

PPLZ

Programmer's

Manual

Mercury Series

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1. COORDINATE SYSTEM

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

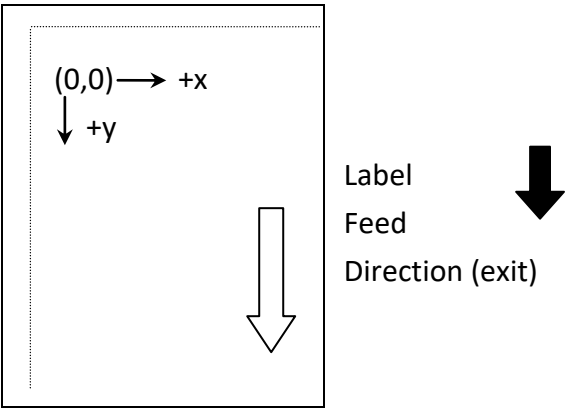


Fig. 1-1 PPLZ coordinate system

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
<code>^</code>	caret	used as a leading character
<code>~</code>	tilde	used as a leading character
<code>,</code>	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 E2PROM 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 , B: for USB memory and E: for Flash memory.

Extension name

The default extension name for the graphic is “**.GRF**”, “**.FNT**” is for the soft font and “**.PPLZ**” 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 E2PROM. E2PROM 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 aication 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	
O	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

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
^DPR:FORM.PPLZ^FS
^FO50,60^AD^FN1^FS
^FO50,110^AD^FN2^FS
^FO50,10^AF^FDFIXED DATA^FS
^XZ
```

Form execution I

```
^XA^XPR:FORM.PPLZ^FS
^FN1^FDVAR 1^FS
^FN2^FDVAR 2^FS
^XZ
```

Form execution II

```
^XA^XPR:FORM.PPLZ^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.

“FNT” format of PPLZ (Zebra) is not compatible.
(“FNT” is the extension name of Bitmap font.)

Syntax

^Afo,h,w

Parameter

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. $vsf \text{ (vertical scale factor)} = (h+ch/2)/ch$ 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. $hsf \text{ (hertical scale factor)} = (w+cw/2)/cw$ 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

Syntax

^A@o,h,w,n

Parameter

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

This Is A Soft Font

^B0

Bar code – Aztec

Syntax

^B0a,b,c,d,e

Parameter

a	Orientation Default: N (Portrait)
b	Magnification factor Default: 2 for 200 dpi printers; 3 for 300 dpi printers. Others: 1~10 .
c	ECIC (Extended channel interpretation code) indicator Default: N (Data includes ECIC) Y (Data does not include ECIC)
d	Error correction level & Symbol size/barcode type indicator Default: 0 (error correction level) Others: 01~99 : error correction percentage 101~104: 1~4 -layer compact symbol 201~232: 1~32 -layer full-range symbol 300: a simple Aztec “Rune”
e	Menu symbol indicator Default: N is for it to be a menu symbol. Y is not for it to be a menu symbol.

Example

^XA

^FO20,250^B0N,6,N,0,N^FDAztec barcode test^FS

^XZ

Output



^B1

Bar code – code 11

Syntax

^B1o,e,h,f,g

Parameter

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

Syntax ^B2o,h,f,g,e

Parameter

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

Syntax

^B3o,e,h,f,g

Parameter

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



^B5

Bar code – Planet

Syntax

^B5o,h,f,g

Parameter

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. Y for 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^B5N,80,Y,^FD111111111111^FS
^XZ

Output



Syntax**^B7o,h,s,c,r,t****Parameter**

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

Syntax

^B8o,h,f,g

Parameter

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

$\wedge \times \mathbb{Z}$

Output



^B9

Bar code – UPC E

Syntax ^B9o,h,f,g,e

Parameter

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

Syntax

^BAo,h,f,g,e

Parameter

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

Syntax

^BCo,h,f,g,e,m

Parameter

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 D for UCC/EAN mode 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

Syntax ^BDm,n,t

Parameter

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.

Syntax ^FD<hpm><lpm>

Parameter

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

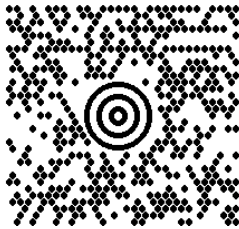
Example

```

^XA
^FO20,10^CVY
^BD^FH^FD001840152382802[)>_1E01_1D961Z00004951_1
DUPSN_1D06X610_1D159_1D1234567_1D1/1_1D_1DY_1D634
ALPHA DR_1DPITTSBURGH_1DPA_1E_04^FS
^XZ

```

Output



^BE

Bar code – EAN-13

Syntax

^BEo,h,f,g

Parameter

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



^BF

Bar code – Micro PDF417

Syntax

^BFo,h,m

Parameter

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 ~ 99 pixels.				
m	Barcode mode Default: 0				
	Barcode mode (m)	Data Columns	Data Rows	Max Alphabetical Characters	Max Numeric Characters
	0	1	11	6	8
	1		14	12	17
	2		17	18	26
	3		20	22	32
	4		24	30	44
	5		28	38	55
	6	2	8	14	20
	7		11	24	35
	8		14	36	52
	9		17	46	67

	10	3	20	56	82
	11		23	64	93
	12		26	72	105
	13		6	10	14
	14		8	18	26
	15		10	26	38
	16		12	34	49
	17		15	46	67
	18		20	66	96
	19		26	90	132
	20		32	114	167
	21		38	138	202
	22		44	162	237
	23	4	6	22	32
	24		8	34	49
	25		10	46	67
	26		12	58	85
	27		15	76	111
	28		20	106	155
	29		26	142	208
	30		32	178	261
	31		38	214	313
	32		44	250	366
	33		4	14	20

Example

^XA
^FO330,110^BY4,3,20^BFN,10,0^FDABCDEF^FS
^FO330,310^BY4,3,20^BFN,10,0^FD12345678^FS
^XZ

Output



^BI Bar code – Industrial 2 of 5

Syntax ^Blo,h,f,g

Parameter

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



24680

^BJ Bar code – Standard 2 of 5

Syntax ^BJo,h,f,g

Parameter

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



24680

^BK

Bar code – Codabar

Syntax ^BKo,e,h,f,g,k,l

Parameter

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	0 ~ 9, A, B, C, D, E, T, N, *, -, :, ., \$, /, +

characters	
------------	--

Example

^XA

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

^XZ

Output



^BL

Bar code – Logmars

Syntax

^BLo,h,g

Parameter

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



ABC2Z

^BM

Bar code – MSI

Syntax ^BMo,e,h,f,g,h

Parameter

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



^BO

Bar code – Aztec

Syntax

^BOa,b,c,d,e

Parameter

a	Orientation Default: N (Portrait)
b	Magnification factor Default: 2 for 200 dpi printers; 3 for 300 dpi printers. Others: 1~10 .
c	ECIC (Extended channel interpretation code) indicator Default: N (Data includes ECIC) Y (Data does not include ECIC)
d	Error correction level & Symbol size/barcode type indicator Default: 0 (error correction level) Others: 01~99 : error correction percentage 101~104: 1~4 -layer compact symbol 201~232: 1~32 -layer full-range symbol 300: a simple Aztec “Rune”
e	Menu symbol indicator Default: N is for it to be a menu symbol. Y is not for it to be a menu symbol.

Example

^XA

^FO20,250^BON,6,N,0,N^FDAztec barcode test^FS

^XZ

Output



^BP **Bar code – Plessey**

Syntax ^BPo,e,h,f,g

Parameter

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
63

^XZ

Output



^BQ

Bar code – QR code

Syntax ^BQo,e,f^FDnm,c<data string>

Parameter

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.
--	--------------------------------

^BR

RSS Bar Code (GS1 DataBar)

Syntax ^BRa,b,c,d,e,f

Parameter

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) 7 = UPC-A Composite 8 = UPC-E Composite 9 = EAN-13 Composite 10 = EAN-8 Composite 11 = UCC/EAN-128 Composite (CC-A/B) 12 = UCC/EAN-128 Composite (CC-C)
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 1

```
^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 1



RSS14



RSS14 Stacked



RSS14 Truncated



RSS14 Limited



RSS14 Stacked Omnidirectional



RSS14 Expanded

Example 2

^XA

^FO100,100,0^BY3^BRN,7,2,2,25^FD12345678901|UPC-A
Composite^FS

^FO110,300^ADN,18,10^FDUPC-A Composite^FS

^FO100,400,0^BY3^BRN,8,2,2,25^FD1230000045|UPC-E
Composite^FS

^FO110,620^ADN,18,10^FDUPC-E Composite^FS

^FO100,700,0^BY3^BRN,9,2,2,25^FD1234567|EAN-13
Composite^FS

^FO110,900^ADN,18,10^FDEAN-13 Composite^FS

^FO400,100,0^BY3^BRN,10,2,2,25^FD123456789012|EAN
-8 Composite^FS

^FO400,280^ADN,18,10^FDEAN-8 Composite^FS

^FO400,400,0^BY3^BRN,11,3,2,20^FD1234567|UCC/EAN-
128 Composite CC-A/B^FS

^FO400,540^ADN,18,10^FDUCC/EAN-128 Composite
CC-A/B^FS

^FO400,700,0^BY3^BRN,12,2,2,25^FD1234567|UCC/EAN-
128 Composite CC-C^FS

^FO400,850^ADN,18,10^FDUCC/EAN-128 Composite
CC-C^FS

^PQ1,0,1,Y

^XZ

Output 2



UPC-A Composite



EAN-8 Composite



UPC-E Composite



UCC/EAN-128 Composite CC-A/B



EAN-13 Composite



UCC/EAN-128 Composite CC-C

^BS

Bar code – UPC/EAN extension

Syntax ^BS_{o,h,f,g}

Parameter

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

98



98765

^BT

Bar code – TLC39

Syntax ^BTo,w1,r1,h1,w2,h2

Parameter

o	Orientation Default: N (Portrait). Others: I for reverse portrait, B for landscape and R for reverse landscape.
w1	Bar code width ratio of Code 39 Default: 2 Others: 1 ~10 pixels
r1	Bar code height of Code 39 Default: 2.0 Others: 2.0 ~3.0 pixels
h1	Bar code width of Code 39 Default: 40 (200 dpi printer); 60 (300dpi printer) Others: 1 ~ 999 pixels
w2	Row width of Micro PDF417 Default: 2 Others: 1 ~10 pixels
h2	Row height of Micro PDF417 Default: 4 Others: 1 ~255 pixels
Valid characters	TLC39 contains ECI NO. , Serial NO. and Additional data. ECI Number: Code 39 barcode and it must be 6 digits.

	If the 7th digit is not a comma, only prints Code 39(only the first 6 digits print). Serial Number: The Serial number is printed as Micro PDF417. The Serial number contains up to 25 digits. A comma follows the Serial number. Additional data: Additional data is used as a country code. The data contains up to 150 bytes, which is included serial number comma.
--	--

Example

```
^XA^FO30,70^BY3,2.3^BTN,2,2,100,2,4
^FD123456,ABCDEFGH IJ123456789012345,012^FS
^XZ
```

Output



^BU

Bar code – UPC A

Syntax ^BUo,h,f,g,e

Parameter

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

Syntax ^BXo,h,s,c,r,f,g

Parameter

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



Parameter defaults for general bar codes

Syntax ^BYw,r,h

Parameter

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

$$\begin{aligned} & \wedge \text{XA}^{\wedge} \text{BY}_{2,3.0,40}^{\wedge} \text{FO}_{30,40}^{\wedge} \text{BI}^{\wedge} \text{FD}_{24680}^{\wedge} \text{FS} \\ & \wedge \text{BY}_{3,2.5,60}^{\wedge} \text{FO}_{30,130}^{\wedge} \text{BI}^{\wedge} \text{FD}_{24680}^{\wedge} \text{FS} \\ & \wedge \text{XZ} \end{aligned}$$

Output



24680



24680

^BZ Bar code – Postal

Syntax ^BZo,h,f,g,t

Parameter

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.
t	Barcode type Default: 0 for Postnet bar code. 1 for Planet bar code. 2 for Reserved. 3 for USPS Intelligent Mail bar code.
Valid characters	0 ~ 9.

Example

^XA^FO40,70^BZN,50,Y,N,0^FD12345^FS
^FO40,30^AE^FDPostnet bar code^FS
^FO40,240^BZN,50,Y,N,1^FD12345678901^FS
^FO40,200^AE^FDPlanet bar code^FS
^FO40,410^BZN,50,Y,N,3^FD00123123456123456789^FS
^FO40,365^AE^FDUSPS Intelligent Mail bar code^FS ^XZ

Output

Postnet bar code



Planet bar code



USPS Intelligent Mail bar code



^CC **Changes the caret character**

Syntax ^CCx or ~CCx

Parameter

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

Description This new caret will be saved to the flash or E²PROM permanently.

^CD **Changes the delimiter character**

Syntax ^CDx or ~CDx

Parameter

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

Description This new delimiter will be saved to the flash or E²PROM permanently.

Example

~CD*

This command changes the delimiter from ‘,’ to ‘*’.

^CF **Changes default font**

Syntax ^CFc,h,w

Parameter

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 .

Description If the specified font does not exist, the default font will be selected. This default font ID will be saved to the flash or E²PROM permanently.

Example

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

Output

FONT F ?

Changes symbol set

Syntax

 $\wedge Clc$

Parameter

c	Symbol set Default: 0 for USA. Others: 1 ~ 13. 17 for Deprecated - UCS-2 Big Endian; only with ^F8 (UTF-8 encoding). 26 for Multibyte Asian Encodings with ASCII Transparency. - The encoding is controlled by the conversion table (*.DAT). The correct table must be present for the conversion to function. - CI26 supports ASCII transparency for Asian encodings. 7F and less are treated as single byte characters. 80 to FE is treated as the first byte of a 2 byte character 8000 to FEFF in the encoding table for Unicode. 27 for Code page 1252 28 for UTF-8 encoding - Unicode Character Set. 29 for UTF-16 Big-Endian encoding - Unicode Character Set. - This set is effective when the encoding is between ^FD and ^FS. 30 for UTF-16 Little-Endian encoding - Unicode Character Set. - This set is effective when the encoding is between ^FD and ^FS. 31 for Code page 1250 33 for Code page 1251 34 for Code page 1253 35 for Code page 1254 36 for Code page 1255
---	---

This default font will be saved to the flash or E²PROM permanently.

	23H	30H	40H	5BH	5CH	5DH	5EH	60H	7BH	7CH	7DH	7EH	Country
CI0	#	Ø	@	[	ç	]	^	'	{		}	~	USA
CI1	#	0	@	¼	ç	¾	^	'	¼	½	¾	~	USA2
CI2	£	Ø	@	[	ç	]	^	'	{		}	~	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	ß	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
CI10	#	0	\$	i	Ñ	¿	^	'	{	ñ	ç	~	Spain
CI11	£	Ø	É	Ä	Ö	Ü	^	ä	ë	ï	ö	ü	Misc.
CI12	#	Ø	@	[	¥	]	^	'	{		}	~	Japan
CI13	#	0	@	[	\	]	^	'	{		}	~	Page850

^CT **Changes the tilde character**

Syntax ^CTx or ~CTx

Parameter

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

Description This new tilde will be saved to the flash E²PROM permanently.

Example

~CT=

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

^CW **Defines the font ID**

Syntax ^CWc,d:f

Parameter

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 (USB memory), E (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

Font Z for Comic

Syntax

~DBd:f,o,h,w,base,hmi,#char,msg,data

Parameter

d	Destination device driver Default: R (RAM) Others: B (USB memory), E (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.

~DE

Downloads encoding

Syntax

~DEd:f,t,data

Parameter

d	Device driver Default: R (RAM) Others: B (USB memory), E (Flash memory)
f	Table name 8 character file name with 3 characters extension name. The default extension name for table is “ .DAT ”.
t	Total number of bytes in table required.
data	Table date A string of ASCII hexadecimal values.

Example

~DER:TABLE.DAT,29998,300021213001...

(29998 two-digit hexadecimal values)

^DF

Downloads form

Syntax

^DFd:f

Parameter

d	Device driver Default: R (RAM) Others: B (USB memory), E (Flash memory)
f	File name 8 character file name with 3 characters extension name. The default extension name is “ .PPLZ ”.

Description

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

Syntax

~DGd:f,t,w,data

Parameter

d	Device driver Default: R (RAM) Others: B (USB memory), E (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	156 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

```
~DGTRIANG LX, 42, 6,  
F00000000000  
FF0000000000
```

FFF000000000

FFFF00000000

FFFFFF0000000

FFFFFFF000000

FFFFFFFFFFFFFF

^XA

^FO30,40^XGTRIANG LX,1,1^FS

^FO40,60^XGTRIANG LX,5,5^FS

^XZ

Output



~DN

Abort Download Graphic

Syntax

~DN

Dscription

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

~DU

Downloads unbounded TrueType font

Syntax

~DUd:f,s,data

Parameter

d	Device driver Default: R (RAM) Others: B (USB memory), E (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**

Syntax ~EF

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

~EG

Erases all stored graphics

Syntax

~EG

Description

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

^FA

Field allocate

Syntax

^FAm

Parameter

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

Description

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

Syntax

^FBa,b,c,d,e

Parameter

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 .

Description

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

This is a
test for FB
command

^FC

Field Clock

Syntax ^FCa,b,c

Parameter

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

Description 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.

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: 2015/Feb/01/17/20

Secondary: 2015/Feb/01/17/20

Third: 2015/Feb/01/17/20

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

Syntax

^FDdata

Parameter

Data for text or barcode

Description

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

Syntax

^FHa

Parameter

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

Description

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

```
~ for 7EH
A ~ for 7EH
```

Field number

Syntax

 $^{\wedge}\text{FNa}$

Parameter

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

Description

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

Example

$$\hat{X}A\hat{D}FFMT\hat{F}S$$
$$^{\wedge}\text{BY}_{2,3,100}$$
$$^{\text{FO50,60}}\text{AF}^{\text{FN1}}\text{FA}^{\text{9}}\text{FS}$$
$$^{\text{FO50}}, 110^{\text{B3}} \text{FN2}^{\text{FA6}} \text{FS}$$
 $\wedge xz$
$$^XA^XFMT^FS$$
$$^{\text{FN1}} ^{\text{FDNew}} \text{Data} ^{\text{FS}}$$
$$^{\text{FN2}}\text{FD123}^{\text{FS}}$$
$$^{\wedge}XZ$$

Output

New Data



123

^FO

Moves the position for print pattern

Syntax

^FO*x,y,z*

Parameter

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)

Description

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

(50,50)

(150,150)

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)	
	vertiNN	vertiNN	

^FP

Field Parameter

Syntax

^FPd,g

Parameter

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

Description

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

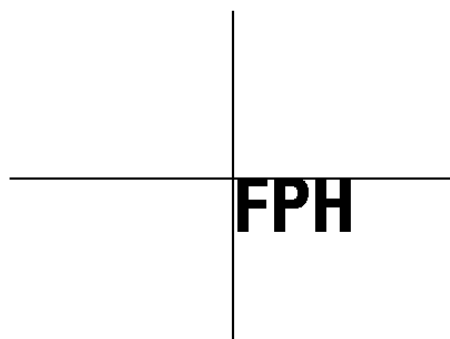
^FO200,300^GB400,1,2,B^FS

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

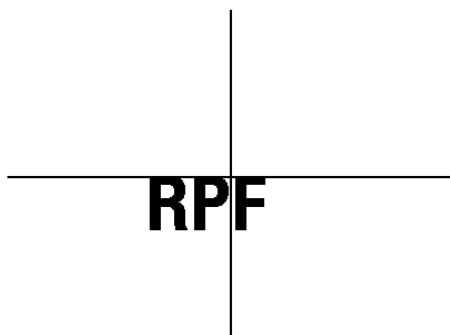
^FO400,300,0^FPV^AVN,,^FDFPV^FS

^XZ

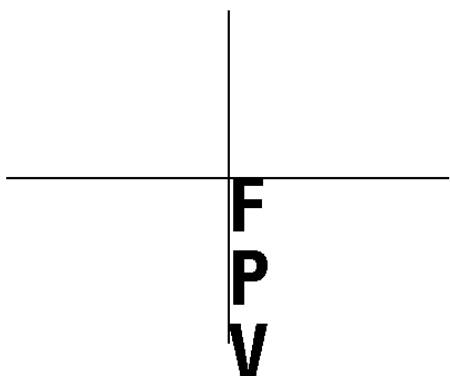
Output



FPH



RPF



FPV

^FR

Reverse print

Syntax

^FR

Description

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

Reverse

^FS

End of field

Syntax

^FS

Description

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

^FT

Defines coordinate for print pattern

Syntax

^FTx,y,z

Parameter

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

Description

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

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)
vertiNN	vertiNN

^FV **Defines variable**

Syntax ^FVdata

Parameter Data to be printed

Description 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^FVARIABLE^FS
^MCN
^XZ
```

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

Output

FIXED DATA
VARIABLE

FIXED DATA
NEW DATA

Defines default orientation

 $\wedge FWo$

Parameter

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

Description	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

$$\begin{aligned} &^{\text{XA}} \\ &^{\text{FWR}} \\ &^{\text{FO40,50ABFDTEXT 1FS}} \\ &^{\text{FO100,100ACFDTEXT 2FS}} \\ &^{\text{XZ}} \end{aligned}$$

Output

TEXT 2

TEXT 1

^FX

Comment

Syntax

^FWdata

Parameter

Data for comment

Description

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

NON-COMMENT1

NON-COMMENT2

^GB

Box or line

Syntax ^GBw,h,t,c

Parameter

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



^GD

Diagonal line

Syntax

^GDw,h,t,c,o

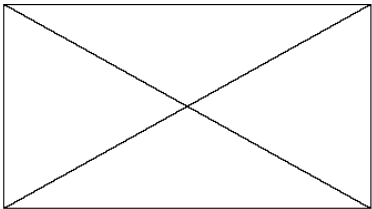
Parameter

w	Width of diagonal line in pixels Default: 3 or t (thickness). Others: 3 ~ 32000 .
h	Height of diagonal line in pixels Default: 3 or t (thickness). Others: 3 ~ 32000 .
t	Thickness in pixels Default: 1 . Others: 1 ~ 32000 .
c	Color Default: B . Other: W for white or clear.
o	Orientation Default: R Others: R (or /) for right-leaning, L (or \) for left-leaning.

Example

```
^XA^FO20,20^FO20,20^GD330,183,1,,R^FS
^FO20,20^GD330,183,1,,L^FS
^FO20,20^GB332,184,1^FS
^XZ
```

Output



^GF

Direct graphic

Syntax

^GFf,b,t,w,data

Parameter

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.

Description

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
FFF0000FFFFFFFF0000FFF
FF000000FFFF000000FF
```

```
F00000000FF00000000F
FF0000000FFFF000000FF
FFF0000FFFFFFF0000FFF
FFFF00FFFFFFF00FFFFF
FFFFFFFFF000FFFF000
00FFFFFFF000FFFFFFF0
^XZ
```

Output



^GS

Prints special symbols

Syntax

^GSo,h,w

Parameter

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.

Description

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

Example

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

^XZ

Output



`^HFB:ARGOX.PPLZ`

`^XZ`

The terminal emulator will return this code.

`^XA^DFB:ARGOX.PPLZ`

`^FO50,50^A100,100^FDHF TEST^FS`

`^XZ`

^HH

Configuration Label Return

Syntax

^HH

Description

After sending this command, the configuration label will return to PC through the com port.

Example

^XA^HH^XZ

~HI

Host identification

Syntax

~HI

Description

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

Example

~HI

Response

B-FV4,V1.0.0,8,32768KB

where

B-FV4 model name.

V1.0.0 firmware version.

8 resolution, 8 pixels per millimeter.

32768KB standard RAM size.

~HM

Memory status

Syntax

~HM

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

Example

~HM

Response

32768,3682,3682

where

32768 total size in KB of memory.

3682 Maximum free size of memory.

3682 Currently available memory size.

~HS

Host status

Syntax

~HS

Description

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 = a8a7a6a5a4a3a2a1a0

a8 baud rate. 0 for less than or equal to 19200, 1 for 38400.

a7 flow control. 0 for Xon/Xoff and 1 for DTR.

a6 Parity. 0 for odd parity and 1 for even parity.

a5 Parity control. 0 for no parity and 1 for parity enabled.

a4 Stop bit number. 0 for 2 bits and 1 for 1 bit.

a3 Data bit number. 0 for 7 bits and 1 for 8 data bits.

a2a1a0 Baud rate. 010-600, 011-1200, 100-2400, 101-4800, 110-9600, 111-19200. Baud rate is 38400 when a8=1 and a2a1a0=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 = m7m6m5m4m3m2m1m0 m7 Media type. 0 for die-cut and 1 for continuous. m6 reserved. Always 0. m5 reserved. Always 0. m4m3m2m1 reserved. Always 000. m0 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

Syntax

^HWD:o.e

Parameter

d	Device driver name Default: R (RAM) Others: B (USB memory), E (Flash memory)
o	Object name Default: *.
e	Extension name Default: *.

Description

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.PPLZ 008192
- 01404544 bytes free R RAM:



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

^ID

Erases graphics

Syntax

^IDd:o.e

Parameter

d	Device driver name Default: R (RAM) Others: B (USB memory), E (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

Syntax

^ILd:o.e

Parameter

d	Device driver name Default: R (RAM) Others: B (USB memory), E (Flash memory)
o	Object name Default: *.
e	Extension name Default: “ .GRF ”.

Description

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^FS

^FO50,100^AB^FDNEW DATA^FS

^XZ

Output

ORIGINAL DATA0
ORIGINAL DATA1
NEW DATA

^IM **Moves image**

Syntax ^IMd:o.e

Parameter

d	Device driver name Default: R (RAM) Others: B (USB memory), E (Flash memory)
o	Object name Default: *.
e	Extension name Default: ".GRF" .

Description 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^FS
^FO50,100^AB^FDNEW DATA^FS
^XZ
```

Output

```
ORIGINAL DATA0
ORIGINAL DATA1
NEW DATA
```

^IS **Saves image**

Syntax ^ISd:o.e,p

Parameter

d	Device driver name Default: R (RAM) Others: B (USB memory), E (Flash memory)
o	Object name Default: *.
e	Extension name Default: “ .GRF ”.
p	Print image during storing Default: Y for yes. Other: N for no.

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

~JA

Cancels All

Syntax

~JA

Description

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**

Syntax ^JBa

Parameter

a	Device driver name Default: must be specified Others: E for Internal Flash.
---	--

Description This command (^JBE) initializes the flash memory. After initialization all data in the flash memory will be cleared.

~JC

Media Sensor Calibration

Syntax

~JC

Description

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

Example

~JC

~JD

Enters dump mode

Syntax

~JD

Description

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

~JK

Delay cut

Syntax

~JK

Description

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”.

Example

^XA

^MMD

^FO50,50^A9,30,35^FDD&S^FS

^PQ3

^XZ

^XA~JK^XZ

~JL **Sets the label length**

Syntax ~JL

Description This command can set the label length. The label length depends on the label size.

~JP

Pause

Syntax

~JP

Description

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.

~JR

Power on reset

Syntax

~JR

Description

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

^JS

Sensor Selection

Syntax

^JSa

Parameter

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

Syntax ^JZa

Parameter

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

Description 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 E2PROM or flash.

^KD

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

Syntax

^KDa

Parameter

a	Date and time format Default: 0 for normal 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)
---	--

Description

This command can set the format of the RTC's date and time.

^LH **Defines the new origin**

Syntax ^LHx,y

Parameter

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.

Description 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**

Syntax ^LLa

Parameter

a	Length in pixels
---	------------------

Description 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](#)

[^LR](#) [Reverse print](#)

Syntax ^LRa

Syntax ^LRa

Parameter

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

Description	The command is valid for the whole and subsequent labels.
--------------------	---

Description	The command is valid for the whole and subsequent labels.
--------------------	---

Example

$$^XA^LY$$
$$^{\text{FO40,45}}\text{GB0,120,150}^{\text{FS}}$$

^FO80,60^A0,30,25^FDLR COMMAND^FS

$$^{\text{FO120,120}}\text{A0,40,30}^{\text{FDREVERSE}}\text{FS}$$
$$^{\wedge}XZ$$

Output

LR COMMAND
REVERSE

^LS

Shifts the image

Syntax

^LSa

Parameter

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

Description

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**

Syntax ^LTa

Parameter

a	Shift down value in pixels Default: 0 . Others: -120 ~ 120 .
---	--

Example

^XA^LT100^XZ

^AMD **Sets the darkness**

^AMD **Sets the darkness**

Description	¹ MDa
-------------	------------------

⁴MDa

Parameter

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

Description	The parameters will not be saved to the permanent memory.
--------------------	---

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**

Syntax ^MLa

Parameter

a	Length in pixels.
---	-------------------

^MM

Print mode

Syntax ^MMa

Parameter

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

Description 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

Syntax

^MNa

Parameter

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

Example

^XA^MNN^XZ

Transfer mode

 $^{\wedge}MTa$

Parameter

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

Syntax

^MUa

Parameter

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

Description

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

^PH

Feeds a blank label after printing

Syntax

`^PH` or `~PH`

Description

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.

Mirror image

Syntax

 $\wedge \text{PMa}$

Parameter

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

Example

$$\begin{aligned} & \wedge \text{XA} \wedge \text{PMY} \\ & \wedge \text{FO620}, 50 \wedge \text{AF} \wedge \text{FDREVERSE} \wedge \text{FS} \\ & \wedge \text{FO620}, 110 \wedge \text{AF} \wedge \text{FDDIRECTION} \wedge \text{FS} \\ & \wedge \text{XZ} \end{aligned}$$

Output

DIRECTION
BEAUFEBSE

Print orientation

$$^{\wedge}POa$$

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

$$\begin{aligned} & \wedge \text{XA} \wedge \text{POI} \\ & \wedge \text{FO640}, 50 \wedge \text{AF} \wedge \text{FDINVERTED} \wedge \text{FS} \\ & \wedge \text{FO640}, 110 \wedge \text{AF} \wedge \text{FDFORMAT} \wedge \text{FS} \\ & \wedge \text{XZ} \end{aligned}$$

INVERTED
FORMAT

^PP

Programmable pause

Syntax

^PP or ~PP

Description

^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
```

Print control

PQq,p,r,o

Parameter

q	Total quantity of labels Default: 1 . Others: 2 ~ 32767 .
p	Pause count and cut count Default: 0 for no pause and no cut 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

$$\begin{aligned} &^{\text{XA}} \\ &^{\text{FO130,65GB100,100,3FS}} \\ &^{\text{FO140,79A0,40,35FR^SN1000,13,NFS}} \\ &^{\text{PQ4,0,2}} \\ &^{\text{XZ}} \end{aligned}$$

Output

1000

1000

1013

1013

^PR Print rate

Syntax ^PRa,b,c

Parameter

a	Print speed Default: By model Others: 2 ~ 8 IPS.
b	Feed Speed (Ignored)
c	Backfeed speed (Ignored)

Description The maximum speed depends on the printer models.

Example

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

Note: Refer to [6.DENSITY AND SPEED](#).

~PS

Print start

Syntax

~PS

Description

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

Syntax ^PWa

Parameter Label width in dots.

^SC Sets the communication protocol for the RS232

^SC Sets the communication protocol for the RS232

Syntax ^SCa,b,c,d,e

Syntax ^SCa,b,c,d,e

Parameter

a	Baud rate 1200 ~ 115200.
b	Data length 7 or 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.

Description 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**

Syntax ~SDa

Parameter

a	Base darkness Default: By model Others: 1 ~ 30.
---	--

Description 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.

Note: Refer to [6.DENSITY AND SPEED.](#)

^SE

Sets encoding table

Syntax

^SEd:f

Parameter

d	Device driver Default: R (RAM) Others: B (USB memory), E (Flash memory)
f	Table name 8 character file name with 3 characters extension name. The default extension name for table is “.DAT”.

^SF

Sets the serialization field

Syntax

^SFa,b

Parameter

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

Fixed Data

BL00-0

Fixed Data

BL00-0

^SL

Sets mode (for Real-Time Clock)

Syntax

^SLa

Parameter

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.)
---	--

Description

This command can define the RTC’s mode of operation.

Sets counter

Syntax ^SNa,b,c

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.

$$\begin{aligned} &^{\text{XA}} \\ &^{\text{FO80},30^{\text{GB200},150,3^{\text{FS}}} \\ &^{\text{FO100},40^{\text{A0},40,35^{\text{SN1000},13,\text{N}^{\text{FS}}} \\ &^{\text{FO100},90^{\text{AF}^{\text{SN555},1^{\text{FS}}} \\ &^{\text{PQ2}} \\ &^{\text{XZ}} \end{aligned}$$

188

1000

555

1000

555

^SO Sets offset (for Real-Time Clock)

Syntax ^SOa,b,c,d,e,f,g

Parameter

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 Others: -32000~3200
d	Years offset Default: 0 Others: -32000~3200
e	Hours offset Default: 0 Others: -32000~3200
f	Minutes offset Default: 0 Others: -32000~3200
g	Seconds offset Default: 0 Others: -32000~3200

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: Feb/01/2015/20/47

Secondary: Jan/12/2010/16/37

Third: Feb/20/2020/00/57

AST

Sets date and time (for Real-Time Clock)

Syntax

 $\wedge \text{STa,b,c,d,e,f,g}$

Parameter

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

~TA **Sets tear-off adjust position**

Syntax ~TAa

Parameter

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

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

Text blocks

Parameter

Description	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.
--------------------	--

$$\begin{aligned} &^{\text{XA}} \\ &^{\text{CF}0,30,30^{\text{FO}120,200}} \\ &^{\text{PR}4,4,4} \\ &^{\text{TBN},100,500} \end{aligned}$$

^A0N,50,50^FD ARGOX PRINTER GOOD! Apple 12345 ABCDEFG.
TBN&A0N^FS
^XZ

Example 2

^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

Example 3

^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

Example 4

^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

^TO

Copy objects

Syntax

^Tod:o.e,s:o.e

Parameter

d	Device driver name
s	Default: R (RAM) Others: B (USB memory), E (Flash memory)
O	Object name
e	Extension name

Description

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

Syntax

~WC

Description

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

Syntax

^WDd:o.e

Parameter

d	Device driver name Default: R (RAM) Others: B (USB memory), E (Flash memory)
O	Object name
e	Extension name

Example

^XA^WD^XZ

Output

-

DIR

R:*.*

*

R:

C.FNT

059674

-

03702784

bytes free

R: RAM

^XA

Starts format

Syntax

^XA

Description

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

^XB

Disables backfeed

Syntax

^XB

Description

This command disables tear-off to improve the throughput.

^XF

Retrieves form

Syntax

^XFd:o.e

Parameter

d	Device driver name Default: R (RAM) Others: B (USB memory), E (Flash memory)
O	Form name
e	Extension name Default: ".PPLZ" .

Example

^XA^DFA.PPLZ^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.PPLZ^FS

^FN1^FDFORM EXEC^FS

^FN2^FD2468^FS

^XZ

Output



^XG

Retrieves graphic

Syntax

^XGd:o.e,x,y

Parameter

d	Device driver name Default: R (RAM) Others: B (USB memory), E (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 ~ .

Example

```
~DGA.GRF,42,6,
00000FF00000
00000FFFF000
FFFFFFFFFFFF0
FFFFFFFFFFFFF
FFFFFFFFFFFF0
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



^XZ

End format

Syntax

^XZ

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

6.DENSITY AND SPEED

PPLZ	Command Syntax	WLP-660 WLP-666	WP-660 WP-666	WP-880 WP-888	WL-880 WL-888	I4-240	I4-250	I4-350
Density range	~SDa	1~30	1~30	1~30	1~30	1~30	1~30	1~30
Default density		8	15	15	15	16	16	16
Speed range	^PRa (Unit: ips)	2~6	2~7	2~6	2~6	2~6	2~8	2~6
Default speed		5	5	3	3	5	6	5

7.COMMAND REFERENCE CHART

COMMANDS	DESCRIPTION	WLP series	WL series WP series	I4 series	
^A	Font Selection	*	*	*	
^A@	Font Selection by the font name	*	*	*	
^B0	Bar code – Aztec	*	*	*	
^B1	Bar code – code 11	*	*	*	
^B2	Bar code – Interleaved 2 of 5	*	*	*	
^B3	Bar code – Code 39	*	*	*	
^B5	Bar code – Planet	*	*	*	
^B7	Bar code – PDF-417	*	*	*	
^B8	Bar code – EAN-8	*	*	*	
^B9	Bar code – UPC E	*	*	*	
^BA	Bar code – Code 93	*	*	*	
^BC	Bar code – Code 128 with subsets A, B and C	*	*	*	
^BD	Bar code – Maxicode	*	*	*	
^BE	Bar code – EAN-13	*	*	*	
^BF	Bar code – Micro PDF417	*	*	*	
^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	*	*	*	
^BO	Bar code – Aztec	*	*	*	
^BP	Bar code – Plessey	*	*	*	
^BQ	Bar code – QR code	*	*	*	
^BR	RSS Bar Code (GS1 DataBar)	*	*	*	
^BS	Bar code – UPC/EAN extension	*	*	*	
^BT	Bar code – TLC39	*	*	*	
^BU	Bar code – UPC A	*	*	*	
^BX	Bar code – Data Matrix	*	*	*	
^BY	Parameter defaults for general bar codes	*	*	*	
^BZ	Bar code – Postal	*	*	*	
^CC	Changes the caret character	*	*	*	
^CD	Changes the delimiter character	*	*	*	
^CF	Changes default font	*	*	*	
^CI	Changes symbol set	*	*	*	

COMMANDS	DESCRIPTION	WLP series	WL series WP series	I4 series	
^CT	Changes the tilde character	*	*	*	
^CW	Defines the font ID	*	*	*	
~DB	Downloads a bitmap font	*	*	*	
~DE	Downloads encoding	*	*	*	
^DF	Downloads form	*	*	*	
~DG	Downloads graphic	*	*	*	
~DN	Abort Download Graphic	*	*	*	
~DU	Downloads unbounded TrueType font	*	*	*	
~EF	Erases all stored forms	*	*	*	
~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	Field Parameter	*	*	*	
^FR	Reverse print	*	*	*	
^FS	End of field	*	*	*	
^FT	Defines coordinate for print pattern	*	*	*	
^FV	Defines variable	*	*	*	
^FW	Defines default orientation	*	*	*	
^FX	Comment	*	*	*	
^GB	Box or line	*	*	*	
^GD	Diagonal 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	Load stored images	*	*	*	
^IM	Moves image	*	*	*	
^IS	Saves image	*	*	*	

COMMANDS	DESCRIPTION	WLP series	WL series WP series	I4 series	
~JA	Cancels All	*	*	*	
^JB	Initializes the flash memory	*	*	*	
~JC	Media Sensor Calibration	*	*	*	
~JD	Enters dump mode	*	*	*	
~JK	Delay cut		*	*	
~JL	Sets the label length	*	*	*	
~JP	Pause	*	*	*	
~JR	Power on reset	*	*	*	
^JS	Sensor Selection	*	*	*	
^JZ	Recovery control	*	*	*	
^KD	Select date and time format (for Real-Time Clock)	*	*	*	
^LH	Defines the new origin	*	*	*	
^LL	Defines the label length	*	*	*	
^LR	Reverse print	*	*	*	
^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	*	*	*	
^MN	Media type	*	*	*	
^MT	Transfer mode		*	*	
^MU	Sets units	*	*	*	
^PH	Feeds a blank label after printing	*	*	*	
^PM	Mirror image	*	*	*	
^PO	Print orientation	*	*	*	
^PP	Programmable pause	*	*	*	
^PQ	Print control	*	*	*	
^PR	Print rate	*	*	*	
~PS	Print start	*	*	*	
^PW	Print width	*	*	*	
^SC	Sets the communication protocol for the RS232		*	*	
~SD	Sets the darkness base	*	*	*	
^SE	Sets encoding table	*	*	*	
^SF	Sets the serialization field	*	*	*	
^SL	Sets mode (for Real-Time Clock)	*	*	*	
^SN	Sets counter	*	*	*	

COMMANDS	DESCRIPTION	WLP series	WL series WP series	I4 series	
^SO	Sets offset (for Real-Time Clock)	*	*	*	
^ST	Sets date and time (for Real-Time Clock)	*	*	*	
~TA	Sets tear-off adjust position	*	*	*	
^TB	Text blocks	*	*	*	
^TO	Copy objects	*	*	*	
~WC	Prints the configuration list	*	*	*	
^WD	Prints the directory on a label	*	*	*	
^XA	Starts format	*	*	*	
^XB	Disables backfeed	*	*	*	
^XF	Retrieves form	*	*	*	
^XG	Retrieves graphic	*	*	*	
^XZ	End format	*	*	*	