,1,1,N,"Label: " ↓  
 A300,100,0,4,1,1,N,C0↓  
 FE↓

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. B5-8

<b>C</b>	<b>Immediate Cut</b>
----------	----------------------

**Syntax**      C↵

**Description**      This command is used to rotate cutter once to immediately cut the media. Also, it can be used to immediately cut without media installed to adjust and clean the cutter blade.

**Parameters**      None.

**Example**      C↵

*Notes:*

1. *This command can not be used inside a form.*  
*Within a form, character C represents counter command function.*
2. *The cutter must be installed.*

<b>D</b>	<b>Set Darkness</b>
----------	---------------------

**Syntax** Dp<sub>1</sub>↔

**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** p<sub>1</sub>: 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↔

<b>EI</b>	<b>Print Soft Font List</b>
-----------	-----------------------------

**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. B5-9

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. B5-10

<b>EK</b>	<b>Delete Soft Font</b>
-----------	-------------------------

**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.

<b>ES</b>	<b>Download Soft Font</b>
-----------	---------------------------

**Syntax**    ES"ID"...<font data>..."

**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 be kept, if they are stored 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.  
...<font data>..."

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"á" ↴
ES"á"...
N ↴
A50,30,0,a,1,1,N,"SOFT FONT á" ↴
P1 ↴
```

FE	End Form Store
----	----------------

**Syntax** FE ↴

**Description** This command is used to end a form store sequence. Once 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 ↴

<b>FI</b>	<b>Print Form List</b>
-----------	------------------------

**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. B5-11

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

```
Form Information:  
FORMA  
FORMB  
FORMC
```

Fig. B5-12

<b>FK</b>	<b>Delete Form</b>
-----------	--------------------

**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.

*Note: "Delete form" and "store form" will affect flash memory life.***Parameters** FORMNAME: Form name with a maximum of 9 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.

<b>FR</b>	<b>Execute Form</b>
-----------	---------------------

**Syntax** FR"FORMNAME"↓

**Description** This command is used to retrieve a form that is currently saved in printer and execute it.

The major advantage of using form is that you may retrieve and execute at any time as long as it exists in printer.

**Parameters** FORMNAME Form name with a maximum of 9 characters.

**Example**

```

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
P1↓                ; a copy of form "FRMA"

```

**Output**

THIS IS FRMA.

<b>FS</b>	<b>Store Form</b>
-----------	-------------------

**Syntax** FS"FORMNAME"↓

**Description** This command begins a form store sequence until the FE command is received.

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.

*Note: "Delete form" and "store form" will affect flash memory life.*

**Parameters** FORMNAME Form name with a maximum of 9 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.

Fig. B5-13

<b>f</b>	<b>Adjust Cutting Position</b>
----------	--------------------------------

**Syntax**      fp<sub>1</sub>↵

**Description**    This command is used to adjust the cutting position. Due to media differences, when cutter function is enabled, use this command to have the printer cut the media in more precise position.

**Parameters**    p<sub>1</sub>: Cut position measured in dots. Acceptable range: 070 to 130.  
The default value is 100.

**Example**      f100↵

<b>GG</b>	<b>Print Graphics</b>
-----------	-----------------------

**Syntax**      GGp<sub>1</sub>,p<sub>2</sub>,”GNAME”↵

**Description**    This command is used to print a graphic with PCX format that has been previously downloaded and saved in printer.

**Parameters**    p<sub>1</sub>: X coordinate in dots.  
p<sub>2</sub>: Y coordinate in dots.  
GNAME: Graphic name with a maximum of 8 characters.

**Example**      N↵  
GG100, 50, ”PCXGRAPH”↵  
P1↵

<b>GI</b>	<b>Print Graphic List</b>
-----------	---------------------------

**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. B5-14

If the graphics with names GRAPHA, GRAPHB and are stored in printer the output will be

```
Graphics Information:  
GRAPHA  
GRAPHB
```

Fig. B5-15

<b>GK</b>	<b>Delete Graphics</b>
-----------	------------------------

**Syntax** GK"GNAME"↓  
GK"\*\*"↓**Description** This command causes the printer to delete graphics currently stored in RAM or flash memory.

Once a graphic is deleted it can not be retrieved and printed except it is reloaded again.

*Note: "Delete graphics" and "store graphics" will affect flash memory life.***Parameters** GNAME: Graphic name with a maximum of 8 characters.  
\*: All graphics will be deleted from RAM or flash memory.**Example** GK"\*\*"↓

This causes printer to delete all graphics stored in RAM or flash memory.

GM	Store Graphics
----	----------------

**Syntax**      GM"GNAME"p<sub>1</sub>  
PCX file

**Description**    This command causes the printer to store graphics object in RAM or flash memory.

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.

*Note1:* To verify that the graphic was successfully stored you may send a GI command after downloading.

*Note2:* “Delete graphics” and “store graphics” will affect flash memory life.

**Parameters**    GNAME: Graphic name with a maximum of 8 characters.  
p<sub>1</sub>: The size (decimal) in bytes of PCX files.  
PCX file: The graphics should be in PCX format. Refer to the Appendix BA for the specification of PCX graphics.

**Example**      GK"PCXA"  
GM"PCXA"3858  
...[PCX file for PCXA graphics]...

N<sub>1</sub>  
A30,30,0,4,1,1,R,"PCXA..."  
GG30,100,"PCXA"  
P1  
GK" \* "  
P1

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

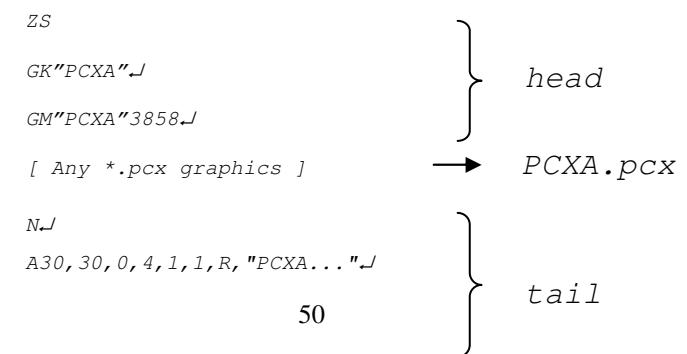
### Output



Fig. B5-16

Notes:

1. The example of storing and recalling PCX graphics under Dos prompt is as below:  
copy/b head+PCXA.pcx+tail LPT1: ; send this three files to the printer



GG30, 100, "PCXA" ↵  
 P1 ↵

<b>GW</b>	<b>Print Immediate Graphics</b>
-----------	---------------------------------

**Syntax**      GWp<sub>1</sub>,p<sub>2</sub>, p<sub>3</sub>,p<sub>4</sub>,[...raster image...] ↵

**Description**      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.

After being printed the graphic image will be cleared immediately.  
 You can not recall or reprint it again.

**Parameters**      p<sub>1</sub>: X coordinate in dots.  
 p<sub>2</sub>: Y coordinate in dots.  
 p<sub>3</sub>: Graphic width in bytes.  
 p<sub>4</sub>: Height in pixels.

I	Select Symbol Set																																																				
Syntax	Ip <sub>1</sub> ,p <sub>2</sub> ,p <sub>3</sub> ↓																																																				
Description	<p>This command is used to select the proper symbol set.</p> <p>The factory default symbol set is Code page 437 (English).</p>																																																				
Parameters	<p>p<sub>1</sub>: data bit number. 8 for 8-bit data and 7 for 7-bit data.</p> <p>p<sub>2</sub>: Symbol set.</p> <p>p<sub>3</sub>: KDU country code.</p> <table border="1" data-bbox="280 595 936 1436"> <thead> <tr> <th>8 bit data (p<sub>1</sub>=8)</th><th>Symbol Set (Code page)</th><th>7 bit data (p<sub>1</sub>=7)</th><th>Symbol set</th></tr> </thead> <tbody> <tr><td>0</td><td>English (437)</td><td>0</td><td>USASCII</td></tr> <tr><td>1</td><td>Latin 1 (850)</td><td>1</td><td>British</td></tr> <tr><td>2</td><td>Slavic (852)</td><td>2</td><td>German</td></tr> <tr><td>3</td><td>Portugal (860)</td><td>3</td><td>French</td></tr> <tr><td>4</td><td>Canadian/French (863)</td><td>4</td><td>Danish</td></tr> <tr><td>5</td><td>Nordic (865)</td><td>5</td><td>Italian</td></tr> <tr><td>6</td><td>Turkish (857)</td><td>6</td><td>Spanish</td></tr> <tr><td>7</td><td>Icelandic (861)</td><td>7</td><td>Swedish</td></tr> <tr><td>8</td><td>Hebrew (862)</td><td>8</td><td>Swiss</td></tr> <tr><td>9</td><td>Cyrillic (855)</td><td colspan="2" rowspan="5"></td></tr> <tr><td>10</td><td>Cyrillic CIS 1(866)</td></tr> <tr><td>11</td><td>Greek (737)</td></tr> <tr><td>12</td><td>Greek 1 (851)</td></tr> <tr><td>13</td><td>Greek 2 (869)</td></tr> </tbody> </table>	8 bit data (p <sub>1</sub> =8)	Symbol Set (Code page)	7 bit data (p <sub>1</sub> =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	Turkish (857)	6	Spanish	7	Icelandic (861)	7	Swedish	8	Hebrew (862)	8	Swiss	9	Cyrillic (855)			10	Cyrillic CIS 1(866)	11	Greek (737)	12	Greek 1 (851)	13	Greek 2 (869)
8 bit data (p <sub>1</sub> =8)	Symbol Set (Code page)	7 bit data (p <sub>1</sub> =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	Turkish (857)	6	Spanish																																																		
7	Icelandic (861)	7	Swedish																																																		
8	Hebrew (862)	8	Swiss																																																		
9	Cyrillic (855)																																																				
10	Cyrillic CIS 1(866)																																																				
11	Greek (737)																																																				
12	Greek 1 (851)																																																				
13	Greek 2 (869)																																																				

8 bit data (p <sub>1</sub> =8)	Symbol Set (Code page)	7 bit data (p <sub>1</sub> =7)
A	Latin 1 (1252)	
B	Latin 2 (1250)	
C	Cyrillic (1251)	
D	Greek (1253)	
E	Turkish (1254)	
F	Hebrew (1255)	

Note1: See the code table list in the User's manual for additional information, symbols and codes.

Note2: 300dpi printer models support Code page 437, 850,852, 860, 863, 865, 1254 only.)

#### 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. B5-17

<b>JB/JF</b>	<b>Disable OR Enable Back Feed</b>
--------------	------------------------------------

**Syntax** Disable back feed:

JB↓

Enable back feed:

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.

<b>LE</b>	<b>Line Draw by Exclusive OR Operation</b>
-----------	--

**Syntax** LE<sub>p<sub>1</sub>,p<sub>2</sub>,p<sub>3</sub>,p<sub>4</sub>↓</sub>

**Description** This command is used to draw a line by an “exclusive OR” operation.

**Parameters** p<sub>1</sub>: X coordinate in dots.  
p<sub>2</sub>: Y coordinate in dots.  
p<sub>3</sub>: Horizontal length in dots.  
p<sub>4</sub>: Vertical height in dots.

**Example** N↓  
LE50,30,100,10↓  
LE100,20,5,110↓  
P1↓

### Output



Fig. B5-18

<b>LO</b>	<b>Line Draw by OR Operation</b>
-----------	----------------------------------

**Syntax**      LO<sub>p<sub>1</sub>,p<sub>2</sub>,p<sub>3</sub>,p<sub>4</sub></sub>↓

**Description**    This command is used to draw a line by an “OR” operation.

**Parameters**   p<sub>1</sub>: X coordinate in dots.

                p<sub>2</sub>: Y coordinate in dots.

                p<sub>3</sub>: Horizontal length in dots.

                p<sub>4</sub>: Vertical height in dots.

**Example**     N↓

LO50,30,100,10↓

LO100,20,5,110↓

P1↓



Fig. B5-19

<b>LW</b>	<b>Draw White Line</b>
-----------	------------------------

**Syntax**      LW<sub>p<sub>1</sub>,p<sub>2</sub>,p<sub>3</sub>,p<sub>4</sub></sub>↓

**Description**    This command is used to draw a white line, so it may erase previous image.

**Parameters**   p<sub>1</sub>: X coordinate in dots.

                p<sub>2</sub>: Y coordinate in dots.

                p<sub>3</sub>: Horizontal length in dots.

                p<sub>4</sub>: Vertical height in dots.

**Example**     N↓

LE50,30,100,10↓

LE50,60,100,10↓

LE50,90,100,10↓

LE50,120,100,10↓

LW100,20,5,110↓

P1↓

**Output**



Fig. B5-20

<b>N</b>	<b>Clear Image Buffer</b>
----------	---------------------------

**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.*

<b>O</b>	<b>Select Options</b>
----------	-----------------------

**Syntax** O[D,C,N,L]↓**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[p<sub>1</sub>]: Enable cutter.  
p<sub>1</sub> sets the number of labels to print prior to cut.  
If the lowercase b is specified for p<sub>1</sub>, the batch function is enabled. The printer will end off print-out with cutting the label once.
- N: Enable dispenser.
- L: On demand mode. The printer will print the next label out when pressing the feed button.  
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. *OL command (on demand mode) is not valid when cutter or dispenser was enabled.  
OL command is also not valid for 300 DPI printers.*
3. *Once 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.*
4. *For X2000+ and X3000+, the thermal transfer and direct thermal are set via DIP switches, not by this command. For G4, the thermal transfer and direct thermal are set via panel.*

<b>oR</b>	<b>Euro Character</b>
<b>Syntax</b>	oR[p <sub>1</sub> , p <sub>2</sub> ] ↴
<b>Description</b>	This command is used to replace the Euro cash sign in any ASCII character. This command is only used in Font 1~4.
<b>Parameters</b>	<p>p<sub>1</sub>: E. (If p<sub>2</sub> parameter is not set, the Euro cash sign will be mapped to 213 DEC (D5 HEX) in all code pages.)</p> <p>p<sub>2</sub>: Valid DEC number is from 0 to 255. The ASCII character map position of valid code page is replaced by the Euro character.</p>

P	Print Label	Output
<b>Syntax</b>	P <sub>1</sub> [,p <sub>2</sub> ]↓	Label: 100
<b>Description</b>	This command is used to output the contents of the image buffer.	Label: 100
<b>Parameters</b>	p <sub>1</sub> : Number of label sets, 1 ~ 65535. p <sub>2</sub> : Number of copies per label, 1 ~ 65535.	Label: 101 Label: 101
<b>Example</b>	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↓	Label: 101  Fig. B5-21
	This example downloads a form and prints 2 label sets with 3 pieces per set.	

PA	Print Automatically	Output
<b>Syntax</b>	PAp <sub>1</sub> [ ,p <sub>2</sub> ]↓	
<b>Description</b>	This command is used for form application. It prints the form, as soon as all variable data have been input.	Label: 100 Label: 101
<b>Parameters</b>	p <sub>1</sub> : Number of label sets, 1 ~ 65535. p <sub>2</sub> : Number of copies per label, 1 ~ 65535.	
<b>Example</b>	<pre> 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↓ </pre>	Fig. B5-22

<b>Q</b>	<b>Set Label and Gap Length</b>
----------	---------------------------------

**Syntax** Qp<sub>1</sub>,p<sub>2</sub>[±p<sub>3</sub>]↵

**Description** This command is used to set the label and gap length measured in dots.

**Parameters**

- p<sub>1</sub>: For label with gap, p<sub>1</sub> is to set the label length. For continuous media, p<sub>1</sub> is to set the feed distance after the last image line.
- p<sub>2</sub>: Gap length. For continuous media (without gap), this parameter should be set to 0. For black line media, p<sub>2</sub> should be set to B plus black line thickness in dots.
- ±p<sub>3</sub>: For gap and continuous media, this parameter is to set positive vertical offset length. For black line media, this parameter is to set the length between black line and perforation line.

**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↵
```

```
N↵
Q100,0↵
A20,30,0,2,1,1,N,"Q command:" ↵
A20,60,0,2,1,1,N,"Continuous Label" ↵
P1↵
```

N↵

```
Q496,B24-40↵
A20,30,0,2,1,1,N,"Q command:" ↵
A20,60,0,2,1,1,N,"Black Line Media" ↵
A20,90,0,2,1,1,N,"With Perforation" ↵
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.*

<b>q</b>	<b>Set Label Width</b>
----------	------------------------

**Syntax**      qp<sub>1</sub>↓

**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**    p<sub>1</sub>: 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.*

<b>R</b>	<b>Set Origin Point</b>
----------	-------------------------

**Syntax**      R p<sub>1</sub>,p<sub>2</sub>↓

**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**    p<sub>1</sub>: Horizontal margin measured in dots.

p<sub>2</sub>: 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.

<b>S</b>	<b>Set Print Speed</b>
----------	------------------------

**Syntax** Sp<sub>1</sub>↓**Description** This command is used to set a particular speed for a label or batch of labels to be printed.**Parameters** p<sub>1</sub>: A single character (0 to 6) representing a particular speed setting. The range depends on your printer model.

p <sub>1</sub> Value	Speed
0 or 1	1 ips (25 mmmps)
2	2 ips (50 mmmps)
3	3 ips (75 mmmps)
4	4 ips (100 mmmps)
5	5 ips (125 mmmps)
6	6 ips (150 mmmps)
7	7 ips (175 mmmps)

Only X3000+ and G4 support 7 ips.

**Example** S2↓

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

<b>TD</b>	<b>Define Date Format</b>
-----------	---------------------------

**Syntax** TD[p<sub>1</sub>][p<sub>2</sub>][p<sub>3</sub>][+n]↓**Description** This command defines the date format for printing. You may define special characters as separators.**Parameters** p<sub>1</sub>: y2 (year displayed as 2 numerals).  
y4 (year displayed as 4 numerals).  
p<sub>2</sub>: me (month displayed as 3 letters).  
mn (month displayed as 2 numerals).  
p<sub>3</sub>: dd (day).  
[+n]: n (date offset range from 1 to 255 days).**Example** TDdd-me-y2↓  
A100,100,0,4,1,2,N,TD↓ ; 06-JAN-06  
A100,200,0,4,1,2,N,TD+7↓ ; 13-JAN-06  
  
TDdd,mn,y4↓  
A100,100,0,4,1,2,N,TD↓ ; 06,01,2006  
A100,200,0,4,1,2,N,TD+7↓ ; 13,01,2006

#### **TS Set Real Time Clock**

**Syntax** TSp1,p2,p3,p4,p5,p6,↓

**Description** This command is used to set the RTC if it is installed.

**Parameters** p1 : Month, 01 ~ 12.

p2 : Day, 01 ~ 30.

p3 : Year, 00 ~ 99.

p4 : Hour in 24 ho

p5 : Minutes, 00 ~ 59.

p6 : Seconds. 00 ~ 59.

## Define Time Format

**Syntax**                    TT[p1][p2][p3]←

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

**Parameters** p1 : h (hours). If a ‘+’ exists the hour is in 12 hour format and ‘PM’ or ‘AM’ will be printed.

p2 : m (minutes)

p3 : s (seconds)

<b>Example</b>	TTh:m:s↓	; 13:30:20
	TTh/m↓	; 13/30
	TTh:m:s+↓	; 01:30:20PM
	TT+ h:m↓	; PM 01:30

<b>U</b>	<b>Print Configuration</b>
----------	----------------------------

**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. B5-23 Printout from OS Series (The printout 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	
7	X	9600: N, 8, 1P. SCANNER
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. B5-24 Printout from X Series (The printout depends on the models)

<b>UA</b>	<b>Enable Clear Print Buffer When Media Out/ Ribbon Out Occurred</b>
-----------	--

**Syntax**      UA↓

**Description**      This command is used to clear the print buffer when media-out or media-out occurred. After this command is sent, the remained copies of label will not be printed if a media out condition is detected.

**Parameters**      None.

**Example**      UA↓

*Note:*

1. The command is not valid for 300 DPI printers.

<b>UB</b>	<b>Disable Clear Print Buffer When Media Out Or Ribbon Out Occurred</b>
-----------	---

**Syntax**      UB↓

**Description**      This command is used to clear the UA command and restore the default setting to allow the printer to resume the printing job after supplying new label roll (or ribbon roll).

**Parameters**      None.

**Example**      UB↓

*Note:*

1. The command is not valid for 300 DPI printers.

<b>UE</b>	<b>Soft Fonts Information Through RS232</b>
-----------	---

**Syntax**      UE↓

**Description**    This command is used to inquire the stored soft fonts in printer.  
After this command is sent, the printer will send the information of soft fonts stored in the printer back to the host through the RS232 port.

**Parameters**    None.

**Example**        UE↓

**Output**        Soft Font Information:  
B  
A

*Note:*

1. The command is not valid for 300 DPI printers.

<b>UF</b>	<b>Forms Information Through RS232</b>
-----------	--

**Syntax**      UF↓

**Description**    This command allows printer to send the information of forms currently stored in the printer back to the host through RS232 port.

**Parameters**    None.

**Example**        UF↓

**Output**        Form Information:  
form3  
form2  
form1

*Note:*

1. The command is not valid for 300 DPI printers.

<b>UG</b>	<b>Graphics Information Through RS232</b>
-----------	---

**Syntax**      UG↓

**Description**    This command allows printer to send the information of graphics currently stored in the printer back to the host through RS232 port.

**Parameters**    None.

**Example**      UG↓

**Output**      Graphics Information:  
No Graphics Stored.

*Note:*

1. The command is not valid for 300 DPI printers.

<b>UI</b>	<b>Current Codepage Information Through RS232</b>
-----------	---

**Syntax**      UI↓

**Description**    This command causes printer to send the information about current selected codepage back to the host through RS232 port. The printer will send feedback in the following format:

UI p<sub>1</sub>,p<sub>2</sub>,p<sub>3</sub>

p<sub>1</sub>: data bit number.

p<sub>2</sub>: symbol set

p<sub>3</sub>: country code

**Parameters**    None.

**Example**      UI↓

**Output**      UI8, 0, 001

*Notes:*

1. See I command for additional information.
2. The command is not valid for 300 DPI printers.

<b>UM</b>	<b>Memory Allocation And Codepage Information Through RS232</b>
-----------	---

**Syntax** UM↓

**Description** This command causes printer to send memory status and current selected codepage back to the host through RS232 port. The printer will send feedback to the host in the following format:

UM p<sub>1</sub>,p<sub>2</sub>,p<sub>3</sub>, p<sub>4</sub>,p<sub>5</sub>,p<sub>6</sub>, p<sub>7</sub>,p<sub>8</sub>p<sub>1</sub>: Image buffer size in KBytesp<sub>2</sub>: Form memory allocation size in KBytesp<sub>3</sub>: Free memory for form in KBytesp<sub>4</sub>: Graphic memory allocation size in KBytesp<sub>5</sub>: Free memory for graphics in KBytesp<sub>6</sub>: Soft font memory allocation size in KBytesp<sub>7</sub>: Free memory for soft font in KBytesp<sub>8</sub>: The same data format with UI command**Parameters** None.**Example** UM↓**Output** UM925,0,987,0,987,0,987

UI8,0,001

*Notes:*

1. See I, UI commands for additional information.
2. The command is not valid for 300 DPI printers.

<b>UP</b>	<b>Memory Information, Current Codepage Through RS232 And Print Configuration</b>
-----------	---

**Syntax** UP↓

**Description** This command causes printer to send the information about current selected codepage and memory allocation back to the host through RS232 port and print printer configuration on labels.

**Parameters** None.**Example** UP↓

**Output** UM925,0,987,0,987,0,987  
UI8,0,001

*Notes:*

1. The printer will print configuration on labels.
2. See I, UM, UI, and U commands for additional information.
3. The command is not valid for 300 DPI printers.

<b>UQ</b>	<b>Printer Configuration Through RS232</b>
-----------	--

**Syntax** UQ↓**Description** This command causes printer to send its configuration information back to the host through RS232 port.**Parameters** None.**Example** UQ↓

**Output**

```

Label Printer with Firmware PPLB R2B0-3.07 111505
RS232: 9600, N, 8, 1P
STANDARD RAM: 2097152 BYTES
AVAILABLE RAM: 1003264 BYTES
Code Page 437
THERMAL TRANSFER
REFLCT. SENSOR
LABEL COUNT: 156 (11 M)
FLASH ON BOARD: 512K free
CHECKSUM: 0000
H. POSITION ADJUST.: 0000
LAB LEN(TOP TO TOP): 355 mm.
MEDIA SENSOR LEVEL: 1

```

**Note:**

1. The command is not valid for 300 DPI printers.

<b>UN/US</b>	<b>Disable/Enable Error Reporting</b>
--------------	---------------------------------------

**Syntax** UN↓  
US↓**Description** This command is used to disable/enable the feedback from the printer. The printer sends 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 overflow
07	Media or ribbon out error
09	Object error (include soft font, form, graphics not found)
10	Data error (not in data entry mode)
81	Cutter fail

<b>V</b>	<b>Define Variable</b>
----------	------------------------

**Syntax**      Vp<sub>1</sub>,p<sub>2</sub>,p<sub>3</sub>,”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<sub>1</sub>: Variable ID. Acceptable values from 00 to 99.

p<sub>2</sub>: 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<sub>3</sub>: 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↓
A355,100,0,4,1,1,N,C0↓
A100,150,0,4,1,1,N,V00C0↓
A100,200,0,4,1,1,N,"Test"V00"Argox"C0↓
FE↓
```

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

```
Q050,0↓
FR"TEST2"↓
?↓
Part Number:↓
1234↓
P2,1↓
```

#### Output

```
Part Number: 1234
Part Number: 1234
TestPart Number: Argox1234
```

```
Part Number: 1235
Part Number: 1235
TestPart Number: Argox1235
```

Fig. B5-25

X	<b>Draw Box</b>
---	-----------------

**Syntax** Xp<sub>1</sub>,p<sub>2</sub>,p<sub>3</sub>,p<sub>4</sub>,p<sub>5</sub>↵

**Description** This command is used to draw a box by an “OR” operation.

**Parameters**

- p<sub>1</sub>: X coordinate of start point in dots.
- p<sub>2</sub>: Y coordinate of start point in dots.
- p<sub>3</sub>: Thickness of four edges.
- p<sub>4</sub>: X coordinate of end point in dots.
- p<sub>5</sub>: 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

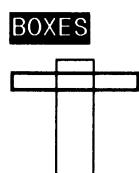


Fig. B5-26

xa	<b>Auto Calibration</b>
----	-------------------------

**Syntax** xa↵

**Description** This command is used to have the printer automatically perform the calibration. The printer will feed label stock for certain length to detect the label characteristics and gap length.

**Parameters** None.

**Example** xa↵

*Note:*

1. The command is not valid for 300 DPI printers.

<b>Y</b>	<b>Set Serial Port</b>
----------	------------------------

**Syntax**      Yp<sub>1</sub>,p<sub>2</sub>,p<sub>3</sub>,p<sub>4</sub>↓

**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**    p<sub>1</sub>: Baud rate. Acceptable values are:

p <sub>1</sub> Value	Speed
11	115,200 baud**
57	57,600 baud**
38	38,400 baud
19	19,200 baud
96	9,600 baud
48	4,800 baud
24	2,400 baud

\*\* Baud rate 57,600 and 115,200 are only for G4 and OS214 plus.

p<sub>2</sub>: Parity. O - odd parity, E - even parity and N - none parity.

p<sub>3</sub>: Data bit number, 7 or 8.

p<sub>4</sub>: Stop bit number, 1 or 2.

#### Notes:

1. For some printers, p<sub>2</sub>, p<sub>3</sub> and p<sub>4</sub> 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 models with DIP switches. For X2000+/X3000+, you can set baud rate via DIP switches on the rear of the printer For G4, you can set baud rate via panel.

**Example**      Y19,N,8,1↓

<b>Z</b>	<b>Set Print Direction</b>
----------	----------------------------

**Syntax** Zp<sub>1</sub>↓

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

**Parameters** p<sub>1</sub>: Direction. Acceptable values are B or T.

B: Print from the bottom of image. The graphics, images or texts etc. that are sent from the top are diagonally symmetrical with those sent from the bottom.

T: Print from the top of image. The default value is T.

**Example** N↓

ZT↓

A50, 30, 0, 4, 1, 1, R, "ZT"↓

P1↓

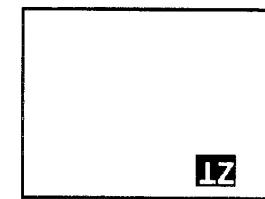
N↓

ZB↓

A50, 30, 0, 4, 1, 1, R, "ZB"↓

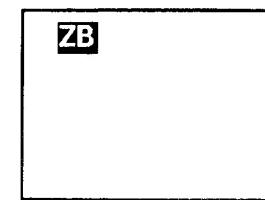
P1↓

## Output



Label feed direction

Fig. B5-27



Label feed direction

Fig. B5-28

<b>ZN/ZS</b>	<b>Disable/Enable Flash Memory</b>
--------------	------------------------------------

**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. Following models require installing flash memory card when enable the flash memory: OS-203DT, OS-204DT, OS-214TT, OS314TT, X-1000+, A-50, A-150, R-200/200K.

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. *Enable ZS command will affect flash memory life.*

**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↓
```

?	<b>Download Variables and Counters</b>
---	--

**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.

<code>^@</code>	<b>Reset Printer</b>
-----------------	----------------------

**Syntax** `^@_J`**Description** This command is used to restart the printer. Forms, soft fonts and graphics that were stored in flash memory will not be cleared after this command is sent.**Parameters** None.**Example** `^@_J`*Notes:*

1. *This command is unavailable while the printer is in dump mode.*
2. *The command is not valid for 300 DPI printers.*

<code>^ee</code>	<b>Immediate Error Report</b>
------------------	-------------------------------

**Syntax** `^ee_J`**Description** This command is used to get printer error and status report immediately via RS232 port.**Parameters** None.**Example** `^ee_J`

Error Code	Description	Remark
00	No error	*
01	Command parser error	
03	Data error for bar code	
04	Memory overflow	
07	Media or ribbon empty error	
09	Object error (include soft font, form, graphics not found)	
10	Data error (not in data entry mode)	**
11	Print Head Up (Open)	***
12	Pause Mode or Paused in Peel Mode	****
50	Printer Busy	*****
81	Cutter fail	*****

*Note:*

1. \*Not valid for OS314.
2. \*\* Not valid for OS314.

3. \*\*\*Only work on X-3000+.
4. \*\*\*\*OS203 supports pause mode both in printing and peel mode; ineffective on OS-214 and OS-314.
5. \*\*\*\*\*Ineffective on OS-214 and OS-314.
6. \*\*\*\*\*Ineffective on OS-314 and X-2000v.

## 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

*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.*

*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

## APPENDIX BB: HOW TO SELECT A FONT FROM FONT BOARD

The font IDs for fonts at font board are 7 ~ 12. 7 and 8 are for Chinese fonts. 9 and 10 are for Korean fonts. 11 and 12 are for Japanese fonts.

Font type	Command	200 dpi font size	300 dpi font size
Traditional Chinese font	'7'	24x24	24x24
Chinese font	'7'	24x24	24x24
Korean font	'9'	24x24	32x32
	'10'	16x16	24x24
Japanese font	'11'	24x24	32x32
	'12'	16x16	24x24

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
```

```
GK"LOGO"↵
GM"LOGO"1024↵
...graphics...
FK" TICKET"↵
FS" TICKET"↵
```

## 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
A350,150,0,4,1,1,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, and print readable digits
```

```
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↵
```

## 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
```

```
FR" TICKET"↵
? ↵
New York↵
Mexico↵
100200↵
P3,1↵
```

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

## Program List

## APPENDIX BD: ADDITIONAL COMMANDS

There are some extra PPLB commands for special functions on OS, A, R, 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+ printers.

Command	Description	Models
d1,[±]m ↴	Horizontal shift. m: number of pixels for shift. '+' or without sign mark cause right shift. '-' causes left shift. E.g. d1,-100 ↴	For all models. **  Default: d1,0 ↴
d8,m ↴	See through sensor enabled. The sensor type will be switched immediately after d8,m command received. m: 1 for see through sensor. 0 for reflective sensor.	A200/X2000+/X3000+/G4

Command	Description	Models
<ESC>! ↴	Resets printer to factory default.	For all models
<ESC>@0 ↴	Clear the flash memory that contains forms, soft fonts or graphics.	For all models.
<ESC>KI;m ↴	Cutter or peeler offset.  m: A signed byte and in term of pixels.  E.g. <ESC>KI;3 ↴ <33H>  Cutter offsets 51 dots.	*For all models, except X3000+.  *F1 only has cut offset function  Default: <ESC>KI; <00H>
<ESC>KIJm ↴	JIS / SHIFT JIS setting.  m: 1 for SHIFT JIS code with Japanese font. 0 for JIS code with Japanese font.	For all models.  Default: <ESC>KIJ0 ↴
<ESC>KI1m ↴	Cash draw function enabled.  m: Enable/ disable cash draw function.	OS203 <sup>++</sup>
<ESC>pmt <sub>1</sub> t <sub>2</sub> ↴	Set Cash Draw Pulse On/Off Time.  m: Select Drawer. t <sub>1</sub> : Pulse on time. t <sub>2</sub> : Pulse off time.	OS203 <sup>++</sup>
<ESC>p2 ↴	Cash Drawer Status.	OS203 <sup>++</sup>

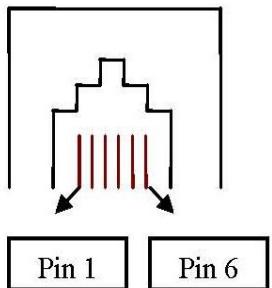
### Notes:

\*\* The parameter can be saved into permanent memory E<sup>2</sup>PROM, that is, it will remain after the printer is restarted, until it is replaced by different parameter through command.

++ Refer to the Appendix BE.

## APPENDIX BE: HOW TO SELECT CASH DRAW FUNCTION IN OS-203 PRINTER

The Cash Drawer Kicker is connected with printer OS-203 via RJ11 connector. The figure below displays the pin assignments for the printer's cash drawer interface.



Pin	
1	---
2	Drawer_Kick1 (Magnet +)
3	Draw_Back (Micro switch NC)
4	---
5	Drawer_Kick2 (Magnet -)
6	---

To trigger the cash drawer and set its on/off time, please refer to the command below.

<ESC>KI1m	Enable Cash Draw Function
-----------	---------------------------

**Syntax** <ESC>KI1m↓

**Description** This command is used to enable the cash draw function. After this command is sent, the printer will generate a drawer kicker pulse before print the label.

**Parameters**

m: Select drawer.

m	Description
0	Disable cash draw function.
2	Enable cash draw function. The pulse is sent to drawer kick-out connector pin 2.
5	Enable cash draw function. The pulse is sent to drawer kick-out connector pin 5.

**Example** <ESC>KI12↓

<b>&lt;ESC&gt;pmt<sub>1</sub>t<sub>2</sub></b>	<b>Set Cash Draw Pulse On/Off Time</b>
--	--

**Syntax**      <ESC>pmt<sub>1</sub>t<sub>2</sub>.

**Description**    This command is used to send a pulse and set the pulse on/off time to the specified connector pin. After this command is sent, the printer will generate a drawer kicker pulse.

**Parameters**   m: Select drawer.

m	Description
0	Enable cash draw function. The pulse is sent to drawer kick-out connector pin 2.
1	Enable cash draw function. The pulse is sent to drawer kick-out connector pin 5.

t<sub>1</sub>: The pulse on time setting. On time= t<sub>1</sub> × 2 milliseconds. Ranges from 00 to FF hex.

t<sub>2</sub>: The pulse off time setting. Off time= t<sub>2</sub> × 2 milliseconds. Ranges from 00 to FF hex.

**Example**    <ESC>p000.

<b>&lt;ESC&gt;p2</b>	<b>Cash Drawer Status</b>
----------------------	---------------------------

**Syntax**      <ESC>p2.

**Description**    This command is used to get the cash drawer status. After this command is sent, the printer will send the feedback to the host through RS232 port in the following format:

00 hex: cash drawer open.

01 hex: cash drawer closed.

**Parameters**   None

**Example**      <ESC>p2.

**Output**       01

*Note:*

\*\* The RS232 is needed.

## APPENDIX BF: 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:**



0008 518028

## **APPENDIX BG : FONTS AND BAR CODES FOR PPLB**

## Internal Fonts

There are 5 internal fonts for the PPLB emulation. Each has 20 eight-bit and 9 seven-bit symbol sets. Font 5 supports upper case characters, 0~9, #\$/%&+,.-:;/, and space only.

## Font 1

ABCDEFGHIJKLMNPQRSTUVWXYZ  
abcdefghijklmnopqrstuvwxyz

Font 2

ABCDEFGHIJKLMNOPQRSTUVWXYZ  
abcdefghijklmnopqrstuvwxyz

Font 3

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z  
a b c d e f g h i j k l m n o p q r s t u v w x y z

Font 4

ABCDEFGHIJKLMNPQRSTUVWXYZ  
abcdefghijklmnopqrstuvwxyz

Font 5

ABCDEFGHIJKLM  
NOPQRSTUVWXYZ

## Symbol

Code Page 865

Code Page 857

Code Page 861

Code Page 862

Code Page 855

Code Page 437

20H-3FH: !"#\$%&(')\*+, - /0123456789 ; <>?  
40H-5FH: @ABCDEFGHIJKLMNPQRSTUVWXYZ[\]^\_  
60H-7FH: 'abcdefghijklmnopqrstuvwxyz !  
80H-9FH: ÇÜéêåâäöëëîíïAAÉéßööðöñüýöÜéÝ f  
A0H-BFH: áíóúññøç %ä i  
C0H-DFH:  
E0H-FFH: αβΓπΣμΤΦΘΩΣ δε

Code Page 850

Code Page 852

Code Page 860

20H-3FH: !"#\$%&!'()\*,-. /0123456789: <>? 40H-5FH: @ABCDEFGHIJKLMNOPQRSTUVWXYZ \|^\_ 60H-7FH: 'abcdefghijklmnopqrstuvwxyz ! 80H-9FH: ÇÜékååÀçßëäîöìÅÄÅÈßöôóùòúç£Û Ç 80H-BFH: åíöùññøøçð ÆÅí 90H-DFH: E9H-FFH: æßGammaSigmaThetaPsi

Code Page 863

Code Page 866

Code Page 737

20H-3FH: ! "#\$%&(')\*+,-./0123456789:;<>=?  
40H-5FH: @ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^\_`  
60H-7FH: `abcdefghijklmnopqrstuvwxyzijklmnopqrstuvwxyz`  
80H-9FH: ABΓκΕΖΗΘΙΚΑΜΝΞΟΠΡΣΤΥΦΧΨΑβνδεζη  
A0H-BFH: ΙΚΛΜΥξοπρστυψω  
C0H-DFH:  
E0H-FFH: wάρεστηλασμαθησιού

Code Page 851

Code Page 869

20H-3FH: !"#\$%&' ()\*+,-./0123456789; : <>=?  
40H-5FH: @ABCDEF GHIJKLMNOPQRSTUVWXYZ[\]^\_`  
60H-7FH: `abcdefghijklmnopqrstuvwxyzijklmnopqrstuvwxyz`  
80H-9FH: k 'A 'E HI'IO YY@R' ^&Eñi  
A0H-BFH: IT60ABV@AEZH%OI KAMN E0  
C0H-DFH: P ΣΤΥΦΧΩΝαθν Βε  
E0H-FFH: Εηθικλημνξοπρσστ υφξσω • ωυύω

Code Page 1252

20H-3FH: ! "#\$%&!' ()\*+, -./0123456789; : <=>?  
40H-5FH: @ABCDEF GH IJKL MNO PQR S TUVW XYZ [ \ ] ^ \_  
60H-7FH: ` abcdefgh i jklmnopqr stuvwxyz ^ \_  
80H-9FH: , , k ^ \$ <@> ^ \$ >@> ^ \_  
A0H-BFH: ! C E D Y: \$ @ @ . . . . . . . . . . . .  
C0H-DFH: A A A A A A C E E E E E E E E E E E E E  
E0H-FFH: F

Code Page 1250

Code Page 1251

Code Page 1253

Code Page 1254

Code Page 1255

USASCII

20H-3FH: ! "#\$%&! ()\*+, -./0123456789; : <>?  
40H-5FH: @ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^\_`  
60H-7FH: ' abcdefghijklmnopqrstuvwxyzM:O  
80H-9FH: ÇÜékäääçëëëïïïÄÄéæßööðöðÜüÿöÜé£¥ f  
A0H-BFH: áíöúññøöç %Kí  
C0H-DFH:  
E0H-FFH: αβΓΠΣΗΤΦΩΘζ \$ε

BRITISH

GERMAN

```
20H-3FH: !"#$%&!'()#+,-./0123456789; :<>?
40H-5FH: $ABCDEFGHIJKLMNOPQRSTUVWXYZÄÖÜ^_
60H-7FH: 'abcdefghijklmnopqrstuvwxyzäöüß
80H-9FH: k "S
A0H-BFFH: ! $"#%&!'()#+,-./0123456789; :<>?
C0H-DFH: åABCDEFGHIJKLMNOPQRSTUVWXYZ°ç^
E0H-FFH: 'abcdefghijklmnopqrstuvwxyzéüé"
```

FRENCH

```

20H-3FH: !"£$%&()'*)+,-./0123456789:;<>
40H-5FH: åABCDEFGHIJKLMNOPQRSTUVWXYZ`ç^
60H-7FH: 'abcdefghijklmnoprstuvwxyzéùé"
80H-9FH:   k   ¶§
A0H-BFH: !"#$%&()'*)+,-./0123456789:;<>
C0H-DFH: @ABCDEFGHIJKLMNOPQRSTUVWXYZÆØAU,
E0H-FEH: 'abcdefghijklmnoprstuvwxyzæøü

```

DANISH

```
20H-3FH: !"#$%&!'()**,-./0123456789:<=>
40H-5FH: @ABCDEFGHIJKLMNOPQRSTU VWXYZÆØÅÜ
60H-7FH: 'abcdefghijklmnopqrstuvwxyzæøåü
80H-9FH:   k
A0H-BFH: !!"£$%&!'()**,-./0123456789:<=>
C0H-DFH: $ABCDEF GHijklmn opqrstuvwxyzçé^
E0H-FFH: üabcdefghijklmn opqrstuvwxyzæøéí
```



\*\* Int 2 of 5 \*\*



0123456789

\*\* Postnet \*\*



\*\* UCC/EAN \*\*



(12)345678(99)

\*\* UPCA \*\*



1 35790 24680 9

\*\* UPCA 2 add-on \*\*



59  
6 76908 93489 3

\*\* UPCA 5 add-on \*\*



83754  
5 98676 12761 4

\*\* UPC-E \*\*



0 438959 0

\*\* UPC-E 2 add-on\*\*



32  
0 432328 0

\*\* UPCE-E 5 add-on \*\* \*\* Matrix 2 of 5 \*\*

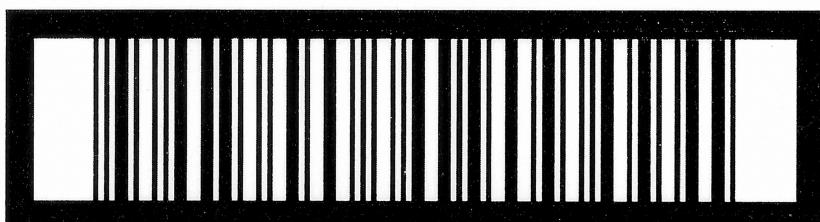


09274  
0 438959 0



12345

\*\* UPC I25 \*\*



1 23 45678 90122 4

TEST



(01)0000019811219 6  
RSS-14 composite

TEST1



(01)0004545454545 5  
RSS Limited composite

TEST2



(01)0000089121121 9  
RSS Stacked composite

TEST3



(01)0000911006072 0  
RSS-14 Truncated composite

TEST4



(01)0009876543210 5  
RSS-14 Stacked Omnidirectional composite

TEST5



(87)984454545  
RSS Expanded (Stacked) composite

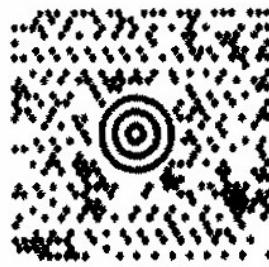
TEST6



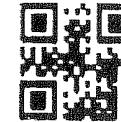
(87)984454545  
RSS Expanded Stacked composite



Aztec



ARGOXINFO



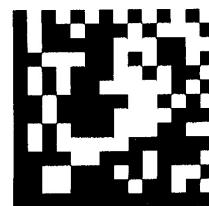
ARGOXINFO

PDF417



QR Code

ARGOXINFO



## APPENDIX BH: COMMAND QUICK REFERENCE CHART

This reference chart is a summary of PPLB commands. A symbol “ \* ” represents the printer supports such function. A character “ S ” indicates that this function can be set via DIP switches. A character “P” indicates that this function can be set via Panel.

Command	Description	OS203	OS2130	OS204	OS214	OS204 plus	OS214 plus	OS2140	OS314	A50	A150	A2240	R200	R600	X1000+	X2000+	X3000+	X1000VL	X2300	X2000v	F1
		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	CP2140	CP3140	CP3140L	
A	Print Text	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
B	Print 1D Bar Code	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
B	Print RSS-14 Bar Code	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
b	Print 2D Bar Code	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
C	Counter	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
C	Immediate Cut	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
D	Heat Setting	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
EI	Print Soft Font List	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
EK	Delete Soft Font	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
ES	Download Soft Font	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
FE	End Form Store	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
FI	Print Form List	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
FK	Delete Form	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
FR	Execute Form	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
FS	Store Form	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
f	Adjust Cutting	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	P	*	*	*
GG	Print Graphics	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
GL	Print Graphics List	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
GK	Delete Graphics	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
GM	Store Graphics	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
GW	Print Immediate	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
I	Select Symbol Set	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
IB	Disable Back Feed	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
IF	Enable Back Feed	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
IE	Line Draw By	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
LO	Line Draw by OR	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
LW	Draw White Line	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
N	Clear Frame Buffer	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
O	Thermal Transfer	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Or	Euro Character	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
OC	Engrave Cutter	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
OD	Direct Thermal	*	*	*	*	*	*	*	*	*	*	*	*	*	*	S	*	*	*	*	*
OL	On Demand Mode	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
ON	Enable Dispenser	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*

Command	Description	OS203	OS2130	OS204	OS214	OS204 plus	OS214 plus	OS314	A50	A150	A200	A2240	R200	R600	X1000+	X2000+	X3000+	X1000VL	X2300	X2000v	X3200	F1	CP2140	CP3140	GP3140L
P	Print Label	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
PA	Prints Automatically	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
Q	Set Label and Gap Length	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
g	Set Label Width	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
R	Set Origin Point	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
S	Set Print Speed	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
ID	Define Date Format	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
TS	Set Real Time Clock	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
TT	Define Time	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
U	Print Configuration	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
UA	Enable Clear Print Buffer When Media-out or Ribbon-out Occurred	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
UB	Buffer When Media-out or Ribbon-out	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
UE	Soft Fonts Info Through RS232	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
UF	Forms Into Through RS232	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
UG	Graphics Info Through RS232	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
UI	Current Codepage Info Through RS232	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
UM	Memory Allocation And Codepage Info Through RS232	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
UP	Memory Allocation, Codepage Info Through RS232 And Print Configuration	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
UQ	Printer Configuration Info	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
US	Enable Error Report	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
UN	Disable Error Report	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
V	Define Variable	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	

Command	Description	OS203	OS2130	OS204	OS214	OS204 plus	OS214 plus	OS314	A50	A150	A200	A2240	R200	R600	X1000+	X2000+	X3000+	X1000VL	X2300	X2000v	X3200	F1	CP2140	CP3140	GP3140L
X	Draw Box	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
xa	Auto Calibration	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
Y	Setup Serial Port	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	S	S	*	*	*	*	
Z	Set Print Direction	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
ZS	Enable Stroke-to-Flash	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
ZN	Download Variables And Counters	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
?	Reset Printer To Factory Default	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
@	Immediate Error Report	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
ae	Report	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
dI	Horizontal shift	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
d8	Enable See Through Sensor	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	p	p	*	*	*	*	*	
<ESC@O	Reset Printer To Factory Default	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
<ESC-KI	Cutter or Peeler Offset	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
<ESC-JIS	JIS/SHIFT JIS Setting	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
<ESC-KU	Enable Cash Draw Function	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
<ESC-p	Cash Draw Pulse Setting	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
<ESC-p2	Cash Draw Status	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	