
RFID Label Printer

ZMIN PCLE Command Manual

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ZMIN TECHNOLOGIES



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B1. Command Syntax

- Generally speaking, command names consist of 1 or 2 (case sensitive) alphanumeric characters.
- Some commands require one or more optional parameters and/or optional commands to perform special functions.
- All command lines should be concluded by a CR-ODH via “enter” to a new line.

1. Basic command format.

Format 1: Commands without parameters

Syntax	Description
X<CR>	Command with single alpha character
XX<CR>	Command with two alpha characters

Format 2: Commands with a fixed number of parameters

Syntax	Description
Xp1, p2,p3,...,pn <CR>	Command with a single leading alpha character
XXp1, p2,p3,...,pn <CR>	Command with two leading alpha characters

Format 3: Commands with optional parameters

X[p1, p2,p3,...,pn] <CR>

2. String

In command sets, we can use data strings with the following characteristics:

Name: for graphics, soft fonts and forms.

Data: for fonts and bar code

The quotation mark character (") designates the beginning and ending of a string.

The backslash (\) character designates that the following character(s) is literal and will be encoded into the data field. Please refer to the following

Examples:

Character input

To Print	Input
"	\ "
\	\\
0x00 – 0x7F	\x00 - \x7F

Note: All commands and names are case sensitive.

B2. Fonts

Based on their storage mediums, the command set has defined 3 kinds of Fonts.

- Internal Fonts
- Soft Fonts
- Externally Stored Fonts

1. Internal fonts

Five kinds of internal fonts reside within the printers ROM, and unlike soft fonts, they cannot be deleted. Each font has a unique ID number.

ID #	Font Size	Comment
1	20 cpi, 6 pts	
2	17 cpi, 7 pts	
3	14.5 cpi, 10 pts	
4	13 cpi, 12 pts	
5	5.6 cpi, 24 pts	Uppercase characters only

2. Soft Fonts

Soft fonts can be downloaded from the host through application software. If the internal font cannot meet the requirements, soft fonts are another possible solution.

Advantages of Soft Fonts:

- Saves memory space (graphics occupy more memory space)
- Better performance (may be called repeatedly)
- May carry out the automatic Increase/Decrease function
- Similar to internal fonts, they can be scaled, rotated or reversed
- May be saved into either RAM or Flash memory (permanent storage)
- May be deleted, when no longer required or the storage capacity is insufficient

Soft fonts may be downloaded, as per your individual needs. Each soft font has a unique ID number. And based on the ID number, you may download, choose or delete the soft fonts as required. The soft font ID number may range from A to Z.

3.Externally Stored Fonts

The font board and/or font carrier are optional items. The ID number reserved for external storage fonts ranges

from 7 to 10. 7 and 8 are for Chinese character Fonts, 9 and 10 are for Korean Character Fonts.

1.Character Set

The code table may be redefined as another kind of character set or code page.

	8 Bit character	7 Bit character
Character Set	Code page 437 Code page 850 Code page 852 Code page 860 Code page 863 Code page 865	USASCII, British, Danish, French, German, Italian, Spanish, Swedish, Swiss

B3. Command Set

Command sets can be categorized into the following four groups:

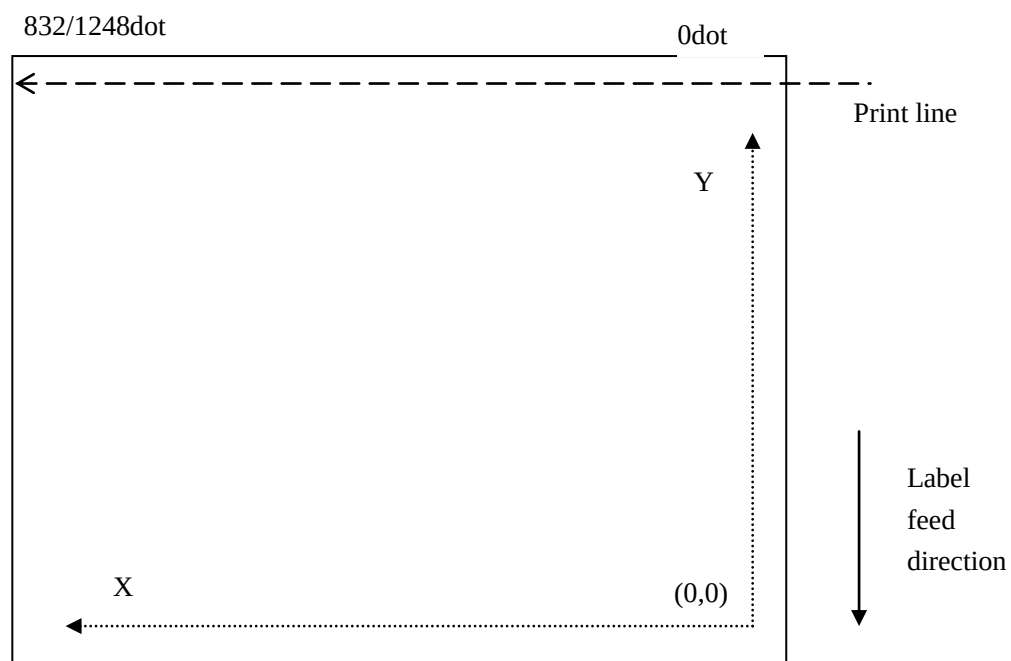
- Setting commands
- Label formatting commands
- Interaction commands through the serial port.
- Object downloading commands

Command	Description	Command	Description
T	Print text	LE	Line draw exclusive
B	Print 1D barcode	LO	Line draw Black
B	Print 2D barcode	LW	Line draw White
C	Counter	N	Clear image buffer
H	Print darkness setting	O	Option select**
EI	Print soft font name	W	Print label
EK	Delete soft font	WA	Print automatic
ES	Download soft font	Q	Set label and media gap length **
FE	End form store	q	Set label width**
FI	Print form name	R	Set reference point**
FK	Delete form	S	Set printing speed **
FR	Execute form	U	Print Configuration
FS	Store form	UN	Disable error reporting
GG	Print graphic information	US	Enable error reporting
GI	Print graphic list	V	Define variable
GK	Delete graphic	X	Box draw
GM	Store graphic	Z	Print direction
GW	Print binary graphic	ZS	Enable download to Flash memory
I	Character set Selection **	ZN	Enable download to RAM
JB	Disable back feed**	?	Download variable
JF	Enable back feed**		

Command reference

This section contains a complete listing of all commands in alphabetical order.

The coordinates system for the barcode label printer are shown below:



Note

<CR> is decimal “13” of USASCII, or hexadecimal “ODH”, also called “enter”

Dots are equal to one inch divided by the maximum resolution of the printer.

For example: 1 inch = 25.4mm or 1000mil

203 DPI Printers: 1 dot = $25.4\text{mm} / 203 = 0.125\text{mm}$ (1dot = $1000\text{mil} / 203 = 5\text{mil}$)

300 DPI printers: 1 dot = $25.4\text{mm} / 300 = 0.085\text{mm}$ (1dot = $1000\text{mil} / 300 = 3\text{mil}$)

T : Print a text string, counter and variable

Description: Prints a text string, variable or counter.

Syntax:

```

Tp1,p2,p3,p4,p5,p6,p7,"DATA"<CR>
Tp1,p2,p3,p4,p5,p6,p7,Cn<CR>
Tp1,p2,p3,p4,p5,p6,p7,Vn<CR>
Tp1,p2,p3,p4,p5,p6,p7,"DATA"Cn<CR>
Tp1,p2,p3,p4,p5,p6,p7,"DATA"Vn<CR>
Tp1,p2,p3,p4,p5,p6,p7,Combo <CR>

```

Parameter explanation:

P1: Horizontal start position (X) in dots.

P2: Vertical start position (Y) in dots.

P3: Select rotation. 0 - no rotation; 1 - rotate 90 degrees; 2 - rotate 180 degrees; 3 - rotate 270 degrees.

P4: Font selection. 1-5: Internal fonts; A-Z: downloaded soft fonts.

a: built-in 24*24 dot matrix Chinese fonts.

Value	Description
1	Western language font 1
2	Western language font 2
3	Western language font 3
4	Western language font 4
5	Western language font 5
a	24*24 dot matrix Chinese font
A~Z	Soft fonts

P5: Horizontal multiplier, expands the text horizontally. Value range: 1-24

P6: Vertical multiplier, expands the text vertically. Value range: 1-24

p7: Choosing 'N' prints normal text (i.e. black characters on a white background)

Choosing 'R' prints reversed text (i.e. white characters on a black background)

"DATA": A fixed data field.

Cn: Defines a counter value. Please refer to the C order

Vn: A string of variable characters; please refer to V order.

Combo: A combined string of characters using "DATA", Cn and/or Vn parameters

Example: "data1"CnVn"data2".

A combined string cannot surpass a length of 100 characters.

Note: Use the syntax below when using a counter value and variable strings:

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

Note: n is the ID of the counter value or variable string;

st indicates the starting position. Usually it is 0;

Len indicates the length of the sub-string.

Example:

```
N
T50,30,0,1,1,1,N, "This is font 1."
T50,7,0,2,1,1,N, "This is font 2."
T50,110,0,3,1,1,N, "This is font 3."
T50,150,0,4,1,1,N, "This is font 4."
T50,200,0,5,1,1,R, "FONT 5"
W1
```

Printout:

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

B : Print barcode

Description: Prints a specific barcode.

Syntax:

```
Bp1,p2,p3,p4,p5,p6,p7,p8,"DATA"<CR>
Bp1,p2,p3,p4,p5,p6,p7,p8,Cn<CR>
Bp1,p2,p3,p4,p5,p6,p7,p8,Vn <CR>
Bp1,p2,p3,p4,p5,p6,p7,p8,"DATA"Cn <CR>
Bp1,p2,p3,p4,p5,p6,p7,p8,"DATA"Vn<CR>
Bp1,p2,p3,p4,p5,p6,p7,Combo <CR>
```

Parameter explanation:

P1: Horizontal start position (X) in dots.

P2: Vertical start position (Y) in dots

P3: Select printing direction. 0 - no rotation; 1 - rotate 90 °; 2 - rotate 180 °; 3 - rotate 270 °

P4: barcode selection.

P4 Value	Barcode type
0	Code 128 UCC (shipping container code)
1	Code 128 AUTO
1A	Code 128 subset A
1B	Code 128 subset B
1C	Code 128 subset C
1E	UCC/EAN
2	Interleaved 2 of 5
2C	Interleaved 2 of 5 with check sum digit
2D	Interleaved 2 of 5 with human readable check digit
2G	German Postcode
2M	Matrix 2 of 5
2U	UPC Interleaved 2 of 5
3	Code 3 of 9
3C	Code 3 of 9 with check sum digit
3E	Extended Code 3 of 9
3F	Extended Code 3 of 9 with checksum digit
9	Code93
E30	EAN-13
E32	EAN-13 2 digit add-on
E35	EAN-13 5 digit add-on
E80	EAN-8
E82	EAN-8 2 digit add-on
E-85	EAN-8 5 digit add-on
K	Codabar
P	Postnet

UA0	UPC-A
UA2	UPC-A 2 digit add-on
UA5	UPC-A 5 digit add-on
UE0	UPC-E
UE2	UPC-E 2 digit add-on
UE5	UPC-E 5 digit add-on

p5: Establishes the narrow bar width, in dots.

p6: Establishes the wide bar width, in dots

p7: Establishes the barcode height, in dots

P8: Choosing 'N' prints normal text (i.e. black characters on a white background)

Choosing 'R' prints reversed text (i.e. white characters on a black background)

“DATA”: A fixed data field.

Cn: Defines a counter value. Please refer to the C order

Vn: A string of variable characters. Please refer to V order.

Combo: A combined string; using “DATA”, Cn and/or Vn parameters

Example: “data1”CnVn“data2”.

A combined string cannot surpass a length of 100 characters.

Note: Use the syntax below when using a counter value and variable strings:

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

Note: n is the ID of counter value or variable string;

st indicates the starting position. Usually it is 0;

Len indicates the length of the sub-string.

Example:

N

B20,20,0,E80,3,3,41,B,"0123459"

B20,120,0,K,3,5,61,B,"A0B1C2D3"

B190,300,2,1,2,2,51,B,"0123456789"

B20,330,0,UA0,2,2,41,B,"13579024680"

W1

Printout:



Fig. B5-2

b : Prints 2D barcode

Description: Prints a specific 2D barcode.

Syntax:

bp1,p2,p3,[specific parameters and data]

Parameter Explanation:

p1: Horizontal start position (X) in dots.

p2: Vertical start position (Y) in dots.

p3: barcode selection.

p3 value	Bar Code type
M	Maxi Code
P	PDF-417
DX	DataMatrix ECC200
QR	QR

Maxi Code

1. UPS data format:

[Mode,1],”Data”

Mode: Mode Selection, can be 2 ,3, 4.

1: It's UPS data format.

2. Non UPS format data.

[Mode,0,Ci,Co,Po],”Data”

Mode: Mode Selection, can be 2 ,3, 4.

0: It's Non UPS data format.

Ci: 3digital required.

Co: 3digital required.

Po: Mode 2 = 5 or 9 characters(All Numeric).

Mode 3 = 6 characters(Any alphanumeric characters)

When printing UPS data format , the Printer detects the The message header([]>RS), Field separator(GS = 1D),The end of message marker(RS EOT = 1E 04) data control strings.

UPS data format list as follows:

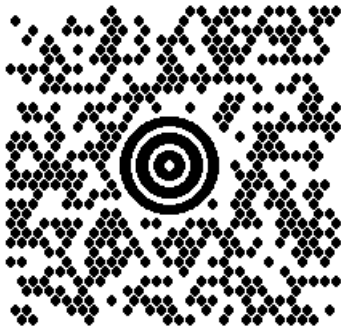
Message Header: []>RS

Transportation Data
 Format Header : 01GSyy
 Package n/x:GS<n/x>
 Package Weight :GS<weight>
 Address Validation :GS<validation>
 Ship to Street Address :GS<street address>
 Ship to City: GS<city>
 Ship to State: GS<state>
 RS: RS
 End of Message: EOT
 (* Mandatory Data for UPS)
 Tracking Number: *<tracking number>
 SCAC :GS<SCAC>
 UPS Shipper Number :GS<shipper number>
 Julian Day of Pickup: GS<day of pickup>
 Shipment ID Number :GS<shipment ID number>

Example:

N
 b10,10,M,4,0,1Z000A7&dajc_iaj-3=+~#^\$5&#fe[{:'s;fk.,LAKFalkdgjoiu12815/w35::'./dfoi38&*^}!+
 W1

Printout:



PDF-417

[w,v,s,c,p,x,y,r,l,t,o],”Data”

- w: Maximum printing width in dots
- v: Maximum printing height in dots
- s: Error correction scope: 0-8
- c: Data compression scope: 0 or 1. Default is 0.
- x: Module width: 2-9 in dots

y: Module height: 4-99 in dots
 r: Maximum row count.
 l: Maximum column count.
 t: Intercept symbol: 0 = no intercept 1 = intercept
 o: Rotation: 0—0 °; 1--90 °; 2--180 °; 3--270 °

Example:

N
 b50,30,P,00,00,s0,c0,x3,y6,r0,l0,t0,o0,"ABCabc12345"
 W1

Printout:



Datamatrix Ecc200

[w,v,o,m], "Data"

w: Maximum printing width in dots
 v: Maximum printing height in dots
 o: Rotation: 0—0 °; 1--90 °; 2--180 °; 3--270 °
 m : Element width(in dots, Acceptable values are 1-9).

Example:

N
 b20,220,DX,0,0,o0,m5,"Data Matrix"
 W1

Printout:



QR

[w,v,o,r,m,g,s], "data"

w: Maximum printing width in dots
 v: Maximum printing height in dots
 o: Rotation: 0—0 °; 1--90 °; 2--180 °; 3--270 °

r : Element width(in dots, Acceptable values are 1-9).

m: Start mode Selection

0 - Numeric Mode

1 - Alphanumeric Mode

2 - Byte Mode

3 - Chinese characters Mode

4 – Kanji Mode

g: Security level Selection

0 – Level L

1 – Level M

2 – Level Q1

3 – Level H1

s: Mask Selection. (Acceptable values are 0-8)

Example:

N

b200,200,QR,0,0,o0,r5,m2,g0,s0,"ABCabc12345"

W1

Printout:



C : Define Counter

Description: This command defines a counter variable.

Syntax: Cp1,p2,p3,p4,"MSG"<CR>

Parameter explanation:

p1: Counter ID. Range: 0-9

p2: Maximum number of digits for the counter. Range: 1—40.

p3: Field justification: L-left, R-right, C-center, N-none

p4: This is the step value of counter. “+” or “-” sign followed by a single digit of 1 – 9, then followed by a change symbol (i.e. D - decimal base, B - binary system, O - octonary number system, H - hexadecimal system,

X - user defined pattern, to a maximum of 64 characters.

Step values:

“+1” = Increases each time by 1, according to Decimal base computation. Example: 1234, 1235, 1236,

“+3D” = Increases each time by 3, according to Decimal base computation. Example: 1234, 1235, 1236,

“-1B” = Decreases each time by 1, according to Binary computation. Example: 1111, 1110, 1101,

“-4O” = Decreases each time by 4, according to Octonary number system computation. Example: 1234, 1230, 1224,

“-6H” = Decreases each time by 1, according to hexadecimal base computation. Example: 1234, 122E, 1228,

“+3X” = Increase each time by 3, according to a user-defined pattern. Example: In user-defined rule: TE2DOKLU046MNY37, the starting value is “T062”, followed by T062, T06K, T060,

“MSG”: Displays a text string on the printers LCD display or KDU Display.

Example:

N

FK"TEST"

FS"TEST"

C0,6,N,+1,"Enter Code:"

T100,100,0,4,1,1,N,"Label: "

T300,100,0,4,1,1,N,C0

FE

The above command will store a form named “TEST” to the printer.

If the following command is sent to printer, it will printout:

FR"TEST"

?

1000

W2

Printout:

Label: 1000

Label: 1001

H: Set Print Darkness

Description: Use this command to control the print darkness. This value does not represent the temperature of the TPH. It is a relative value. The lightest print darkness is achieved with a value of 0 and the greatest print darkness is achieved with a value of 20.

Syntax: Hp1<CR>

Parameter explanation:

p1: value range: 0-20, default is 10.

Example:

```
N
H10
T100,100,0,3,1,1,N,"DARKNESS=10"
W1
```

EI : Print fonts list

Description: This command will cause the printer to print a list of all soft fonts that are stored in memory.

Syntax: EI<CR>

Example:

EI

Printout:

If the printer has not stored any soft fonts, it will print:

```
SOFT FONT INFORMATION:  
NO SOFT FONT STORED!
```

```
Soft Font Information:  
No Soft Font Stored
```

If the printer has stored soft fonts with ID C, D, E, F, G respectively, with C and D stored in RAM and E, F, and G stored in Flash memory, it will print:

```
SOFT FONT INFORMATION:  
5 SOFT FONT STORED!
```

```
RAM:
```

```
C
```

```
D
```

```
FLASH:
```

```
E
```

```
F
```

```
G
```

```
Soft Font Information:  
C  
D  
E  
F  
G
```

EK : Deletes soft fonts

Description: This command is used to remove one or all, soft fonts stored in RAM and/or Flash memory.

Syntax:

EK"ID"<CR>

EK"*"<CR>

Parameter explanation:

ID: Soft font ID, values from A-Z.

Note: Using the "*" parameter will remove all soft fonts from RAM or Flash memory.

ES : Download soft fonts to printers RAM or Flash memory.

Description: This command is used to download soft fonts to the printers RAM or Flash memory.

Syntax:

ES"ID p1, p2, ...

Parameter explanation:

ID: One upper case letter from A to Z.

p1: Number of characters to be downloaded.

p2: Font height

Basic soft font format:

Font form 0
Character 0
...
Font form N-1
Character N-1

 :

"Nth character" data format:

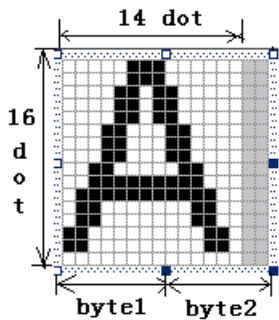
Byte 0,1	Expressed as a hexadecimal number. For ASCII characters, the high byte is 0x00 and the low byte is the ASCII code; For Chinese characters use GB code
Byte 2	Character overall width; equal to the character actual width + character gap. Value: 0x00-0xFF pixels.
Byte 3	Character actual width. Value: 0x00-0xFF in bytes.

:

"Nth character" data format:

Byte 0...	Character image data. The length is byte 3*p2
-----------	---

Example:



Parameter	Data	Hexadecimal
Byte 2	16	10
Byte 3	14	0E
p2	16	10

FE : Ends form store

Description: This command is used to end a form store sequence, started by the “FS” command.

Syntax: FE<CR>

Example:

FS”FORMA”

...

FE

FI : Print forms list

Description: This command prints a list of forms currently downloaded to the printers Flash memory or RAM from the host.

Syntax: FI<CR>

Example:

FI

Printout:

If the printer has not stored any forms, it will print:

```
FORM INFORMATION:  
NO FORM STORED!
```

```
Form Information:  
No Form Stored
```

If the printer has stored forms with names FORMA, FORMB and FORMC. FORMA is stored in RAM and FORMB and FORMC are stored in Flash memory. It will print:

```
FORM INFORMATION:  
3 SOFT FONT STORED!  
RAM:  
FORMA  
FLASH:  
FORMB  
FORMC
```

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

FK : Delete forms

Description: This command causes the printer to delete forms currently stored in the printer's Flash memory or RAM.

Syntax: FK"FORMNAME"<CR>
FK"*"<CR>

Parameter explanation:

FORMNAME: Will delete soft form name with a maximum of 16 characters.

Note: Using the "*" parameter will remove all forms from RAM or Flash memory.

FR : Execute form

Description: This command is used to retrieve and execute a stored form.

Syntax: FR"FORMNAME"<CR>

Parameter explanation:

FORMNAME: Form name to be retrieved, up to a maximum of 16 characters

Example:

FK"FRMA"	; delete form FRMA
,FS"FRMA"	; downloads new form FRMA
T50,30,0,4,1,1,N,"THIS IS FRMA."	
FE	; concludes a form download
FR"FRMA"	; retrieves form
W1	

FS : Download form to printer

Description: This command begins a form download until the FE command is received. If the “ZS” command is used, the form will be downloaded to Flash memory.

If the ZN command is used, the form will be downloaded to RAM.

Syntax: FS”FORMNAME”<CR>

Parameter explanation:

FORMNAME: user-defined form name with a maximum of 16 characters.

GG : Print Graphics

Description: This command is used to print graphics previously downloaded and stored on the printers RAM or Flash memory.

Syntax: GGp1,p2,"GNAME"<CR>

Parameter explanation:

p1: Horizontal start position(X) in dots.

p2: Vertical start position(Y) in dots.

GNAME: graphic name with a maximum of 16 characters; or variable name (variable Data: V00-V99).

Example:

N

GG100,50,"PCXGRAPH"

W1

GI : Print graphics information

Description: This command prints a list of all graphics stored in RAM or Flash memory.

Syntax: GI<CR>

Example:

GI

Printout:

If the printer has not stored any graphics, it will print:

GRAPHICS INFORMATION:

NO GRAPHICS STORED!

```
Graphics Information:  
No Graphics Stored.
```

If the printer has stored graphics with name GRAPH A and GRAPH B, and GRAPH A is stored in RAM and GRAPH B is stored in Flash memory, the following will be displayed:

GRAPHICS INFORMATION:

2 GRAPHICS STORED!

RAM:

GRAPH A

FLASH:

GRAPH B

```
Graphics Information:  
GRAPH A  
GRAPH B
```


GK : Delete Graphics

Description: This command deletes graphics currently stored in Flash memory or RAM.

Syntax:

GK"GNAME"<CR>

GK"*"<CR>

Parameter explanation:

GNAME: Graphic name; up to a maximum of 16 characters

Note: Using the "*" parameter will remove all graphics from RAM and Flash memory.

GM : Download graphics to printer

Description: This command is used to download and store graphics information to the Flash memory or RAM.

Syntax:

```
GM"GNAME"p1<CR>
PCX file
```

Parameter explanation:

GNAME: Defines graphic name to be stored, up to a maximum of 16 characters.

p1: PCX graphics file size(decimal) in bytes

PCX file: a PCX format graphic

Example:

```
GK"PCXA"
GM"PCXA"3858
...[PCX file for PCXA graphics]...
N
T30,30,0,4,1,1,R,"PCXA..."
GG30,100,"PCXA"
W1
GK"*"
```

Printout:



GW : Print binary graphics

Description: Graphics are sent row by row without compression; each bit represents a dot; a value of“0”prints a dot; a value of“1”does not print a dot.

Syntax: GWp1,p2,p3,p4[...raster data...]<CR>

Parameter explanation:

P1: Horizontal start position (X), in dots.

P2: Vertical start position (Y), in dots.

P3: Width of graphic in bytes (1Byte=8bits).(byte count in width of a row)???

P4: Height of graphic, in dots.

P5([...raster data...]): Binary graphic data; data size = p3 X p4(Bytes)

I : Character set selection

Description: This command is used to select the character set; the default character set is Code page 437(English).

Syntax: Ip1,p2,p3<CR>

Parameter explanation:

P1: number of data bits; 8 for 8-bit data and 7 for 7-bit data.

P2: Character set

P3: KDU country code.

8-bit data (p1=8)	Character set (Code page)	7-bit data (p1=7)	Character set
0	English (437)	0	USASCII
1	Latin 1 (850)	1	British
2	Slavic (852)	2	German
3	Portugal (860)	3	French
4	Canadian/French (863)	4	Danish
5	Nordic (865)	5	Italian
		6	Spanish
		7	Swedish
		8	Swiss

Example:

N

I7,5,001

T50,30,0,3,1,1,N," £ 100"

W1

This example will use the 7-bit, Italian character set

Printout:

£100

JB/JF : Disable/Enable back feed

Description: This command is used to adjust the stop position of the label. The back feed setting is disabled as the factory default.

Syntax: JB<CR>
JF[p1]<CR>

Parameter explanation:
p1: Feed distance, using dots.

Example:
JF14

LE : Line draw by exclusive OR operation

Description: This command draws a line using an exclusive OR operation.

Syntax: LEp1,p2,p3,p4<CR>

Parameter explanation:

P1: Horizontal (X) start position in dots.

P2: Vertical (Y) start position in dots.

P3: Horizontal length in dots.

P4: Vertical height in dots.

Example:

N

LE50,30,100,10

LE100,20,5,110

W1

Printout:



LO : Line draw by OR operation

Description: This command draws a line using an OR operation.

Syntax: LOp1,p2,p3,p4<CR>

Parameter explanation:

P1: Horizontal (X) start position in dots.

P2: Vertical (Y) start position in dots.

P3: Horizontal length in dots.

P4: Vertical height in dots.

Example:

N

LO50,30,100,10

LO100,20,5,110

W1

Printout:



LS : Line draw diagonal

Description: This command is used to draw diagonal black lines, overwriting previous information.

Syntax: LSp1,p2,p3,p4,p5<CR>

Parameter explanation:

P1: Horizontal (X) start position in dots.

P2: Vertical (Y) start position in dots.

P3: Line thickness in dots.

P4: Horizontal (X) stop position in dots.

P5: Vertical (Y) stop position in dots.

Example:

N

LS50,30,10,100,80

W1

Printout:



LW : Line draw white

Description: This command is used to draw white lines, erasing previous information.

Syntax: LWp1,p2,p3,p4<CR>

Parameter explanation:

P1: Horizontal (X) start position in dots.

P2: Vertical (Y) start position in dots.

P3: Horizontal length in dots.

P4: Vertical height in dots.

Example:

N

LE50,30,100,10

LE50,60,100,10

LE50,90,100,10

LE50,120,100,10

LW100,20,5,110

W1

Printout:



N : Clear image buffer

Description: Use this command to clear image buffer prior to building new label image.

Syntax: N<CR>

Note: Do not use N command within stored forms.

O : Option select

Description: This command is used to set various printer options. Options available vary by printer configuration.

Syntax: O[D,P,L,C,N]<CR>

Parameter explanation:

D: Enable direct thermal printing

P: Enable continuous printout.(default)

L: After printing a label the printer will stop, requiring user input to print the next label. Input determined by:
1. By pressing the “feed” button for each label to be printed. 2. Will continue automatically after previously printed label is removed (with peeler kit installed)

C: Enable Cutting mode. (Only with cutter kit installed)

N: Enable Peeler mode. (Only with peeler kit installed)

Example:

O<CR>: thermal transfer, without cutter and peeler.

OD<CR>: direct thermal, without cutter and peeler.

OC<CR>: direct thermal, with cutter installed

Note: 1. Cutter and peeler cannot be installed at the same time.

2. If the printing mode is incorrectly selected, the LED at the front panel will begin blinking, please refer to the trouble shooting section in User’s Manual.

W : Print Label

Description: This command is used to output the contents of the image buffer.

Syntax: Wp1[,p2]<CR>

Parameter explanation:

p1: Number of label sets. Range:1-65535.

P2: Number of copies of the same label. Range: 1-65535

Note: The W command cannot be used inside of a stored form sequence. For automatic printing of stored forms, use the WA command.

Example:

```
FK"TEST"
FS"TEST"
C0,6,N,+1,"Enter Start No.:"
T20,50,0,4,1,1,N,"Label: "
T120,50,0,4,1,1,N,C0
FE
N
Q20,0
FR"TEST"
?
100
W2,3
```

Printout:

Label: 100

Label: 100

Label: 100

Label: 101

Label: 101

Label: 101

WA : Print Automatic (only used in form)

Description: Use this command in a stored form sequence to automatically print the form (as soon as all variable data has been supplied).

Syntax: WAp1[,p2]<CR>

Parameter explanation:

p1: Number of label sets. Range:1-65535.

p2: Number of copies of the same label. Range: 1-65535

Example:

```
FK"TEST1"  
FS"TEST1"  
C0,6,N,+1,"Enter Start No.:"  
T20,50,0,4,1,1,N,"Label: "  
T120,50,0,4,1,1,N,C0  
WA2  
FE  
N  
Q20,0  
FR"TEST1"  
?  
100
```

Printout:

```
Label: 100
```

```
Label: 101
```

Q : Set Form and Gap Length/black line/ perforation

Description: Use this command to set the form and gap length, black line thickness or perforation.

Syntax: Qp1,p2<CR>

Parameter explanation:

p1: Label length measured in dots. Value range: 0 to 65535

Default: length of media set by AutoSense.

p2: Gap length or thickness of black line/perforation, in dots. Value range: 16 to 240

The value of p2 is directly related to the mode being used.

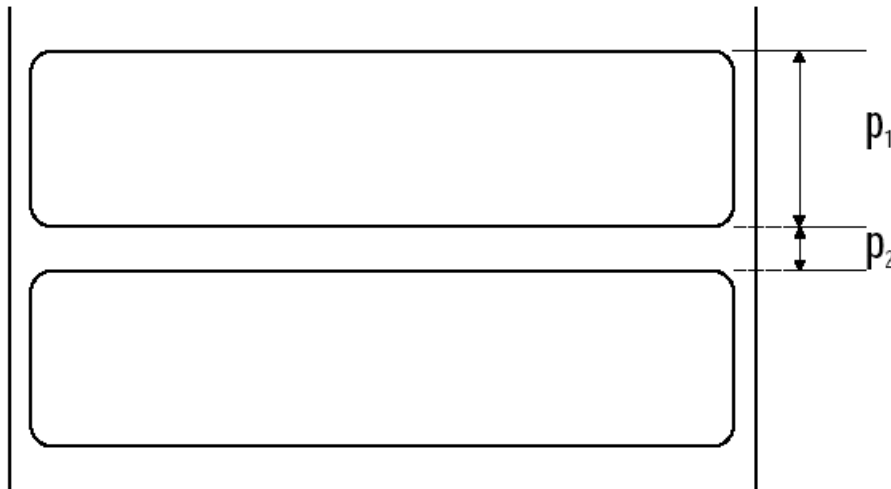
Gap mode: By default, set p2 to the gap length. In special cases perforations are used in Gap Mode.

Black Line Mode: Set p2 to the black line thickness in dots.

Continuous Media Mode: Set p2 to 0 (zero); The transmissive (gap) sensor will be used to detect the end of media.

Example:

1. Common Gap mode:



If:

$p_1 = 20.0 \text{ mm}$ (160 dots at 200dpi)

$p_2 = 3.0 \text{ mm}$ (24 dots at 200dpi)

The Q command should be:

Q160,24

q : Set Label Width

Description: This command used to sets the label width.

Syntax: qp1<CR>.

Parameter explanation:

p1: the width of the label in dots.

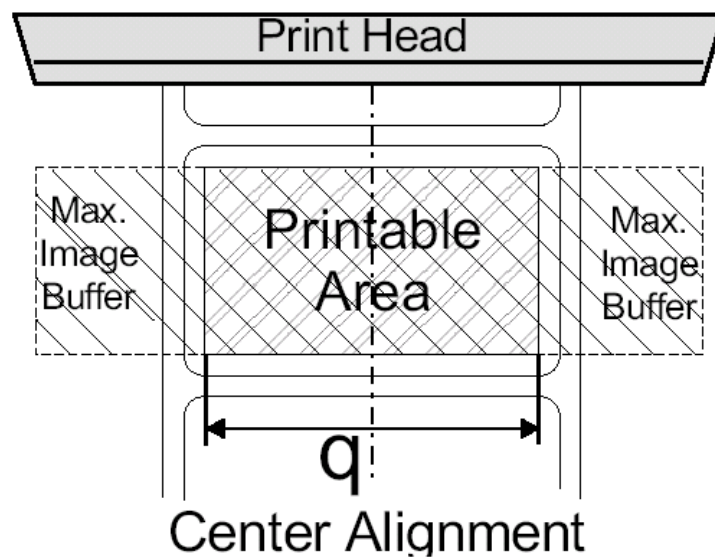
.

Note: If the R Command (Reference Point) is sent after this command, the image buffer will be automatically reformatted to match the width of the print head and is offset by the R command specified image buffer starting point, nullifying the q command.

Example:

```
N
q250
T20,30,0,2,1,1,N,"q command:"
T20,60,0,2,1,1,N,"Label width: 250 dots"
W1
```

***Image Buffer
Positioning - Center
Aligned Printers***



R : Set Reference Point

Description: This function is used to set or change the coordinate origin point.

Syntax: Rp1,p2<CR>

Parameter explanation:

p1: X coordinate distance from reference point in dots.

p2: Y coordinate distance from reference point in dots..

S : Set Print Speed

Description: Use this command to select the print speed.

Syntax: Sp1<CR>

Parameter Explanation:

p1: value range: 0 to 6 and 10 to 80

p1 value	Speed
0 or 1	1 ips (25 mm/s)
2	2 ips (50 mm/s)
3	3 ips (75 mm/s)
4	4 ips (100 mm/s)
5	5 ips (125 mm/s)
6	6 ips (150 mm/s)

p1 Value	Speed
10	1.0 ips (25 mm/s)
15	1.5 ips (37 mm/s)
20	2.0 ips (50 mm/s)
25	2.5 ips (63 mm/s)
30	3.0 ips (75 mm/s)
35	3.5 ips (83 mm/s)
40	4.0 ips (100 mm/s)
50	5.0 ips (125 mm/s)
60	6.0 ips (150 mm/s)
70	7.0 ips (175 mm/s)
80	8.0 ips (200 mm/s)

U : Print Current Configuration

Description: Use this command to print the current printer configuration for page mode printing. The printout is the same as the Dump Mode printout initiated by the printer's autosense routine. The printer does not enter Dump Mode.

Syntax: U<CR>

Printout:

1、 English display

```

Label Printer X1
Version: ZMIN_PCLEXX.XX
PartNumber: xxxxxxxxx

FLASH.....8M Bytes
RAM.....16M Bytes
Labels(Page).....x
Printed Length(M).x
COM.....9600 ,N,8,1
Print Method.....THERMAL TRANSFER
Media Sensor.....Reflect
Ribbon Sensor.....Enable
Tear Off.....Disable
Cutter.....Disable
Peeler.....Disable
Darkness.....10
xxxx,xxxx,xxxx,xxxx
  
```

Internal Fonts:

Font 1: ABCabc0123456789

Font 2: AaBbCc0123456789

Font 3: AaBbCc0123456789

Font 4: AaBbCc0123456789

FONT 5: ABC

Font 6 中文宋体: AaBbCc0123456789

2. Chinese character display:

条码打印机 X1
版本: ZMIN_PCLEX.XX
产品编号: xxxxxxxxxx

FLASH.....8M Bytes
RAM.....16M Bytes
已打印标签 (页) ..x
打印总长度 (米) ..x
串口.....9600,N,8,1
打印方式.....热转印
纸张探测器.....反射式
碳带探测器.....有效
撕纸模式..... 无效
切纸刀.....无效
剥纸器.....无效
当前打印黑度.....10
xxxx, xxxx, xxxx, xxxx

内部字体:

Font 1: ABCabc0123456789

Font 2: AaBbCc0123456789

Font 3: AaBbCc0123456789

Font 4: AaBbCc0123456789

FONT 5: ABC

Font 6 中文宋体: AaBbCc0123456789

UN/US : Disable/Enable Error Reporting

Description: Use this command to enable the printer's status reporting feature. The printer sends its feedback through the RS232 port.

Syntax: UN<CR>

US<CR>

If an error occurs, the printer will send a NACK(0x15), followed by the error number, to the host. If no errors occur, the printer will echo ACK(0x6) after each P command.

Error Code	Error/Status Description
0x00	No Error
0x01	Object Exceeded Label Border
0x02	Bar Code Data Length Error
0x03	Insufficient Memory to Store Data
0x04	Memory Configuration Error
0x05	RS-232 Interface Error
0x06	Paper or Ribbon Empty
0x07	Duplicate Name: Form, Graphic or Soft Font
0x08	Name Not Found: Form, Graphic or Soft Font
0x09	Not in Data Entry Mode
0x0a	Print Head Up (Open)
0x0b	Pause Mode or Paused in Peel mode
0x0c	Does not fit in area specified
0x0d	Data length too long
0x0c	PDF-417 coded data too large to fit in bar code
0x0d	
0x0e	

V : Define Variable

Description: Use this command to define variable data for the text and bar code data fields in stored forms.

Syntax: Vp1,p2,p3,"MSG"<CR>

Parameter explanation: p1: Variable ID number. Range: 00 to 99.

P2: Maximum number of characters. Range: 1 to 99.

Note: If you use KDU, the length should limited to under 16 characters.

P3: Field Justification; L-left justification, R- right justification, C-center, N-no justification.

"MSG" Displays a text string on the printers LCD display or KDU Display.

Example:

```
N
FK"TEST2"
FS"TEST2"
V0,16,L,"Enter Title:"
C0,6,N,+1,"Enter Code:"
T100,100,0,4,1,1,N,V0
T400,100,0,4,1,1,N,C0
FE
```

Store the above commands to the printer, then send the following commands:

```
Q100,0
FR"TEST2"
?
Part Number:
1234
W1,2
```

Printout:

```
Part Number: 1234
```

```
Part Number: 1234
```

X : Draw Box

Description: This command is used to draw a box.

Syntax: Xp1,p2,p3,p4,p5<CR>

Parameter explanation:

P1: Horizontal start position (X) in dots.

P2: Vertical start position (Y) in dots.

P3: Line thickness in dots.

P4: Horizontal stop position (X) in dots.

P5: Vertical stop position (Y) in dots.

Example:

N

T50,30,0,4,1,1,R,"BOXES"

X50,120,5,250,150

X120,100,3,180,280

W1

Printout:



Z : Set Print Direction

Description: Use this command to set print orientation for all graphics, text, bar codes, lines and boxes.

Syntax: Zp1<CR>

Parameter explanation: p1: Orientation; Acceptable values are B or T. The default value is T.

B: Print from bottom right corner.

T: Print from top left corner.

Example:

N

ZT

T50,30,0,4,1,1,R,"ZT"

W1

ZN/ZS : Disable/Enable Flash Memory

Description: Use this command to enable/disable Flash memory.

Syntax: ZN<CR>

ZS<CR>

Example: ZS

FK"TEST3"

FS"TEST3"

T100,100,0,4,1,1,N, ±Test Flash ±

FE

The above command will be stored to the flash memory of printer.

The following command will execute form: "TEST3"

FR"TEST3"

W1

? : Download Variables

Description: This command is used to send variable or counter data fields to the printer. The host system can send data representing variables and/or counters to the printer after a stored form containing variables and/or counters has been retrieved. The amount of data following the question mark and LF must exactly match with the total number and order of variables and counters in that specific form.

Syntax: ?<CR>

FK"form1"_ :delete form "form1"

FS"form1"_ :begins the form store

V00,15,N,"Enter Part Name:"_

V01,5,N,"Enter Quantity:"_

T50,10,0,3,1,1,N,V00_

T50,400,0,3,1,1,N,"Quantity: "V01_

FE_ :ends form store sequence

FR"form1"_ :retrieve for "form1"

?_ :variables follow

Screws_ : first variable

235_ :second variable

W1_ :print one label

^@ : Reset the Printer

Description: This command emulates Power Off and then Power On, thus reinitializing the printer.

Syntax: ^@<CR>

The reset command is not available during the download of PCX graphics, soft fonts or while the printer is in dump mode.

The reset command cannot be used within a stored form.

The reset command can be sent to the printer during all other printing operations.

The printer will ignore all commands sent while the reset command is executing, up to 2 seconds.

^ee : Immediate Error Report

Description: Use this command to get printer error and status reports immediately.

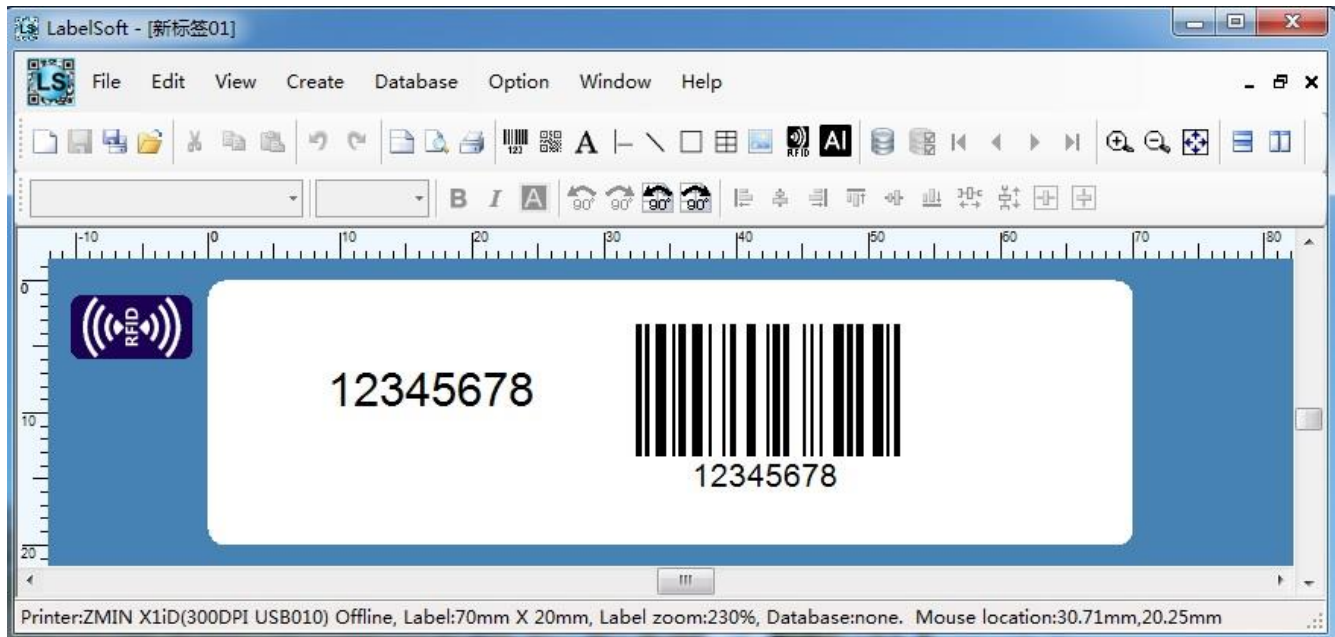
Syntax: ^ee<CR>

The printer will report 4 bytes back to the host in the following format:

0x0d 0x0a	:<CR><LF>
0xXX XX	: Error/Status code

UHF RFID Command Set

UHF RFID print and write complete commands



Print a text and a barcode on a 70X20mm RFID tag and write to EPC at the same time. The PCLE commands is as follows:

```
I8,1,001
S40
H10
q827
Q236,16
N
RS0,0,0,1,0
RF1,0,0,4,1,"12345678"
T100,75,0,3,1,1,N,"12345678"
B382,39,0,1,3,3,118,N,"12345678"
T429,159,0,2,1,1,N,"12345678"
W1,1
```

RF: Read and write RFID tags

Syntax: RFp1, p2, p3, p4, p5,"DATA"<CR><LF>

Parameter Description:

P1: RFID operation mode. 0—reserved; 1—write RFID;

P2: RFID write format. 0—HEX (hexadecimal); 1—ASCII;

P3: Write start address.

P4: Number of bytes written.

P5: Write area. 0—Reserved area; 1—EPC; 3—USER;

"DATA": A string write to tag.

Example:

RF1,0,0,4,1,"12345678"<CR><LF>

Note: The printer will not response if the RF command is sent separately.

When W command is sent, printer will start process RF command.

RW: Set RFID read and write power

Syntax: RWp1, p2<CR><LF>

Parameter Description:

P1: Read power; Range: 0~27. (If the printer defaults, it can be set to 0).

P2: Write power; Range: 0~27. (If the printer defaults, it can be set to 0).

Example:

Set the RFID read power to 15 and the write power to 20:

RW15, 20<CR><LF>

RZ: Set RFID tag password and lock RFID tag

[Description] Use this command to protect the tag from being modified after writing data.

[Note] The printer can set the destruction password, but it cannot destroy the label.

Syntax: RZp1, p2, "DATA"<CR><LF>

Parameter Description:

P1: mode of operation, 0—unlocked; 1—locked; 2—completely unlocked; 3—fully locked; 4—destroy password write

P2: operating area, 0—destroy password area; 1—access password area; 2—EPC; 3—TID; 4— USER
"DATA": password string. (Format is limited to 8-bit HEX characters)

Example 1:

Set the access password to "1234ABCD"

RZ1,1,"1234ABCD" <CR><LF>

Example 2:

Write the destroy password to the destroy password area

RZ4,0,"1234ABCD" <CR><LF>

RS: UHF RFID antenna position and error flag setting command

Syntax: RSp1, p2, p3, p4, p5<CR><LF>

Parameter Description:

P1: reserved parameter; default 0

P2: Label start position to RFID chip write distance, range: 0-999, unit: mm, default 0. (Note: When this parameter is set to 0, the printer RFID detection calibration value is the chip offset value.)

P3: Set the offset of the RFID error flag from the bottom edge of the label; Unit: mm, default 0.

P4: Maximum number of error labels. If the value is exceeded, the error flag is printed. Range: 0-9, default 2.

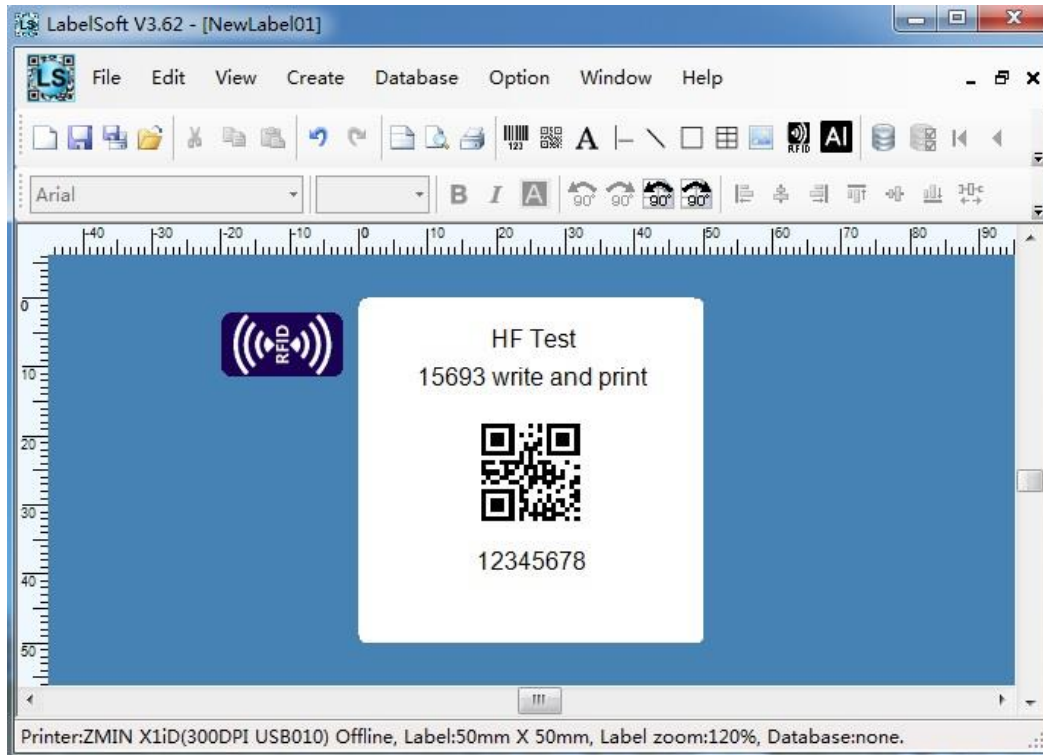
P5: Reserved parameter; default 0.

For example, set an error when a consecutive label write fails:

RS0, 0, 0, 1, 0<CR><LF>

HF RFID Command Set

HF RFID print and write Examples



Example 1: For 300dpi RFID HF printer, print texts and a QR barcode on a 50X50mm HF 15693 tag shown above, and write data “12345678” to tag at the same time. The PCLE commands is as follows:

I8,1,001

S40

H10

q591

Q591,16

N

HS2,1,1,0

HF2,0,2,"3132333435363738"

T220,48,0,3,1,1,N,"HF Test"

T95,112,0,3,1,1,N,"15693 write and print"

T197,426,0,3,1,1,N,"12345678"

b210,214,QR,0,0,o0,r8,m4,g0,s8,"12345678"

W1,1

Example 2: For 203dpi RFID HF printer, print texts and a QR barcode on a 50X50mm HF Ntag213 tag shown above, and write data “12345678” to tag at the same time. The PCLE commands is as follows:

I8,1,001

S40

H10

Q400

Q400,16

N

HS2,3,1,0

HF2,4,2,"3132333435363738"

T220,48,0,3,1,1,N,"HF Test"

T95,112,0,3,1,1,N,"Ntag213 write and print"

T197,426,0,3,1,1,N,"12345678"

b210,214,QR,0,0,o0,r8,m4,g0,s8,"12345678"

W1,1

HS: Set data type, protocol, number of retries, module power

Syntax:

HSp1, p2, p3, p4 <CR><LF>

Parameter Description:

p1: read and write data type

0x01: ASCII

0x02: HEX hexadecimal mode

The default is 0x02;

p2: protocol type

0x01: ISO 15693 protocol

0x02: ISO 14443A protocol

0x03: NFC / Ultralight [4 bytes per block, the first 4 blocks are reserved areas
(0~3), the user needs to start writing from 04 blocks]

The default is: 0x01

p3: Number of read and write failed retries, printing the "NULL" flag after the maximum number of failures.

Default: 1 time

p4: module power;
0 : 12db , 1 : 24db , 2 : 36db , 3 : 48db
Default: 0

Example 1:

The data of the 15693 protocol is written in hexadecimal mode. If the write operation fails once, the error is reported immediately. The power is set to 12db.

HS2,1,1,0<CR><LF>

HF: Write HF tag data

Syntax:

HFp1, p2, p3, p4 <CR><LF>

Parameter Description:

p1: RFID operation mode. 1—reserved; 2—write RFID;
p2: the starting address of the block to be written;
p3: the number of blocks to be written;
p4: Write data.

Note:

For the 15693 chip, each block is 4 bytes, the user can start writing from block 0.

For the 14443A chip, each block is 16 bytes, the first block of the chip is reserved (block 0). The user needs to start writing from block 1.

For NFC/Ultralight chips, each block is 4 bytes, the first 4 blocks of the chip are reserved (0~3). Users need to start writing from block 4.

Example:

HS2,1,1,0 //Hexadecimal data format, 15693 protocol, error is reported
immediately after failing once, model power is 12db.
HF2,0,2,"3132333435363738" //Write hexadecimal data(Text is:12345678):
0x31, 0x32, 0x33, 0x34, 0x35, 0x36, 0x37, 0x38
start writing from block 0,
2 of blocks to be written (8 bytes / 4 bytes = 2);

HR: Read HF tag's data

Syntax:

HRp1, p2, p3, p4,p5,p6,p7 <CR><LF>

Parameter Description:

p1: The type of the returned data. 0 : Tag's UID, 1 : data block.;

p2: Data feedback port. 0 : RS232, 1 : USB;

p3: HF module power. 0 : 12db , 1 : 24db , 2 : 36db , 3 : 48db;

p4: The position of the label after reading is completed.

0 : back to the original position;

1 : feed out the label;

2 : stops at the print position (to be printed);

3 : stop over the antenna (to be write data);

p5: The starting address of the block to be written;

p6: The number of blocks to be read;

Note:

For the 15693 chip, each block is 4 bytes.

For the 14443A chip, each block is 16 bytes.

For NFC/Ultralight chips, each block is 4 bytes.

p7: The stop position after label reading, writing and printing are completed.

0 : stops at the print position;

1 : feed out the label;

Example 1:

HR0,1,0,1,0,1,1 // Read the UID of the label, save the data in the printer buffer and wait for the USB port to read it out.

Example 2:

HR0,0,0,1,0,1,1 // Read the UID of the label and return it to the RS232 port.

USB port read reminder:

After sending the read label data command to the printer, the printer will act. the tag's data will return to the usb port and wait for to be taken away. you must program (calls the Windows API) to read the usb port to get the data.