PPLZ PROGRAMMER'S MANUAL

CONTENTS

1. COORDINATE SYSTEM

The default PPLZ coordinate system is defined in Figure 1-1.

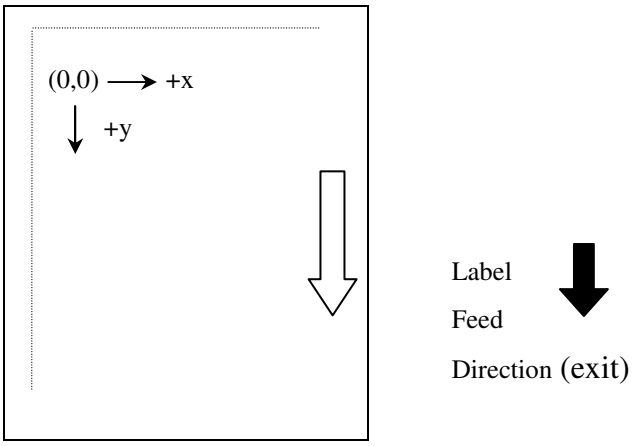


Fig. 1-1 PPLZ coordinate system

The default origin point (0,0) is at the top left point of a label. Negative coordinate values are not allowed. The origin point can be changed to right bottom corner under ^POI mode. The ranges of X and Y coordinates are:

	Minimum	Maximum
X coordinate	0	About 4 inches. The actual value depends on the printer model.
Y coordinate	0	About 48 inches. The actual value depends on the printer model.

Orientation

There are four orientations. You may rotate the pattern for readability or other special purposes.

- Portrait
- Landscape
- Reverse portrait
- Reverse landscape

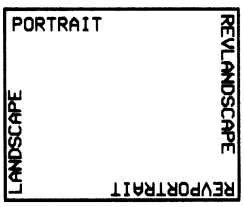


Fig. 1-2 Four orientations

2. Command Formats

The PPLZ command set is a software interface that enables the communication between the printer and host. By that the printer prints the exact patterns for the host and user.

Basic Syntax

The general command consists of a prefix character, two-character mnemonic code and a parameter string.

<leading code> <2-character command> [parameters]

All characters except <CR> and <LF> are printable ones, not control codes. The two characters for command type must be upper-case capitals. Some special codes for special-purpose function can be redefined. These include:

Code	Name	Function
^	caret	used as a leading character
~	tilde	used as a leading character
,	delimiter	separator between parameters

The line separator (<CR><LF>, <CR> or <LF>) is used just for human readability and ignored by the printer. The space codes can be inserted between commands.

Once the parameters in the command are omitted the default settings or parameters saved in the E^2PROM or flash will be used.

Command Categories

All the PPLZ commands fall into several categories as following:

- Format package
- Label definition
- Field default
- Format default
- Format rotation
- Printer control
- Alphanumeric field
- Bar code
- Text or font
- Graphic image

File name

The objects like soft fonts, graphics or forms can be accessed through their file names. The full file name same as that under MS-DOS consists of

- One character for device
- Max. 8-character file name
- Max. 3-character extension name (optional)

For example,

R:ABC.GRF

Device name

R: for default RAM and B: for flash memory.

Extension name

The default extension name for the graphic is " **.GRF** ", " **.FNT** " is for the soft font and " **.ZPL"** is for the form.

Skeleton

Commands with a leading code, " **~** " can be independently interpreted. Others must be in the following package.

^XA
….
^XZ

Settings

The settings affect either the printout pattern or the control to the printer. For example, ^PO command defines the label rotation. Some settings are stored in the flash or E^2PROM. E^2PROM is a hardware device and can permanently save the parameters. While the others are set to fixed default values each time the printer is started. They can be changed by related commands.

3. Fonts

The fonts can be classified into some categories by their characteristics.

Residence

Internal fonts or downloadable soft fonts. The internal fonts are built in the printer. They are fixed and cannot be erased or cleared. The soft fonts are from the host. Users can download the soft fonts from the host by their needs and erased them by proper commands to avoid memory full.

Scalability

Scalable fonts and bitmap fonts. All fonts can be expanded but only scalable fonts can expand smoothly. The zigzag phenomenon occurs for the bitmap fonts when scaling.

Spacing

Fixed and proportional fonts. The spacing of fixed font is identical for all characters while it depends on the characters for proportional font.

For example:

Fixed font

Proportional font

TrueType Fonts

The format of scalable fonts is the so-called TrueType. Since it is a Windows standard it can make your application WYSIWYG, What You See Is What You Get.

Internal Fonts

There are 15 internal bitmap fonts and one scalable font. Their related data are tabled as follow.

Font ID	Matrix (width x height)	Type	Remark
A	5 x 9	ULD	
B	7 x 11	U	
C, D	10 x 18	ULD	C & D are identical.
E	15 x 28	OCR B	
F	13 x 26	ULD	
G	40 x 60	ULD	
H	13 x 21	OCR A	
GS	24 x 24	SYMBOL	
0	Default: 12 x 15	CG Triumvirate Bold Condensed	Scalable font
P	18 x 20	ULD	
Q	24 x 28	ULD	
R	31 x 35	ULD	
S	35 x 40	ULD	
T	42 x 48	ULD	
U	53 x 59	ULD	
V	71 x 80	ULD	

Symbol Sets

The scalable font (CG Triumvirate Bold Condensed) supports PC850 symbol set while other bitmap fonts support several international symbol sets. Refer to the ^CI command for details.

Point Size

The point size is a rough length measurement.

1 point = 1/72 inch = 2.8 pixels for character cell height under a 203 DPI printer

Font Card

The two-byte fonts, such as Chinese, Korean, Taiwanese, etc., are made as font card. Such fonts are hard ones and cannot be erased.

4. Forms

If you need lots of printouts that are almost same except some fields, you may just send those different field data from the second set of label. This can save huge data and communication time.

A form may consist of

- Common fields or patterns.
- Variable data fields.
- Counter fields, which can automatically increase or decrease.

Procedure

To use the form you must follow the procedure as below.

1. The form defined by ^DF command.
   In this you also define the related fields like counter.
2. The form retrieval.
   By ^XF and specifying the form name to execute the form.
3. Initial values for counters and variables.
4. Repeat steps 2 and 3 for next set of labels.

Refer to the relevant commands for details.

Example

Form definition	^XA ^DFR:FORM.ZPL^FS ^FO50,60^AD^FN1^FS ^FO50,110^AD^FN2^FS ^FO50,10^AF^FDFIXED DATA^FS ^XZ
Form execution I	^XA^XFR:FORM.ZPL^FS ^FN1^FDVAR 1^FS ^FN2^FDVAR 2^FS ^XZ
Form execution II	^XA^XFR:FORM.ZPL^FS ^FN1^FDDATA1^FS ^FN2^FDDATA2^FS ^XZ

Output

```
FIXED DATA
DATA1

DATA2


FIXED DATA
VAR 1

VAR 2
```

5. Commands

In this section we list all commands by alphabetical order with description like

- Command format.
- Parameter definition and default value.
- Related data structures.
- Related commands.
- Example.

For most commands they must be combined together with others in order to print specific patterns or perform special function.

^A	**Font Selection**
^Afo,h,w	

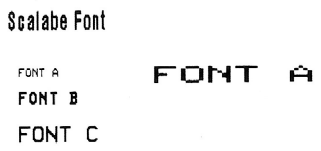
Parameter Description

f	Font ID Default: 0 (Internal scalable font, CG Triumvirate Bold Condensed) Others: **0 ~ 9**, **A ~ Z** The ID may be defined through the ^CW command. The ID, '**:**', '**;**' or '**>**' are reserved for 2 byte fonts, like Chinese, Taiwanese, Korean, etc..
o	Orientation Default: **N** (Portrait) Others: **I** for reverse portrait, **B** for landscape and **R** for reverse landscape.
h	Cell height in pixels For bitmap font the h parameter is used to calculate the times to scale the character height. vsf (vertical scale factor) = (h+ch/2)/ch Where ch is the original cell height. The vsf must be an integer and its minimum value is 1.
w	Cell width in pixels For bitmap font the h parameter is used to calculate the times to scale the character width. hsf (hertical scale factor) = (w+cw/2)/cw Where cw is the original cell width. The hsf must be an integer and its minimum value is 1.

Example

```
^XA
^FO20,20^A0,25,15^FDScalabe Font^FS
^FO30,70^AA^FDFONT A^FS
^FO150,70^AA,20,18^FDFONT A^FS
^FO30,90^AB^FDFONT B^FS
^FO30,120^AC^FDFONT C^FS
^XZ
```

Output



Example

The following example prints the Taiwanese characters if the Taiwanese font card is installed.

```
^XA
^FO100,120^A:,48,96^FD 中文測試^FS
^XZ
```

Output

^A@	Font Selection by the font name
^A@o,h,w,n	

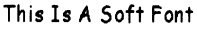
Parameter Description

o	Orientation Default: **N** (Portrait) Others: **I** for reverse portrait, **B** for landscape and **R** for reverse landscape.
h	Cell height in pixels For bitmap font the h parameter is used to calculate the times to scale the character height. vsf (vertical scale factor) = (h+ch/2)/ch Where ch is the original cell height. The vsf must be an integer and its minimum value is 1.
w	Cell width in pixels For bitmap font the h parameter is used to calculate the times to scale the character width. hsf (hertical scale factor) = (w+cw/2)/cw Where cw is the original cell width. The hsf must be an integer and its minimum value is 1.
n	An optional device character. A max 8-chacter file name and a max 3-character extension name. e.g. R:ABC.FNT

Example

```
^XA
^FO20,50^A@,25,22,B:COMIC.FNT^FDThis Is A Soft Font^FS
^XZ
```

Output



^B1	Bar code – code 11
^B1o,e,h,f,g	

Parameter Description

o	Orientation Default: **N** (Portrait) Others: **I** for reverse portrait, **B** for landscape and **R** for reverse landscape.
e	Number of Check digits Default: **N** for 2 digits. **Y** for 1 digit.
h	Bar code height Default: set by ^BY command. Others: 1 ~ 999 pixels.
f	Human readable text Default: **Y** for yes. **N** for no human readable text.
g	Position for human readable text Default: **N** for text below barcode. **Y** for text above barcode.
Valid characters	**0 ~ 9**

Example

```
^XA
^FO30,70^B1,N,50,Y,Y^FD12345^FS
^FO30,160^B1,Y,30,Y,N^FD87615^FS
^XZ
```

Output

^B2	Bar code – Interleaved 2 of 5
^B2o,h,f,g,e	

Parameter Description

O	Orientation Default: **N** (Portrait). Others: **I** for reverse portrait, **B** for landscape and **R** for reverse landscape.
h	Bar code height Default: set by ^BY command. Others: 1 ~ 999 pixels.
f	Human readable text Default: **Y** for yes. **N** for no human readable text.
g	Position for human readable text Default: **N** for text below barcode. **Y** for text above barcode.
e	Check digit by mod 10 Default: **N** for no check digit. **Y** for check digit.
Valid characters	**0 ~ 9**

Example

```
^XA
^FO30,70^B2,50,Y,Y,Y^FD24680^FS
^FO30,160^B2,30,Y,N,N^FD13579^FS
^XZ
```

Output

^B3	Bar code – Code 39
^B3o,e,h,f,g	

Parameter Description

o	Orientation Default: **N** (Portrait). Others: **I** for reverse portrait, **B** for landscape and **R** for reverse landscape.
e	Check digit by mod 43 Default: **N** for no check digit. **Y** for check digit.
h	Bar code height Default: set by ^BY command. Others: 1 ~ 999 pixels.
f	Human readable text Default: **Y** for yes. **N** for no human readable text.
g	Position for human readable text Default: **N** for text below barcode. **Y** for text above barcode.
Valid characters	**0 ~ 9**, **A ~ Z**, **-**, **$**, **/**, **+**, **%** and **space**.

Example

^XA
^FO30,70^B3,,100^FDABCDZ^FS
^XZ

Output

^B7	Bar code – PDF-417
^B7o,h,s,c,r,t	

Parameter Description

o	Orientation Default: **N** (Portrait). Others: **I** for reverse portrait, **B** for landscape and **R** for reverse landscape.
h	Height for individual row Default: set by ^BY command. Others: **1** ~ **999** pixels.
s	Security level Default: **0** for level 0. Other: **1** to **8**.
c	Number of columns to encode Default: 1:2 row/column aspect ratio. Others: **1** ~ **30**.
r	Number of rows to encode Default: 1:2 row/column aspect ratio. Others: **3** ~ **90**.
t	Type of guard bar at right side Default: **N** for normal. Other: **Y** for truncation.

Example

^XA
^FO30,70^B7,5,,,,Y^FDPDF417 ABC^FS
^FO30,150^B7,7^FDPDF417 XYZ^FS
^XZ

Output

^B8	Bar code – EAN-8
^B8o,h,f,g	

Parameter Description

o	Orientation Default: **N** (Portrait). Others: **I** for reverse portrait, **B** for landscape and **R** for reverse landscape.
h	Bar code height Default: set by ^BY command. Others: 1 ~ 999 pixels.
f	Human readable text Default: **Y** for yes. **N** for no human readable text.
g	Position for human readable text Default: **N** for text below barcode. **Y** for text above barcode.
Valid characters	**0 ~ 9**. Exactly 7 or 8 characters are allowed.

Example

```
^XA
^BY3^FO30,70^B8,80^FD1234567^FS
^XZ
```

Output

^B9	Bar code – UPC E
^B9o,h,f,g,e	

Parameter Description

o	Orientation Default: **N** (Portrait). Others: **I** for reverse portrait, **B** for landscape and **R** for reverse landscape.
h	Bar code height Default: set by ^BY command. Others: 1 ~ 999 pixels.
f	Human readable text Default: **Y** for yes. **N** for no human readable text.
g	Position for human readable text Default: **N** for text below barcode. **Y** for text above barcode.
e	Check digit Default: **Y** for check digit. **N** for no check digit.
Valid characters	**0** ~ **9**. Exactly 10 characters are allowed.

Example

^XA
^BY2
^FO30,70^B9,80^FD0123456789^FS
^FO180,70^B9,60,Y,N,N^FD0123456789^FS
^XZ

Output

^BA	**Bar code – Code 93**
^BAo,h,f,g,e	

Parameter Description

o	Orientation Default: **N** (Portrait). Others: **I** for reverse portrait, **B** for landscape and **R** for reverse landscape.
h	Bar code height Default: set by ^BY command. Others: 1 ~ 999 pixels.
f	Human readable text Default: **Y** for yes. **N** for no human readable text.
g	Position for human readable text Default: **N** for text below barcode. **Y** for text above barcode.
e	Check digit Default: **Y** for check digit. **N** for no check digit.
Valid characters	**0 ~ 9**, **A ~ Z**, **-**, **$**, **/**, **+**, **%**, **&**, **'**, **( )** and **space**.

Example

^XA
^FO30,20^BA,40^FD01234ABC89^FS
^FO30,90^BA,30,Y,N,N^FD0123ABC789^FS
^XZ

Output

^BC	Bar code – Code 128 with subsets A, B and C
^BCo,h,f,g,e,m	

Parameter Description

o	Orientation Default: **N** (Portrait). Others: **I** for reverse portrait, **B** for landscape and **R** for reverse landscape.
h	Bar code height Default: set by ^BY command. Others: 1 ~ 999 pixels.
f	Human readable text Default: **Y** for yes. **N** for no human readable text.
g	Position for human readable text Default: **N** for text below barcode. **Y** for text above barcode.
e	Check digit Default: **Y** for check digit. **N** for no check digit.
m	Default: **N** for fixed mode. **A** for auto mode and **U** for UCC mode.
Valid characters	Code A: ASCII code 00H ~ 5DH. Code B: ASCII code 20H ~ 7FH. Code C: numeric only (**0** ~ **9**).
Invocation code	>8 FNC1 >9 Start code A >: Start code B >; Start code C

Example

```
^XA
^FO30,20^BC,50,,,,A^FD0123456789^FS
^XZ
```

Output

^BD	Bar code – Maxicode
^BDm,n,t	

Parameter Description

m	Mode Default: **2**. Others: **3** ~ **6**.
n	Symbol number Default: **1**. Others: **1** ~ **8** symbols.
t	Total number of symbols Default: **1**. Others: **1** ~ **8**.

The ^BY command has no affect on Maxicode. The ^BD is combined with ^FD for Maxicode.

^FD<hpm><lpm>

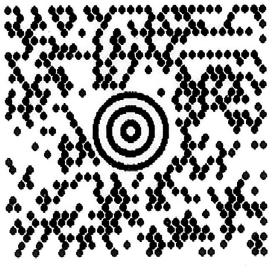
Parameter Description

<hpm>	High priority message (only applicable in modes 2 and 3) aaabbbccccddddd for mode 2, where aaa class of service bbb country code ccccc zip code dddd zip code extension aaabbbcccccc for mode 3.
<lpm>	Low priority message (only applicable in modes 2 and 3)

Example

^XA
^FO20,10^CVY
^BD^FH^FD001840152382802[)>_1E01_1D961Z00004951_1DUPSN_1D06X610_1D159_1D1234567_1D1/1_1D_1DY_1D634 ALPHA DR_1DPITTSBURGH_1DPA_1E_04^FS
^XZ

Output



^BE	Bar code – EAN-13
^BEo,h,f,g	

Parameter Description

o	Orientation Default: **N** (Portrait). Others: **I** for reverse portrait, **B** for landscape and **R** for reverse landscape.
h	Bar code height Default: set by ^BY command. Others: 1 ~ 999 pixels.
f	Human readable text Default: **Y** for yes. **N** for no human readable text.
g	Position for human readable text Default: **N** for text below barcode. **Y** for text above barcode.
Valid characters	**0 ~ 9**. Exactly 12 or 13 characters are allowed.

Example

```
^XA
^FO30,70^BE,80^FD123456789012^FS
^XZ
```

Output

^BI	Bar code – Industrial 2 of 5
^BIo,h,f,g	

Parameter Description

o	Orientation Default: **N** (Portrait). Others: **I** for reverse portrait, **B** for landscape and **R** for reverse landscape.
h	Bar code height Default: set by ^BY command. Others: **1 ~ 999** pixels.
f	Human readable text Default: **Y** for yes. **N** for no human readable text.
g	Position for human readable text Default: **N** for text below barcode. **Y** for text above barcode.
Valid characters	**0 ~ 9**.

Example

^XA^BY3
^FO30,70^BI,50^FD24680^FS
^XZ

Output

^BJ	Bar code – Standard 2 of 5
^BJo,h,f,g	

Parameter Description

o	Orientation Default: **N** (Portrait). Others: **I** for reverse portrait, **B** for landscape and **R** for reverse landscape.
h	Bar code height Default: set by ^BY command. Others: **1 ~ 999** pixels.
f	Human readable text Default: **Y** for yes. **N** for no human readable text.
g	Position for human readable text Default: **N** for text below barcode. **Y** for text above barcode.
Valid characters	**0 ~ 9**.

Example

^XA^BY3
^FO30,70^BJ,50^FD24680^FS
^XZ

Output

^BK	Bar code – Codabar
^BKo,e,h,f,g,k,l	

Parameter Description

o	Orientation Default: **N** (Portrait). Others: **I** for reverse portrait, **B** for landscape and **R** for reverse landscape.
e	Check digit Default: **N**
h	Bar code height Default: set by ^BY command. Others: **1 ~ 999** pixels.
f	Human readable text Default: **Y** for yes. **N** for no human readable text.
g	Position for human readable text Default: **N** for text below barcode. **Y** for text above barcode.
k	Start code Default: A. Others: B,C,D,*,N,E or T
l	Stop code Default: **A**. Others: **B**,**C**,**D**,*,**N**,**E** or **T**
Valid characters	**0 ~ 9**, **A**, **B**, **C**, **D**, **E**, **T**, **N**, *, **-**, **:**, **.**, **$**, **/**, **+**

Example

^XA
^FO40,70^BK,N,50,,,A,B^FD2480^FS
^XZ

Output

^BL	Bar code – Logmars
^BLo,h,g	

Parameter Description

o	Orientation Default: **N** (Portrait). Others: **I** for reverse portrait, **B** for landscape and **R** for reverse landscape.
h	Bar code height Default: set by ^BY command. Others: 1 ~ 999 pixels.
g	Position for human readable text Default: **N** for text below barcode. **Y** for text above barcode.
Valid characters	**0 ~ 9**, **A ~ Z**, **-**, **.**, *****, **$**, **/**, **+** , **,** and **space**

Example

^XA
^FO40,70^BL,50^FDABC2^FS
^XZ

Output

^BM	Bar code – MSI
^BMo,e,h,f,g,h	

Parameter Description

o	Orientation Default: **N** (Portrait). Others: **I** for reverse portrait, **B** for landscape and **R** for reverse landscape.
e	Check digit Default: **B** (1 mod 10) Others: **A** (no check digit), **C** (2 mod 10), **D** (1 mod 10 and 1 mod 11).
h	Bar code height Default: set by ^BY command. Others: 1 ~ 999 pixels.
f	Human readable text Default: **Y** for yes. **N** for no human readable text.
g	Position for human readable text Default: **N** for text below barcode. **Y** for text above barcode.
h	Print check digit Default: **N** for no. Other: **Y** for yes.
Valid characters	**0 ~ 9**

Example

```
^XA
^FO40,70^BM,,50,,,Y^FD9876^FS
^XZ
```

Output

^BP	Bar code – Plessey
^BPo,e,h,f,g	

Parameter Description

o	Orientation Default: **N** (Portrait). Others: **I** for reverse portrait, **B** for landscape and **R** for reverse landscape.
e	Print Check digit. Default: **N** for No. Others: **Y** for Yes.
h	Bar code height Default: set by ^BY command. Others: 1 ~ 999 pixels.
f	Human readable text Default: **Y** for yes. **N** for no human readable text.
g	Position for human readable text Default: **Y** for text above barcode. **N** for text below barcode.
Valid characters	**0 ~ 9**, **A~F**. Maximum: 100 characters.

Example

^XA

^FO50,100^BPN,N,80,Y,N^FD12345^FS

^XZ

Output

^BQ	Bar code – QR code
^BQo,e,f^FDnm,c<data string>	

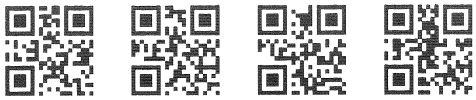
Parameter Description

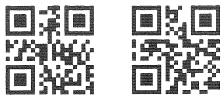
o	Orientation Default: **N**. No rotation is available.
e	Model Default: **2** for enhanced. Others: **1** for original.
f	Magnification factor Default: **2** Others: **1~10**.
n	Error correction level Default: **M** for standard level. **H** for ultra-high reliability level. **Q** for high reliability level. **L** for high density level.
m	Data input modes Default: **A** for automatic **M** for manual input.
c	Character mode **N** for numeric. **A** for alphanumeric. **Bxxxx** for 8-bit byte mode; **xxxx** is indicate number of characters. (A Simple or Traditional Chinese word is 2 characters) **K** for Kanji characters.

Example

^XA
^FO100,100^BQN,2,5^FDMA,[立象科技]^FS
^FO250,100^BQN,2,5^FDMA,%小%明%伙%^FS
^FO400,100^BQN,2,5^FDMM,B0008 中國伙食^FS
^FO550,100^BQN,2,5^FDMM,N1234567890^FS
^FO100,350^BQN,2,5^FDMM,AWXYZABCD^FS
^FO250,350^BQN,2,5^FDMM,B001212345 立象 ABC^FS
^PQ1,1,0,Y^FS
^XZ

Output





^BR	RSS Bar Code (GS1 DataBar)
^BRa,b,c,d,e,f	

Parameter Description

a	Orientation Default: **R** for reverse landscape Others: **N** (Portrait), **I** for reverse portrait and **B** for landscape.
b	Bar code types Default: **1** Others: **1**= RSS14 (GS1 DataBar Omnidirectional) **2**= RSS14 Truncated (GS1 DataBar Truncated) **3**= RSS14 Stacked (GS1 DataBar Stacked) **4**= RSS14 Stacked Omnidirectional (GS1 DataBar Stacked Omnidirectional) **5**= RSS Limited (GS1 DataBar Limited) **6**= RSS Expanded (GS1 DataBar Expanded)
c	Magnification factor Default: **1** Others: **1** to **10**
d	Separator height Always value: **1**
e	Bar code height. *(Only affect the linear portion of the bar code.)* This parameter will not be effective by the parameter “c.” Default value: RSS14=**33** RSS14 Truncated=**13** RSS14 Stacked=**13** RSS14 Stacked Omnidirectional=**69** RSS Limited=**10** RSS Expanded=**34** Others:**1** to **32000** dots
f	The segment width *(RSS expanded only)* Default: **22** Others:**2** to **22** *(even numbers only in segments per line)*

Example

^XA
^MNN
^FO10,10^BRN,1,3,1,33,22^FD1234567890|RSS14^FS
^FO10,140^AC^FDRSS14^FS

^FO10,220^BRN,2,3,1,13,22^FD89121121225|RSS14 Truncated^FS
^FO10,310^AC^FDRSS14 Truncated^FS

^FO410,10^BRN,3,3,1,13,22^FD88689121124|RSS14 Stacked^FS
^FO410,170^AC^FDRSS14 Stacked^FS

^FO10,400^BRN,4,2,1,69,22^FD0968851800|RSS14 Stacked Omnidirectional^FS
^FO10,650^AC^FDRSS14 Stacked Omnidirectional^FS

^FO410,250^BRN,5,3,1,10,22^FD911006072123|RSS14 Limited^FS
^FO410,340^AC^FDRSS14 Limited^FS

^FO410,410^BRN,6,2,1,34,22^FD8860227662000|RSS14 Expanded^FS
^FO410,510^AC^FDRSS14 Expanded^FS
^XZ

Output

RSS14

RSS14 Stacked

RSS14 Truncated

RSS14 Limited

RSS14 Stacked Omnidirectional

RSS14 Expanded

^BS	Bar code – UPC/EAN extension
^BSo,h,f,g	

Parameter Description

o	Orientation Default: **N** (Portrait). Others: **I** for reverse portrait, **B** for landscape and **R** for reverse landscape.
h	Bar code height Default: set by ^BY command. Others: 1 ~ 999 pixels.
f	Human readable text Default: **Y** for yes. **N** for no human readable text.
g	Position for human readable text Default: **Y** for text above barcode. **N** for text below barcode.
Valid characters	**0 ~ 9**. Exactly 2 or 5 characters.

Example

```
^XA^FO30,70^BS,50^FD98^FS
^FO160,70^BS,50,Y,N^FD98765^FS
^XZ
```

Output

^BU	Bar code – UPC A
^BUo,h,f,g,e	

Parameter Description

o	Orientation Default: **N** (Portrait). Others: **I** for reverse portrait, **B** for landscape and **R** for reverse landscape.
h	Bar code height Default: set by ^BY command. Others: 1 ~ 999 pixels.
f	Human readable text Default: **Y** for yes. **N** for no human readable text.
g	Position for human readable text Default: **N** for text below barcode. **Y** for text above barcode.
e	Print check digit Default: **Y** for yes. Other: **N** for no.
Valid characters	**0 ~ 9**. Exactly 11 or 12 characters.

Example

```
^XA
^FO40,70^BU,50Y^FD01234567890^FS
^XZ
```

Output

^BX	Bar code – Data Matrix
^BXo,h,s,c,r,f,g	

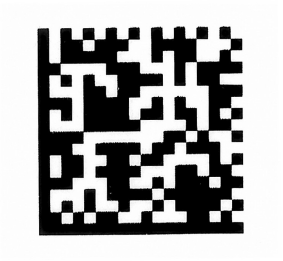
Parameter Description

o	Orientation Default: **N** (Portrait). Others: **I** for reverse portrait, **B** for landscape and **R** for reverse landscape.
h	Dimensions Default: set by ^BY command.
s	Quality Level Accept values: 0, 50, 80, 100, 140 and 200.
c	Columns to encode. (Auto)
r	Rows to encode. (Auto)
f	Format ID
g	Escape sequence control character. Default: " _ ". Other: Any characters.

Example

^XA^FO100,100^BXN,10,200,,,,
^FDARGOX INFORMATION^FS
^XZ

Output



^BY	Parameter defaults for general bar codes
^BYw,r,h	

Parameter Description

w	Width of narrow bar Default: **2** pixels (cold start). Others: **1 ~ 10** pixels.
r	Bar ratio Default: **3.0** (cold start). Others: **2.0 ~ 3.0**.
h	Barcode height Default: **10** pixels. Others: **1 ~ 999** pixels.

Example

^XA^BY2,3.0,40^FO30,40^BI^FD24680^FS
^BY3,2.5,60^FO30,130^BI^FD24680^FS
^XZ

Output

^BZ	Bar code – PostNet
^BZo,h,f,g	

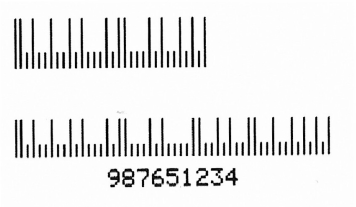
Parameter Description

o	Orientation Default: **N** (Portrait). Others: **I** for reverse portrait, **B** for landscape and **R** for reverse landscape.
h	Bar code height Default: set by ^BY command. Others: 1 ~ 999 pixels.
f	Human readable text Default: **N** for no human readable text. **Y** for yes.
g	Position for human readable text Default: **N** for text below barcode. **Y** for text above barcode.
Valid characters	**0 ~ 9**. Exactly 5, 9 or 11 characters.

Example

^XA
^FO30,40^BZ,40^FD98765^FS
^FO30,120^BZ,30,Y^FD987651234^FS
^XZ

Output



^CC	Changes the caret character
^CCx or ~CCx	

Parameter Description

x	New caret character The default caret **^** will be replaced by **x** where **x** is a printable character.

This new caret will be saved to the flash or E^2PROM permanently.

^CD	**Changes the delimiter character**
^CDx or ~CDx	

Parameter Description

x	New delimiter character The default delimiter will be replaced by **x** where **x** is a printable character.

This new delimiter will be saved to the flash or E^2PROM permanently.

Example

~CD*

This command changes the delimiter from '**,**' to '*****'.

^CF	Changes default font
^CFc,h,w	

Parameter Description

c	Default font ID Default: **A**. Others: **B ~ H**, **0 ~ 9**.
h	Character cell height in pixels. 0 ~ 999.
w	Character cell width in pixels. 0 ~ 999.

If the specified font does not exist, the default font will be selected.

This default font ID will be saved to the flash or E^2PROM permanently.

Example

```
^XA^CFF^XZ
^XA
^FO30,100^AZ^FDFONT F ?^FS
^XZ
```

Output

FONT F ?

^CI	**Changes symbol set**
^CIc	

Parameter Description

c	Symbol set Default: **0** for USA. Others: **1 ~ 13**.

This default font will be saved to the flash or E^2PROM permanently.

	23H	30H	40H	5BH	5CH	5DH	5EH	60H	7BH	7CH	7DH	7EH	Country
CI0	#	Ø	@	[	¢	]	^	'	{	¦	}	~	USA
CI1	#	0	@	⅓	¢	⅔	^	'	¼	½	¾	~	USA2
CI2	£	Ø	@	[	¢	]	^	'	{	¦	}	~	UK
CI3	*f*	0	§	[	IJ	]	^	'	{	ij	}	~	Holland
CI4	#	0	@	Æ	Ø	Å	^	'	æ	ø	å	~	Den/Nor
CI5	Ü	0	É	Ä	Ö	Å	Ü	é	ä	ö	å	ü	Swe/Fin
CI6	#	0	§	Ä	Ö	Ü	^	'	ä	ö	ü	β	German
CI7	£	Ø	à	[	ç	]	^	'	é	¦	ù	è	France1
CI8	#	0	à	â	ç	ê	î	ô	é	ù	è	û	France2
CI9	£	Ø	§	[	ç	é	^	ù	à	ò	è	ì	Italy
CI0	#	0	§	¡	Ñ	¿	^	'	{	ñ	ç	~	Spain
CI11	£	Ø	É	Ä	Ö	Ü	^	ä	ö	ï	ö	ü	Misc.
CI12	#	Ø	@	[	¥	]	^	'	{	¦	}	~	Japan
CI13	#	0	@	[	\	]	^	'	{	¦	}	~	Page850

^CT	Changes the tilde character
^CTx or ~CTx	

Parameter Description

x	New tilde character The default tilde ' ~ ' will be replaced by **x** where **x** is a printable character.

This new tilde will be saved to the flash E^2PROM permanently.

Example

~CT=

This command changes the tilde from '**~**' to '**=**'.

^CW	Defines the font ID
^CWc,d:f	

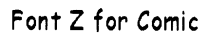
Parameter Description

c	New font ID Range: **A ~ Z**, **0 ~ 9**. By the new font ID, the font can be accessed.
d	Device driver Default: **R** (RAM) Others: **B** (flash memory).
f	File name 8 character file name with 3 characters extension name.

Example

```
^XA^CWZ,COMIC.FNT
^FO30,100^AZ,30,25^FDFont Z for Comic^FS
^XZ
```

Output



~DB	Downloads a bitmap font
~DBd:f,o,h,w,base,hmi,#char,msg,data	

Parameter Description

d	Destination device driver Default: **R** for RAM. Other: **B** for flash memory.
f	File name 8 character file name with 3 character extension name. The default extension name for font is "**.FNT**".
o	Orientation of current font Always **N** for portrait.
h	Cell height in pixels
w	Cell width in pixels
base	Base line position in pixels from top
hmi	Horizontal motion index The movement distance for a space or non-printable code.
#char	Total number of character to be downloaded
msg	A maximum of 63 characters for general message.
data	Parameters and image for characters

For a character its parameters and image are defined as follow.

#code.h.w.xoff.yoff.deltax.image

code	Character code.
h	Character height in pixels.
w	Character width in pixels.
xoff	Left offset in pixels.
yoff	Top offset in pixels.
deltax	Cursor movement in pixels after the character is printed.
image	All image is represented by the hex code.

^DF	Downloads form
^DFd:f	

Parameter Description

d	Device driver Default: **R** (RAM) Others: **B** (flash memory).
f	File name 8 character file name with 3 characters extension name. The default extension name is "**.ZPL**".

This command ^DF is used to define the form including variables, counters. The form is executed only by ^XF command. Refer to the ^XF command and its example for details.

~DG	Downloads graphic
~DGd:f,t,w,data	

Parameter Description

d	Device driver Default: **R** (RAM) Others: **B** (flash memory).
f	File name 8 character file name with 3 characters extension name. The default extension name for graphic is "**.GRF**".
t	Total number of bytes in graphic
w	Number of bytes per raster line
data	Rater data The data are represented by hex codes and control codes for compression. t (total no. of raster data) = w (width of raster line) * h (no. of raster lines)

Example

```
~DGTRIANGLX,42,6,
F00000000000
FF0000000000
FFF000000000
FFFF00000000
FFFFF0000000
FFFFFF000000
FFFFFFFFFFFF
^XA
^FO30,40^XGTRIANGLX,1,1^FS
^FO40,60^XGTRIANGLX,5,5^FS
^XZ
```

Output

~DN	Abort Download Graphic
~DN	

This command is used to clear download graphic in the printer.

Note:

If user wants to stop graphics downloading, user should abort the transmission from the PC host. This command is only supported on OS-2140 and A-2240.

~DU	Downloads unbounded TrueType font
~DUd:f,s,data	

Parameter Description

d	Device driver Default: **R** (RAM) Others: **B** (flash memory).
f	File name 8 character file name with 3 characters extension name. The default extension name for TrueType is "**.FNT**".
s	Font size
data	TrueType data

~EF	Erases all stored forms
~EF	

After the command is received all forms stored in the printer will be erased.

~EG	Erases all stored graphics
~EG	

After the command is received all graphics stored in the printer will be erased.

^FA	Field allocate
^FAm	

Parameter Description

m	Character Memories to be saved Default: **1**. Others: **1 ~256**.

This command is used to let the printer allocate memory spaces for the field to be saved.

^FB	Defines the format of a block data
^FBa,b,c,d,e	

Parameter Description

a	Width of field in pixels Default: **0**. Others: **1** ~ **999**.
b	Maximum number of lines Default: **1**. Others: **2** ~ **999**.
c	Extra line space in pixels between lines Default: **0**. Others: -**999** ~ **999**.
d	Justification of text Default: **L**. Others: **C** (center), **J** (margin to margin) and **R** (right).
e	Secondary left margin Default: 0. Others: 1 ~ 999.

Each block starts from ^FB and ends by an ^FS. Some special control codes in the ^FD command are used for special functions.

\& carriage return and line feed

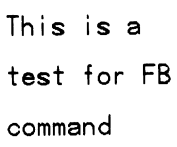
\(*) soft hyphen (word break with a dash)

\\ Same as \

Example

```
^XA
^AF^FO20,20^FB220,6
^FDThis is a test for FB command^FS
^XZ
```

Output



^FC	Field Clock
^FCa,b,c,	

Parameter Description

a	Primary clock indicator character Default: **%** Others: **ASCII character**
b	Second clock indicator character Default: **None**(The value can't be the same as a or c) Others: **ASCII character**
c	Third clock indicator character Default: **None**(The value can't be the same as a or b) Others: **ASCII character**

The command is for setting the clock-indicators and the clock mode. Besides, this command is also included within each label field command string each time the Real-Time Clock values are required within the field. *This command is only effective on OS-2140 and A-2240.*

Example

```
^XA
^FO20,100^A0N,50,50
^FC!,#,%
^FDPrimary: !Y/!b/!d/!H/!M^FS
^FO20,200^A0N,50,50
^FC!,#,%
^FDSecondary: #Y/#b/#d/#H/#M^FS
^FO20,300^A0N,50,50
^FC!,#,%
^FDThird: %Y/%b/%d/%H/%M^FS
^XZ
```

Output

Primary: 2008/Dec/22/17/30

Secondary: 2008/Dec/22/17/30

Third: 2008/Dec/22/17/30

Command Characters

Command Character	Function	Value
%a	The abbreviated weekday name	
%A	The weekday name	
%b	The abbreviated month name	
%B	The month name	
%d	The day of the month number	01~31
%H	The hour of the day-military	00~23
%I	The hour of the day-civilian	01~12
%j	The day of the year	001~366
%m	The month number	02~12
%M	The minute	00~59
%p	AM or PM designation	
%S	The seconds	00~59
%U	The week of the year	00~53, Sunday is the first day
%W	The week of the year	00~53, Monday is the first day
^w	The day of the week	0(Sunday)~6(Saturday)
%y	The 2 digits of the year	
%Y	The 4 digits of the year	

^FD	Field data
^FDdata	

Parameter Description

data	Data for text or barcode

In general this command is used to include the data for text or barcode and ends by a ^FS command. Some special control codes in the ^FD command are used for special functions.

\& carriage return and line feed

\(*) soft hyphen (word break with a dash)

\\ Same as \

^FH	Field HEX
^FHa	

Parameter Description

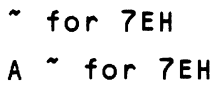
a	Character before a hexadecimal code Default: _. Others: printable characters.

For some control codes or un-printable codes this can make you print them. This command must be present before the ^FD command.

Example

^XA
^FO40,60^AE^FH^FD_7e for 7EH^FS
^FO40,110^AE^FH\^FDA \7e for 7EH^FS
^XZ

Output



^FN	Field number
^FNa	

Parameter Description

a	ID Number to be assigned Default: **0**. Others: **1 ~ 999**.

The ^FN is usually used in a form. By this you may specify the field number and fill it with updated data.

Example

```
^XA^DFFMT^FS
^BY2,3,100
^FO50,60^AF^FN1^FA9^FS
^FO50,110^B3^FN2^FA6^FS
^XZ

^XA^XFFMT^FS
^FN1^FDNew Data^FS
^FN2^FD123^FS
^XZ
```

Output

^FO	Moves the position for print pattern
^FOx,y,z	

Parameter Description

x	Horizontal coordinate Default: **0**. Others: **1 ~ 65535** printing width of the printer.
y	Vertical coordinate Default: **0**. Others: **1 ~ 65535** printing length of the printer.
z	Justification Default: **0**= left justification Others:**1**= right justification; **2**= justification (script dependent)

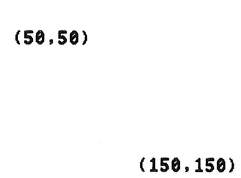
The location of ^FO is relative to the origin set by the ^LH command.

The" z" parameter is only effective on OS-2140 and A-2240; Please refer to related commands- ^FP and ^FT.

Example1

```
XA
^FO50,50^AB^FD(50,50)^FS
^FO150,150^AB^FD(150,150)^FS
^XZ
^
```

Output 1



Example 2

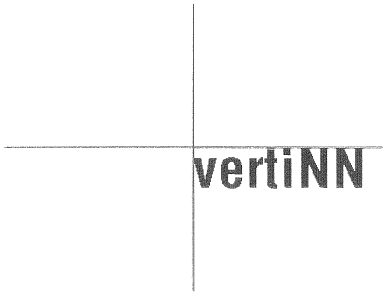
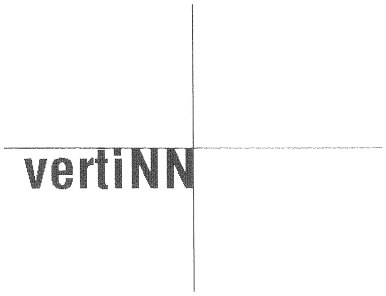
```
^XA
^LL560
^PW800
~SD16
^MD0
^PR3,3,3
^FO200,300^GB400,1,2,B^FS
^FO400,150^GB1,300,2,B^FS
```

```
^FO400,300,0^FPH^AVN,,^FDvertiNN^FS
^XZ
```

Example 3

```
^XA
^LL560
^PW800
~SD16
^MD0
^PR3,3,3
^FO200,300^GB400,1,2,B^FS
^FO400,150^GB1,300,2,B^FS
^FO400,300,1^FPH^AVN,,^FDvertiNN^FS
^XZ
```

Output 2 & Output 3

Output 2 (Left justified)	Output 3 (Right justified)
	

^FP	Field Parameter
^FPd,g	

Parameter Description

d	Direction Default: **H** for horizontal printing (left to right) Others: **R** for vertical printing (top to bottom) **V** for vertical printing (right to left)
g	Extra inter-character gap in pixels Default: **0**. Others: **0 ~ 9999**

This command enables vertical and reverse formatting of the font field.

Example

^XA
^LL560
^PW800
~SD16
^MD0
^PR3,3,3
^FO200,300^GB400,1,2,B^FS
^FO400,150^GB1,300,2,B^FS
^FO400,300,0^FPH^AVN,,^FDFPH^FS
^XZ

^XA
^LL560
^PW800
~SD16
^MD0
^PR3,3,3
^FO200,300^GB400,1,2,B^FS
^FO400,150^GB1,300,2,B^FS
^FO400,300,0^FPR^AVN,,^FDFPR^FS
^XZ

^XA
^LL560
^PW800

~SD16

^MD0

^PR3,3,3

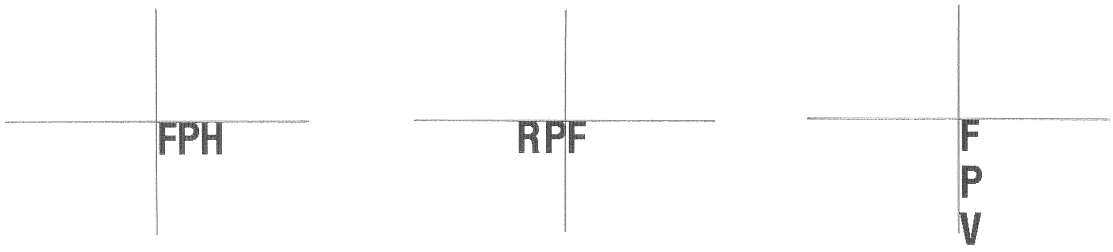
^FO200,300^GB400,1,2,B^FS

^FO400,150^GB1,300,2,B^FS

^FO400,300,0^FPV^AVN,,^FDFPV^FS

^XZ

Output



^FR	Reverse print
^FR	

This command enables reverse print for the next field data.

Example

^XA
^FO40,20^GB80,0,100^FS
^FO40,55^FR^A0,40,35^FDReverse^FS
^XZ

Output

^FS	End of field
^FS	

This command denotes the end of field. It can also be represented by a single control code (0FH).

^FT	Defines coordinate for print pattern
^FTx,y,z	

Parameter Description

x	Horizontal coordinate Default: **0**. Others: **1 ~ 65535**.
y	Vertical coordinate Default: **0**. Others: **1 ~ 65535**.
z	Justification Default: **0** Others: **0**= left justification; **1**= right justification; **2**= auto justification

Similar to ^FO command the location of ^FO is relative to the origin set by the ^LH command but the object position is different.

The" z" parameter is only effective on OS-2140 and A-2240.

Example 1

```
^XA
^FT100,100^A0,50,40^FDFT^FS
^FO100,100^GB100,0,2^FS
^FO100,100^A0,50,40^FDFO^FS
^XZ
```

Output 1

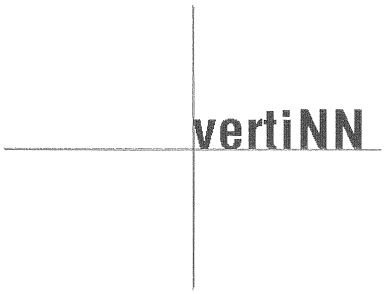
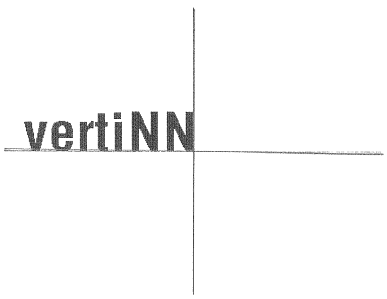
Example 2

```
^XA
^LL560
^PW800
~SD16
^MD0
^PR3,3,3
^FO200,300^GB400,1,2,B^FS
^FO400,150^GB1,300,2,B^FS
^FT400,300,0^FPH^AVN,,^FDvertiNN^FS
^XZ
```

Example 3

^XA
^LL560
^PW800
~SD16
^MD0
^PR3,3,3
^FO200,300^GB400,1,2,B^FS
^FO400,150^GB1,300,2,B^FS
^FT400,300,1^FPH^AVN,,^FDvertiNN^FS
^XZ

Output 2 & Output 3

Output 2 (Left justified)	Output 3 (Right justified)
	

^FV	Defines variable
^FVdata	

Parameter Description

data	Data to be printed

The data in ^FV command can be replaced at next label. In general this command is combined with ^MCN command since there are still other fixed data that cannot be cleared until the last label.

Example

```
^XA
^FT50,50^AB^FDFIXED DATA^FS
^FT50,80^A0,30,20^FVVARIABLE^FS
^MCN
^XZ

^XA
^FT50,80^A0,30,20^FVNEW DATA^FS
^MCY
^XZ
```

Output

^FW	Defines default orientation
^FWo	

Parameter Description

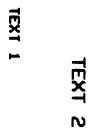
o	Orientation Default: **N** (Portrait). Others: **I** for reverse portrait, **B** for landscape and **R** for reverse landscape.

The ^FW command defines the default orientation for all fields. If a command has a specific orientation parameter the default one is not used.

Example

```
^XA
^FWR
^FO40,50^AB^FDTEXT 1^FS
^FO100,100^AC^FDTEXT 2^FS
^XZ
```

Output



^FX	Comment
^FWdata	

Parameter Description

data	Data for comment

The ^FX command is just for human read only and ignored by the printer. It allows user to add some “non-printing” information within a label format.

Example

```
^XA
^FO40,50^AB^FDNON-COMMENT1^FS^FX!COMMENT
^FO40,100^AC^FDNON-COMMENT2^FS
^XZ
```

Output

^GB	Box or line
^GBw,h,t,c	

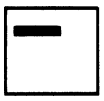
Parameter Description

w	Width of box or line in pixels Default: **1**. Others: **0 ~ 999**.
h	Height of box or line in pixels Default: **1**. Others: **0 ~ 999**.
t	Thickness in pixels Default: **1**. Others: **0 ~ 999**.
c	Color Default: **B**. Other: **W** for white or clear.

Example

```
^XA^FO50,50^GB100,90,3^FS
^FO60,70^GB50,0,10^FS
^XZ
```

Output



^GF	Direct graphic
^GFf,b,t,w,data	

Parameter Description

f	Format Default: **A** for ASCII (Hex). Others: **B** for binary.
b	Binary byte count In general b is same as t.
t	Total byte count This depends on the area of graphic.
w	Byte count of a raster line
data	Raster data Hex or binary data according to the specified format.

Such graphic is loaded directly into the image frame buffer. No graphic name is specified.

Example

```
^XA
^FO50,60^GFA,100,100,5
FFFFFFFFFFFFFFFFFFFF
FFFF00FFFFFFFF00FFFF
FFF0000FFFFFF0000FFF
FF000000FFFF000000FF
F00000000FF00000000F
FF000000FFFF000000FF
FFF0000FFFFFF0000FFF
FFFF00FFFFFFFF00FFFF
FFFFFFFFFF000FFFF000
00FFFFFF000FFFFFFFF0
^XZ
```

Output

^GS	Prints special symbols
^GSo,h,w	

Parameter Description

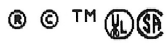
O	Orientation Default: **N** (Portrait) Others: **I** for reverse portrait, **B** for landscape and **R** for reverse landscape.
H	Character height in pixels Same definition as that in ^A.
W	Character width in pixels Same definition as that in ^A.

There are only five special symbols denoted by **A ~ E**.

Example

```
^XA^FO50,50^GS^FDABCDE^FS
^XZ
```

Output



^HF	Host Format
^HFd,o,x	

Parameter Description

d	Device to recall file Default: **R** (RAM) Others: **B** (Flash)
o	File name Alphanumeric characters
x	.ZPL

This command sends stored formats to the host. *This command is only for OS-2140 and A-2240.*

Example

Download this code to the printer through a terminal emulator.

^XA
^DFB:ARGOX.ZPL
^FO50,50^A100,100
^FDHF TEST^FS
^XZ

Then send this code to the printer.

^XA
^HFB:ARGOX.ZPL
^XZ

The terminal emulator will return this code.

^XA^DFB:ARGOX.ZPL
^FO50,50^A100,100^FDHF TEST^FS
^XZ

^HH	Configuration Label Return
^HH	

After sending this command, the configuration label will return to PC through the com port. *This command is effective on OS-2140 and A-2240.*

Example

^XA^HH^XZ

~HI	Host identification
~HI	

Send this command through the RS232 the printer will response with data for identification.

Example

~HI

Response

```
214ZIP,V1.0.0,8,2048KB
```

where

214ZIP	model name.
V1.0.0	firmware version.
8	resolution, 8 pixels per millimeter.
2048KB	standard RAM size.

~HM	Memory status
~HM	

Send this command through the RS232 the printer will response with data for the status of memory.

Example

```
~HM
```

Response

```
2048,1659,1529
```

where

2048	total size in KB of memory.
1659	Maximum free size of memory.
1529	Currently available memory size.

~HS	Host status
~HS	

Send this command through the RS232, the printer will response with data for the configuration and settings of the printer.

Example

~HS

Response

☻014,0,0,0251,000,0,0,0,000,0,0,0♥
☻000,0,0,0,0,2,5,0,00000000,1,000♥
☻0000,0♥

☻ stands for code 02H<STX> and ♥ for code 03H<ETX>.

There are three string groups in the response.

String 1
<STX>aaa,b,c,dddd,eee,f,g,h,iii,j,k,l<ETX><CR><LF>
String 2
<STX>mmm,n,o,p,q,r,s,t,uuuuuuuu,v,www<ETX><CR><LF>
String 3
<STX>xxxx,y<ETX><CR><LF>

aaa RS232 settings

This value is a 3 digit decimal representation of a 0 ~ 8 number.

aaa = $a^8a^7a^6a^5a^4a^3a^2a^1a^0$

- a^8 baud rate. 0 for less than or equal to 19200, 1 for 38400.
- a^7 flow control. 0 for Xon/Xoff and 1 for DTR.
- a^6 Parity. 0 for odd parity and 1 for even parity.
- a^5 Parity control. 0 for no parity and 1 for parity enabled.
- a^4 Stop bit number. 0 for 2 bits and 1 for 1 bit.
- a^3 Data bit number. 0 for 7 bits and 1 for 8 data bits.
- $a^2a^1a^0$ Baud rate. 010-600, 011-1200, 100-2400, 101-4800, 110-9600, 111-19200. Baud rate is 38400 when a8=1 and $a^2a^1a^0$=001.

b Paper out flag. 0 for normal.

c	Pause flag. 1 for pause mode.
dddd	Label length.
eee	Number of forms in the printer.
f	Buffer full flag.
g	Communication diagnostic mode. Always 0.
h	Reserved. Always 0.
iii	Reserved. Always 000.
j	Reserved. Always 0.
k	Reserved. Always 0.
l	Reserved. Always 0.

mmm Modes

This value is a 3 digit decimal representation of a 0 ~ 7 number.

mmm = $m^7m^6m^5m^4m^3m^2m^1m^0$

m^7	Media type. 0 for die-cut and 1 for continuous.
m^6	reserved. Always 0.
m^5	reserved. Always 0.
$m^4m^3m^2m^1$	reserved. Always 000.
m^0	Ribbon mode. 0 for DT and 1 for TT.

n	Reserved. Always 0.
o	Reserved. Always 0.
p	Ribbon flag. 1 for ribbon out.
q	Thermal transfer mode. 1 for TT(thermal transfer).
r	Print mode.

0 rewind

1 peel off

2 tear off

s	Print width.
t	Label waiting flag. 1 for waiting in peel-off mode.
uuuuuuuu	Number of labels left for printing.
v	reserved. Always 1.
www	Number of graphic objects in the printer.
xxxx	Reserved. Always 0.
y	Reserved. Always 0.

^HW	Directory list
^HWd:o.e	

Parameter Description

d	Device driver name Default: **R** (RAM) Others: **B** for flash memory.
o	Object name Default: *.
e	Extension name Default: *.

The function is similar to the DIR command under MS-DOS. It lists the files through the RS232 that meet the file specification.

Example

^XA^HW^XZ

Response

☻
```
- DIR R:*.*
* R:Main.ZPL     008192
- 01404544 bytes free R RAM:
```
♥

☻ stands for code 02H<STX> and ♥ for code 03H<ETX>.

^ID	Erases graphics
^IDd:o.e	

Parameter Description

d	Device driver name Default: **R** (RAM) Others: **B** for flash memory.
o	Object name Default: *****.
e	Extension name Default: "**.GRF**".

Example

^XA^IDR:*.*^XZ

This example deletes all object files.

^IL	Load stored images
^ILd:o.e	

Parameter Description

d	Device driver name Default: R (RAM) Others: B for flash memory.
o	Object name Default: *.
e	Extension name Default: ".GRF".

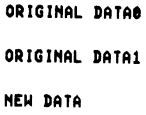
The function is used to load a stored image of a form and merge it with additional data.

Example

```
^XA^CFD
^FO50,20^AB^FDORIGINAL DATA0^FS
^FO50,60^AB^FDORIGINAL DATA1^FS
^ISR:SAM.GRF,N
^XZ

^XA^ILR:SAM.GRF
^FO50,100^AB^FDNEW DATA^FS
^XZ
```

Output



^IM	Moves image
^IMd:o.e	

Parameter Description

d	Device driver name Default: **R** (RAM) Others: **B** for flash memory.
o	Object name Default: *.
e	Extension name Default: "**.GRF**".

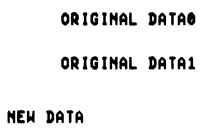
Similar to ^IL but you can move the image to any position by placing a ^FO command.

Example

```
^XA^CFD
^FO50,20^AB^FDORIGINAL DATA0^FS
^FO50,60^AB^FDORIGINAL DATA1^FS
^ISR:SAM.GRF,N
^XZ

^XA^FO50,10^IMR:SAM.GRF
^FO50,100^AB^FDNEW DATA^FS
^XZ
```

Output



^IS	Saves image
^ISd:o.e,p	

Parameter Description

d	Device driver name Default: **R** (RAM) Others: **B** for flash memory.
o	Object name Default: *.
e	Extension name Default: "**.GRF**".
p	Print image during storing Default: **Y** for yes. Other: **N** for no.

This command saves the current label pattern to a graphic file for future use. Refer to ^IL and ^IM for details.

~JA	Cancels All
~JA	

This command cancels all format commands in the buffer and batches that are printing.

After receiving this command, the printer stops after the current label is finished printing. All forms, graphics and soft fonts stored in printer will be erased.

Example

~JA

^JB	Initializes the flash memory board
^JBA or ^JBE	

This command initializes the flash memory. After initialization all data in the flash memory will be cleared.

The following parameter is effective on OS-2140 and A-2240.

Parameter Description

a	Device driver name Default: must be specified Others: **A** for flash card. **E** for Internal Flash.

This command will clear the different types of flash memory.

~JB	Reset Optional Memory
~JB	

This command will clear all data in external card. *This command is only for OS-2140 and A-2240.*

Example

~JB

~JC	Media Sensor Calibration
~JC	

The printer will feed some labels to measure the label length and recalibrate the media sensor.

Example

~JC

~JD	Enters dump mode
~JD	

After receiving this command, the printer will enter the dump mode. In dump mode, all contents of the file will be printed with the HEX value below.

Example

~JD

~JE	Exits dump mode
~JE	

This command is used to disable the ~JD command. After receiving this command, the printer will exit the dump mode.

Example

~JE

~JK	**Delay cut**
~JK	

When the printer is in the Delayed Cut Print Mode (Refer to command: ^MM), the printer will not cut any label until the printer receives" ~JK". *This command is only for OS-2140 and A-2240.*

Example

^XA
^MMD
^FO50,50^A9,30,35^FDD&S^FS
^PQ3
^XZ

^XA~JK^XZ

~JL	Feeds a label
~JL	

Same as manual feed from panel this command will feed a label.

~JP	**Pause**
~JP	

After receiving this command, the printer enters pause mode. Pause occurs between labels, pressing the FEED button will have the next label to be printed.

After receiving this command, the printer enters pause mode and clears the next format that would print. The function of this command is same as to use CANCEL on the printer. *(This function is only supported on OS-2140 and A-2240.)*

~JR	Power on reset
~JR	

This function acts same as cold start. All temporary data will be lost.

^JS	Sensor Select
^JSa	

Parameter Description

a	Sensor Selection Default: **A** for auto select Other: **R** for reflective sensor and **T** for see-through sensor

This command is only supported on A-2240.

^JU	Configuration update
^JUa	

Parameter Description

a	Save to permanent device. **F**: Reload factory defaults. **R**: Recall the latest saved settings. **S**: Save current settings.

^JZ	Recovery control
^JZa	

Parameter Description

a	Reprint Default: **Y** for reprint. Other: **N** for no recovery.

Once the recovery is enabled after media-out or ribbon-out happens the printer will print the last label after error is removed.

This parameter will be saved to permanent E^2PROM or flash.

^KD	Select date and time format (for Real-Time Clock)
^KDa	

Parameter Description

a	Date and time format Default: **0** for normal *(If RTC hardware does not exist or broken, the printer displays firmware version.)* Other: **1** for MM/DD/YY (24-hour clock) **2** for MM/DD/YY (12-hour clock) **3** for DD/MM/YY (24-hour clock) **4** for DD/MM/YY (12-hour clock)

This command can set the format of the RTC's date and time. *This function is only for OS-2140 and A-2240.*

^KL	Define Language
^KLa	

Parameter Description

a	Language 1 = English 2 = Spanish 3 = French 4 = German 5 = Italian 7 = Portuguese

This command can select the language displayed on the panel. *(Only support on X-2000v.)*

^LH	Defines the new origin
^LHx,y	

Parameter Description

x	Horizontal coordinate Default: **0**. Others: 1 ~ max printing width of the printer.
y	Vertical coordinate Default: **0**. Others: 1 ~ max printing length of the printer.

All ^FO and ^FT commands are relative to the origin. The ^LH defines the new origin. For the printer with left justification will ignore the x parameter.

Example

^XA
^LH20,50^FO50,50^A0,30,35^FD(50,50) Location^FS
^XZ

^LL	Defines the label length
^LLa	

Parameter Description

a	Length in pixels

The command is necessary when using the continuous media otherwise the printer does not know the actual length.

Example

```
^XA^MNN^LL300
^FO50,50^AF^FDLength=300 pixels^FS
^XZ
```

^LR	Reverse print
^LRa	

Parameter Description

a	Reverse Default: **N**. Other: **Y** for reverse print.

The command is valid for the whole and subsequent labels.

Example

^XA^LRY
^FO40,45^GB0,120,150^FS
^FO80,60^A0,30,25^FDLR COMMAND^FS
^FO120,120^A0,40,30^FDREVERSE^FS
^XZ

Output

^LS	Shifts the image
^LSa	

Parameter Description

a	Shift left value in pixels Default: **0**. Others: -**999** ~ **999**.

The parameter is saved in the permanent memory. Since there are incompatibilities between printers with centralization and left justification, this command can compensate the horizontal position variances.

Example

^XA^LS100^XZ

^LT	Shifts the image vertically
^LTa	

Parameter Description

a	Shift down value in pixels Default: **0**. Others: -**120 ~ 120.** *(Only supported on OS-2140 and A-2240.)* -**999 ~ 999**.

Example

^XA^LT100^XZ

^MC	Clears the image frame buffer
^MCa	

Parameter Description

a	Clear Default: **Y**. Others: **N** for keeping the image.

Example

^XA^MCN
^FO80,60^A0,30,25^FDDATA 0^FS
^XZ

^XA
^FO80,100^A0,30,25^FDDATA 1^FS
^MCY
^XZ

Output

^MD	Sets the darkness
^MDa	

Parameter Description

a	Darkness Default: **0**. Others: **-30 ~ 30**.

The parameters will not be saved to the permanent memory.

This command adjusts the darkness relative to the current darkness setting.

Example

^XA^MD10^XZ

^ML	Sets maximum label length
^MLa	

Parameter Description

a	Length in pixels.

^MM	Print mode
^MMa	

Parameter Description

a	Peel off Default: **T** (tear off) Others: **P** for peel off mode, **C** for cut mode and **D** for delay cut mode (~JK).

In cut mode, it cuts every label during printing.

In delay cut mode, the printer will enter pause mode after each label is printed out; user must send ~JK command to let the cutter cut label.

^MN	Media type
^MNa	

Parameter Description

a	Type Default: **Y** for die-cut or non-continuous media. Other: **N** for continuous media.

Example

^XA^MNN^XZ

^MT	Transfer mode
^MTa	

Parameter Description

a	Mode Default: **T** for thermal transfer. Other: **D** for direct thermal.

Example

^XA^MTT^XZ

This example sets thermal transfer mode and enables ribbon-out check.

^MU	Sets units
^MUa	

Parameter Description

a	Unit Default: **D** for pixels. Others: **I** for inches and **M** for millimeters.

Once the unit is changed, the commands with length parameters will be affected.

^PH	Feeds a blank label after printing
^PH or ~PH	

The ^PH command causes the printer to feed a blank label after printing the format.

The ~PH command causes the printer to feed a blank label before printing the format or when the printer is in pause mode.

^PM	Mirror image
^PMa	

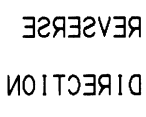
Parameter Description

a	Direction Default: N for normal. Other: Y for reverse printing.

Example

```
^XA^PMY
^FO620,50^AF^FDREVSERSE^FS
^FO620,110^AF^FDDIRECTION^FS
^XZ
```

Output



^PO	Print orientation
^POa	

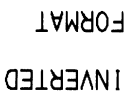
Parameter Description

a	Direction Default: **N** for normal. Other: **I** for inverting the label 180°.

Example

^XA^POI
^FO640,50^AF^FDINVERTED^FS
^FO640,110^AF^FDFORMAT^FS
^XZ

Output



^PP	Programmable pause
^PP or ~PP	

^PP causes the printer to enter pause mode after the first label is printed. Pressing the FEED button from panel makes the printer to enter normal operation.

~PP can make the printer enter pause mode at first. Pressing the FEED button from panel makes the printer to print normally.

Example

```
^XA
^PP
^FO0,0^A9,20,20^FDARGOX^FS
^PQ2^FS
^XZ

^XA
^FO0,0^A9^FDABCDE^FS
^PQ3^FS
^XZ
```

^PQ	Print control
^PQq,p,r,o	

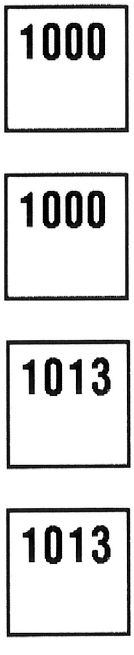
Parameter Description

q	Quantity Default: **1**. Others: **2 ~ 32767**.
p	Pause count Default: **0** for no pause. Others: **1 ~ 32767**.
r	Copies for each set Default: **0** for single copy. Others: **1 ~ 32767**.
o	Override pause count Default: **N**. Other: **Y**.

Example

```
^XA
^FO130,65^GB100,100,3^FS
^FO140,79^A0,40,35^FR^SN1000,13,N^FS
^PQ4,0,2
^XZ
```

Output



^PR	Print rate
^PRa,b,c	

Parameter Description

a	Print speed Default: **2** IPS. Others: **3** ~ **6** IPS.
b	Feed Speed *(Only supported on OS-2140 and A-2240.)* Default: **2** IPS. Others: **3** ~ **6** IPS.
c	Backfeed speed *(Only supported on OS-2140 and A-2240.)* Default: **2** IPS. Others: **3** ~ **6** IPS.

The maximum speed depends on the printer models. For OS214ZIP the maximum speed is 3 IPS. IPS denotes inches per seconds.

Example

```
^XA
^MUD
^LH0,0
^MNY
^LL609
^PW812
^PR4,4,4
~TA0
~SD0
^MTT
^MMT
^FO77,79^GB686,438,438^FS
^PQ1,1,0,Y^FS
^XZ
```

~PS	Print start
~PS	

The operation is identical to pressing the PAUSE or FEED button on the front panel. It makes the printer to continue printing after pause.

Example

^XA~PS^XZ

^PW	Print width
^PWa	

Parameter Description

a	Label width in dots.

^SC	Sets the communication protocol for the RS232
^SCa,b,c,d,e	

Parameter Description

a	Baud rate **1200 ~ 115200**.
b	Data length Always **8** data bits.
c	Parity Always **N** for none parity.
d	Stop bits **1** or **2** stop bits.
e	Handshake **X** for Xon/Xoff and **D** for hardware.

The parameters will be saved to the permanent memory.

Example

^XA^SC9600^XZ

This example sets the baud rate 9600.

~SD	Sets the darkness base
~SDa	

Parameter Description

a	Base darkness Default: **16** Others: **1 ~ 30**.

The parameters will be saved to the permanent memory.

The setting can compensate the darkness without changing your application software after the printer is used for a long time.

^SF	Sets the serialization field
^SFa,b	

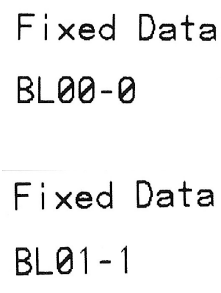
Parameter Description

a	Mask string The string defines the substring of ^FD string to be serialized. The mask string starting with the right-most position. Mask string definition: D or d Decimal numeric 0 ~ 9. H or h Hexadecimal 0 ~ 9 plus A ~ F or a ~ f. O or o Octal 0 ~ 7. A or a Alphabetic a ~ z or A ~ Z. N or n Alphanumeric 0 ~ 9 plus a ~ z or A ~ Z. % Skip the serialization for current character.
b	Serialization string The string is used to add the field on each label.

Example

```
^XA
^FO20,10^AF^FDFixed Data^FS
^FO20,60^AF^FDBL00-0^SFAAdd%d,1%1^FS
^PQ2
^XZ
```

Output



^SL	Sets mode (for Real-Time Clock)
^SLa	

Parameter Description

a	Time mode Default values: **S** for start time mode *(The time can read from RTC when label formatting with ^XA. The first label will be the same with the last label.)* Other Values: **T** for time now mode *(The time can read from RTC when label to be printed in queue. Each printed time is different.*)

This command can define the RTC's mode of operation. *This function is only for OS-2140 and A-2240.*

^SN	Sets counter
^SNa,b,c	

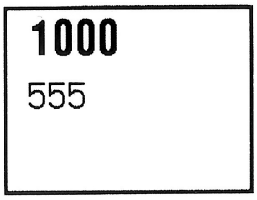
Parameter Description

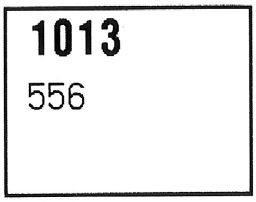
a	Start value Default: **1**. Others: 12-digit maximum.
b	Step value Default: **1**. Others: 12-digit maximum.
c	Leading zeros Default: **N** for no leading zeros. Other: **Y** for that the leading zeros exist.

Example

```
^XA
^FO80,30^GB200,150,3^FS
^FO100,40^A0,40,35^SN1000,13,N^FS
^FO100,90^AF^SN555,1^FS
^PQ2
^XZ
```

Output





^SO	Sets offset (for Real-Time Clock)
^SOa,b,c,d,e,f,g	

Parameter Description

a	Clock set Default: Value must be defined Others:**2** for secondary, **3** for third
b	Months offset Default: **0** Others: **-32000~3200**
c	Days offset Default: **0** Other: **-32000~3200**
d	Years offset Default: **0** Other: **-32000~3200**
e	Hours offset Default: **0** Other: **-32000~3200**
f	Minutes offset Default: **0** Other: **-32000~3200**
g	Seconds offset Default: **0** Other: **-32000~3200**

This function is only for OS-2140 and A-2240.

Example

^XA
^SO2,-1,10,-5,20,-10,0
^SO3,1,-10,5,-20,10,0
^XZ

^XA
^FO20,100^A0N,50,50
^FC$,!,%
^FDPrimary: $b/$d/$Y/$H/$M^FS
^FO20,200^A0N,50,50

```
^FC$,!,%
^FDSecondary: !b/!d/!Y/!H/!M^FS
^FO20,300^A0N,50,50
^FC$,!,%
^FDThird: %b/%d/%Y/%H/%M^FS
^FO20,400^A0N,50,50
^XZ
```

Output

```
Primary: Dec/22/2008/17/30
Secondary: Dec/03/2003/13/20
Third: Jan/11/2014/21/40
```

^ST	Sets date and time (for Real-Time Clock)
^STa,b,c,d,e,f,g	

Parameter Description

a	Month Default: None Others:**01~12**
b	Day Default: None Others: **01~31**
c	Year Default: **N**one Other: **0000~9999**
d	Hour Default: **N**one Other: **00~23**
e	Minute Default: **N**one Other: **00~59**
f	Second Default: **N**one Other: **00~59**
g	Format Default: **M** Other: **A** for a.m.**, P** for p.m., **M** for 24-hour military

This function is only for OS-2140 and A-2240.

~TA	Sets tear-off adjust position
~TAa	

Parameter Description

a	Adjustment in pixels Default: **0**. Others: **-64 ~ 64**.

This command lets you adjust the reset position of the media after a label is printed.

^TB	Text blocks
^Tba,b,c	

Parameter Description

a	Block Orientation Default: **N** (Portrait) Others: **I** for reverse portrait, **B** for landscape and **R** for reverse landscape.
B	Block width in dots Default: 1 dot
c	Block height in dots Default: 1 dot

This command can print a text block with defined width and height. This command has an automatic word-wrap function. If the text is over the block height, the text is truncated. This command supports complex text layout features.

^TB command is effective on OS-2140 and A-2240.

Example

```
^XA
^CF0,30,30^FO120,200
^PR4,4,4
^TBN,100,500
^A0N,50,50^FD Argox PRINTER GOOD! Apple 12345 ABCDEFG. TBN&A0N^FS
^XZ
```

Output

Example

```
^XA
^CF0,30,30^FO120,200
^PR4,4,4
^TBR,100,500
^A0R,50,50^FD Argox PRINTER GOOD! Apple 12345 ABCDEFG. TBR&A0R^FS
^XZ
```

Output

Example

```
^XA
^CF0,30,30^FO120,200
^PR4,4,4
^TBI,100,500
^A0I,50,50^FD Argox PRINTER GOOD! Apple 12345 ABCDEFG. TBI&A0I^FS
^XZ
```

Output

Example

```
^XA
^CF0,30,30^FO120,200
^PR4,4,4
^TBB,100,500
^A0B,50,50^FD Argox PRINTER GOOD! Apple 12345 ABCDEFG. TBB&A0B^FS
^XZ
```

Output

^TO	Copy objects
^Tod:o.e,s:o.e	

Parameter Description

d	Device driver name
s	Default: **R** (RAM). Others: **B** for flash memory.
O	Object name
e	Extension name

This command is used to copy an object to another object or other device. Before you copy the object to other device, make sure that the device exists.

Example

^XA^TOABC.GRF,B:XXX.GRF^XZ

~WC	Prints the configuration list
~WC	

Data in this list include the followings:

Font List

- Symbol set

Firmware

- Version and date code
- Checksum data

Hardware

- Memory size
- Accessories
- RS232 protocol
- Media sensor

Media

- Media type
- Ribbon mode
- Print length

Settings

- Control code definition
- Reprint control

^WD	Prints the directory on a label
^WDd:o.e	

Parameter Description

d	Device driver name Default: **R** (RAM) Others: **B** for flash memory.
O	Object name
e	Extension name

Example

^XA^WD^XZ

Output

```
- DIR R:*.*
* R:SAM.GRF       029568
- 01534144 bytes free R: RAM
```

^XA	Starts format
^XA	

The ^XA command is the beginning bracket. It indicates the start of a new format.

^XB	Disables backfeed
^XB	

This command disables tear-off to improve the throughput.

^XF	Retrieves form
^XFd:o.e	

Parameter Description

d	Device driver name Default: **R** (RAM) Others: **B** for flash memory.
O	Form name
e	Extension name Default: "**.ZPL**".

Example

^XA^DFA.ZPL^FS
^FO40,40^GB150,158,3^FS
^BY2,3,40
^FO50,60^A0,30,28^FN1^FS
^FO50,110^B2^FN2^FS
^XZ

^XA^XFA.ZPL^FS
^FN1^FDFORM EXEC^FS
^FN2^FD2468^FS
^XZ

Output

^XG	Retrieves graphic
^XGd:o.e,x,y	

Parameter Description

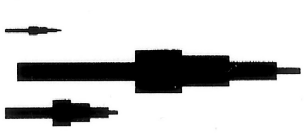
d	Device driver name Default: **R** (RAM) Others: **B** for flash memory.
O	Graphic name
e	Extension name Default: "**.GRF**".
x	Scale factor along horizontal axis Default: **1**. Others: **2 ~ 10**.
Y	Scale factor along vertical axis Default: **1**. Others: **2 ~ 10**.

Example

```
~DGA.GRF,42,6,
00000FF00000
00000FFFF000
FFFFFFFFFFF0
FFFFFFFFFFFF
FFFFFFFFFFF0
00000FFFF000
00000FF00000


^XA
^FO30,40^XGA.GRF,1,1^FS
^FO40,60^XGA.GRF,5,5^FS
^FO30,100^XGA.GRF,2,3^FS
^XZ
```

Output



^XY	Sets labels with gap height more than 5 mm
^Xya,b	

In general, labels with big gap height can not be correctively detected. In this case you had better send this command to set such gap type.

Parameter Description

a	Total length in millimeter
b	Gap length in millimeter

Example

^XA^XY31,6^XZ

The setting can be saved to E²PROM or flash except the printer is reset from panel.

^XZ	End format
^XZ	

The ^XZ command is the ending bracket. The format starts with ^XA and ends by ^XZ.

6. AME-3230 Additional command

Parameter types:

- None: no parameter is required
- Signed integer. e.g. 123, +100 or –23
- Unsigned integer. e.g. 32
- Signed byte. Just one byte binary data. e.g.

  +3 is represented as 0x03(03H), and –1 as 0xff (0FFH).

1. Sleep Time

   <ESC>KIN*n*<CR><LF>

   n = 0, non-sleep

   n < 120, minutes unit

2. Label analysis length

   <ESC>KIS *n*<CR><LF>

   n = mm unit

   When do the calibration it analyzes the label first.

   Usually this setting is great than 1.5 times of label length.

3. Bluetooth PIN

   <ESC>KIV*c*<CR><LF>

   c >= 4 and c <= 8 chars (default: 0000)

4. Bluetooth device name

   <ESC>KIW *c*<CR><LF>

   c >= 1 and c <= 16 chars (default: Argox AME-3230)

5. Turn-off mobile printer

   <ESC>KIX<CR><LF>

6. Back gap detection and forward position

   <ESC>KIZB*m*,*n*<CR><LF>

   m = mode

   n = depend on mode

   m = 0, disabled back gap detection.

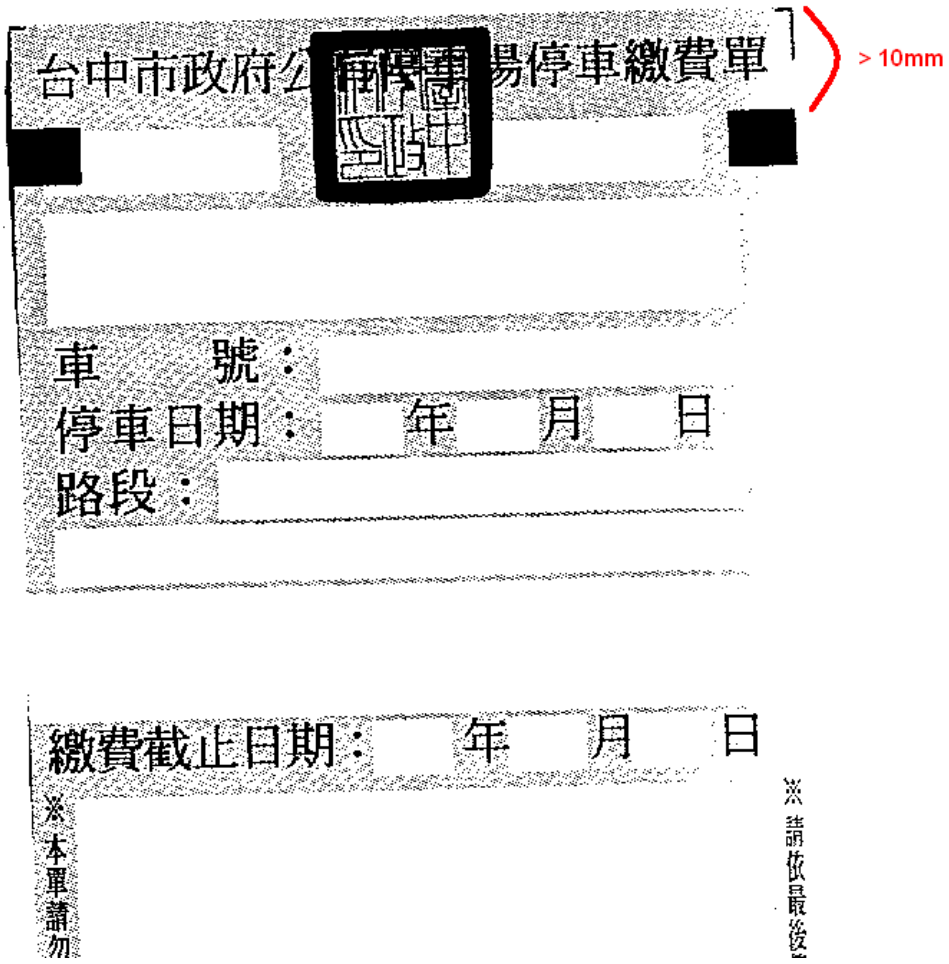
   m = 1, like below sample label, top of ticket to gap must great than 10mm.

   n = forward position, mm unit.

   m = 2, when gap on the top or bottom of ticket, you can use this mode.

   It moves to the next gap then back *n* mm.

   n = backward position, mm unit.



> 10mm

7. Commands Reference Chart

This reference chart is a summary of all PPLZ commands. A symbol "*" represents the printer supports such function. A character "S" indicates that the function can be set via DIP switches on the X-2000ZIP/X-2000v ZIP.

Command	Description	OS-214 ZIP	R-400 ZIP	X-2000 ZIP	X-2000v ZIP	OS-2140	OS-2140D	A-2240	AME-3230 AME-3230B
^A	Font Selection	*	*	*	*	*	*	*	*
^A@	Font Selection by font name	*	*	*	*	*	*	*	*
^B1	Bar Code – Code11	*	*	*	*	*	*	*	*
^B2	Bar Code – Interleaved 2 of 5	*	*	*	*	*	*	*	*
^B3	Bar Code – Code39	*	*	*	*	*	*	*	*
^B7	Bar Code – PDF-417	*	*	*	*	*	*	*	*
^B8	Bar Code – EAN-8	*	*	*	*	*	*	*	*
^B9	Bar Code – UPCE	*	*	*	*	*	*	*	*
^BA	Bar Code – Code93	*	*	*	*	*	*	*	*
^BC	Bar Code – Code 128 with subsets A, B and C	*	*	*	*	*	*	*	*
^BD	Bar Code – Maxicode	*	*	*	*	*	*	*	*
^BE	Bar Code – EAN-13	*	*	*	*	*	*	*	*
^BI	Bar Code – Industrial 2 of 5	*	*	*	*	*	*	*	*
^BJ	Bar Code – Standard 2 of 5	*	*	*	*	*	*	*	*
^BK	Bar Code – Codabar	*	*	*	*	*	*	*	*
^BL	Bar Code – Logmars	*	*	*	*	*	*	*	*
^BM	Bar Code – MSI	*	*	*	*	*	*	*	*
^BP	Bar Code – Plessey	*	*	*	*	*	*	*	*
^BQ	Bar Code – QR code	*	*	*	*	*	*	*	*
^BS	Bar Code – UPC/EAN extension	*	*	*	*	*	*	*	*
^BU	Bar Code – UPCA	*	*	*	*	*	*	*	*
^BX	Bar Code – Data Matrix	*	*	*	*	*	*	*	*
^BY	Parameter defaults for general bar codes	*	*	*	*	*	*	*	*
^BZ	Bar code – PostNet	*	*	*	*	*	*	*	*
^CC / ~CC	Changes the caret	*	*	*	*	*	*	*	*

Command	Description	OS-214 ZIP	R-400 ZIP	X-2000 ZIP	X-2000v ZIP	OS-2140	OS-2140D	A-2240	AME-3230 AME-3230B
	character								
^CD / ~CD	Changes the delimiter character	*	*	*	*	*	*	*	*
^CF	Changes default font	*	*	*	*	*	*	*	*
^CI	Changes symbol set	*	*	*	*	*	*	*	*
^CT / ~CT	Changes the tilde character	*	*	*	*	*	*	*	*
^CW	Defines font ID	*	*	*	*	*	*	*	*
~DB	Downloads a bitmap font	*	*	*	*	*	*	*	*
^DF	Downloads form	*	*	*	*	*	*	*	*
^DG	Downloads graphic	*	*	*	*	*	*	*	*
~DN	Abort download graphic					*	*	*	*
~DU	Downloads unbounded True Type font	*	*	*	*	*	*	*	*
^EF / ~EF	Erases all stored forms	*	*	*	*	*	*	*	*
^EG / ~EG	Erases all stored graphics	*	*	*	*	*	*	*	*
^FA	Field allocate	*	*	*	*	*	*	*	*
^FB	Defines the format of a block data	*	*	*	*	*	*	*	*
^FC	Field Clock					*	*	*	
^FD	Field data	*	*	*	*	*	*	*	*
^FH	Field HEX	*	*	*	*	*	*	*	*
^FN	Field number	*	*	*	*	*	*	*	*
^FO	Moves the position for print pattern	*	*	*	*	*	*	*	*
^FP	Defines the print direction	*	*	*	*	*	*	*	*
^FR	Reverse print	*	*	*	*	*	*	*	*
^FS	End of field	*	*	*	*	*	*	*	*
^FT	Defines coordinate for print pattern	*	*	*	*	*	*	*	*
^FV	Defines variable	*	*	*	*	*	*	*	*
^FW	Defines default orientation	*	*	*	*	*	*	*	*
^FX	Comment	*	*	*	*	*	*	*	*

Command	Description	OS-214 ZIP	R-400 ZIP	X-2000 ZIP	X-2000v ZIP	OS-2140	OS-2140D	A-2240	AME-3230 AME-3230B
^GB	Box or line	*	*	*	*	*	*	*	*
^GF	Direct graphic	*	*	*	*	*	*	*	*
^GS	Prints special symbols	*	*	*	*	*	*	*	*
^HF	Host format					*	*	*	*
^HH	Configuration label return					*	*	*	*
~HI	Host identification	*	*	*	*	*	*	*	*
~HM	Memory status	*	*	*	*	*	*	*	*
~HS	Host status	*	*	*	*	*	*	*	*
^HW	Directory list	*	*	*	*	*	*	*	*
^ID	Erases graphics	*	*	*	*	*	*	*	*
^IL	Directory list	*	*	*	*	*	*	*	*
^IM	Moves image	*	*	*	*	*	*	*	*
^IS	Saves image	*	*	*	*	*	*	*	*
~JA	Cancel all	*	*	*	*	*	*	*	*
^JB	Initializes the flash memory board	*	*	*	*	*	*	*	*
~JB	Reset optional memory					*	*	*	*
~JC	Media sensor calibration	*	*	*	*	*	*	*	*
~JD / ~JE	Enters / exits dump mode	*	*	*	*	*	*	*	*
~JK	Delay cut					*	*	*	
~JL	Feeds a label	*	*	*	*	*	*	*	*
~JP	Pause	*	*	*	*	*	*	*	*
~JR	Power on reset	*	*	*	*	*	*	*	*
^JS	Sensor select							*	
~JS	Cutter control	*	*	*	*	*	*	*	
^JU	Configuration update	*	*	*	*	*	*	*	*
^JZ	Recovery control	*	*	*	*	*	*	*	*
^KD	Select date and time format(for RTC)					*	*	*	
^KL	Define language				*				
^LH	Defines the new origin	*	*	*	*	*	*	*	*
^LL	Defines the label length	*	*	*	*	*	*	*	*
^LR	Reverse print	*	*	*	*	*	*	*	*

Command	Description	OS-214 ZIP	R-400 ZIP	X-2000 ZIP	X-2000v ZIP	OS-2140	OS-2140D	A-2240	AME-3230 AME-3230B
^LS	Shifts the image	*	*	*	*	*	*	*	*
^LT	Shifts the image vertically	*	*	*	*	*	*	*	*
^MC	Clears the image frame buffer	*	*	*	*	*	*	*	*
^MD	Sets the darkness	*	*	*	*	*	*	*	*
^ML	Sets maximum label length	*	*	*	*	*	*	*	*
^MM	Print mode	*	*	* S	* S	*	*	*	
^MN	Media type	*	*	*	*	*	*	*	*
^MT	Transfer mode	*	*	* S	* S	*		*	
^MU	Sets unit	*	*	*	*	*	*	*	*
^PH	Feed a blank label after printing	*	*	*	*	*	*	*	*
^PM	Mirror image	*	*	*	*	*	*	*	*
^PO	Print orientation	*	*	*	*	*	*	*	*
^PP / ~PP	Programmable pause	*	*	*	*	*	*	*	*
^PQ	Print control	*	*	*	*	*	*	*	*
^PR	Print speed	*	*	*	*	*	*	*	*
~PS	Print start	*	*	*	*	*	*	*	*
^SC	Sets the communication protocol for the RS232	*	*	S	S	*	*	*	*
~SD	Sets the darkness base	*	*	*	*	*	*	*	*
^SF	Sets the serialization field	*	*	*	*	*	*	*	*
^SL	Sets mode and language (for RTC)					*	*	*	
^SN	Sets counter	*	*	*	*	*	*	*	*
^SO	Set offset (for RTC)					*	*	*	
^ST	Set date and time (for RTC)					*	*	*	
~TA	Sets tear-off adjust position	*	*	*	*	*	*	*	*
^TB	Text blocks					*	*	*	*
^TO	Copy objects	*	*	*	*	*	*	*	*
~WC	Prints the configuration list	*	*	*	*	*	*	*	*

Command	Description	OS-214 ZIP	R-400 ZIP	X-2000 ZIP	X-2000v ZIP	OS-2140	OS-2140D	A-2240	AME-3230 AME-3230B
^WD	Prints the directory on label	*	*	*	*	*	*	*	*
^XA	Starts format	*	*	*	*	*	*	*	*
^XB	Disables backfeed	*	*	*	*	*	*	*	*
^XF	Retrieves form	*	*	*	*	*	*	*	*
^XG	Retrieves graphic	*	*	*	*	*	*	*	*
^XY	Sets labels with gap height more than 5 mm	*	*	*	*	*	*	*	*
^XZ	End format	*	*	*	*	*	*	*	*