Printer Programming Manual

REVISION RECORDS

REV.	DATE	DESCRIPTION	Drawn	Checked	Approved
1.0	2015.08.26	Preliminary	Dorothy	Yang Kaiqu	Ren xiaowei
1.1	2016.04.11	Add:1.REVERS command 2.SET TEAR command 3.SET PEEL command 4.SET CUTTER command 5.GAP command 6.BLINE command 7.SHIFT command 8.~!D command 9.DOWNLOAD command 10.EOP command 11.RUN command 12.PUTPCX command 13.KILL command 14.FILES command 15.SPEED command	Jieqiong Qiu	Yang Kaiqu	Ren xiaowei
1.2	2017.07.01	Add examples	Elaine	Kaiqu Yang	Rex

CONTENT

Document Conventions

Convention	Description
[expression list]	Items inside square brackets are optional, expression maximum length 2*1024 bytes;
<ESC>	ESCAPE(ASCII 27), control code of status polling command returns the printer status immediately.
~	(ASCII 126), control code of status polling command, returns the printer the printer status only when the printer is ready.
Space	(ASCII 32) characters will be ignored in the command line.
“	(ASCII 34), beginning and ending of expression
CR, LF	(ASCII 13), (ASCII10) denotes end of command line
NULL	(ASCII 0) supported in the expression, except the 2D bar code commands

Note: 203 DPI: 1mm=8 dots

Setup and System Commands

SIZE

Description

This command defines the label width and length.

Syntax

English system(inch)

SIZE m,n

Metric system(mm)

SIZE m mm, n mm

Dot measurement

SIZE m dot, n dot

Parameter	Description
m	Label width(inch or mm)
n	Label length(inch or mm)

Note:

203DPI: 1mm=8dots

300DPI:1mm=12dots

For metric and dot systems, there must be a space between parameter and "mm" or "dot".

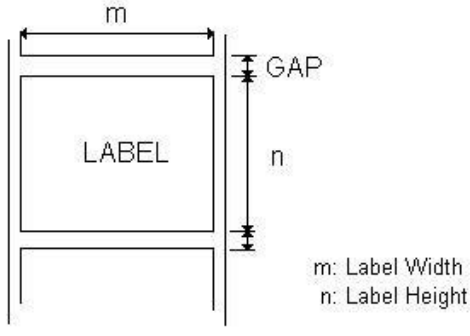
Example

(1) English system(inch)

SIZE 1.5, 2.2

(2) Metric system(mm)

SIZE38.1, 55.88



GAP

Description

This command sets the distance between two labels.

Syntax

English system(inch)

GAP m, n

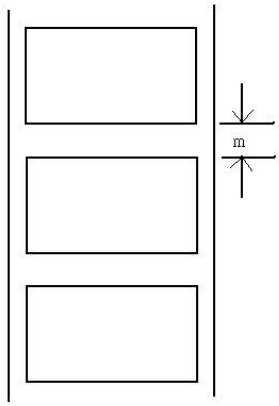
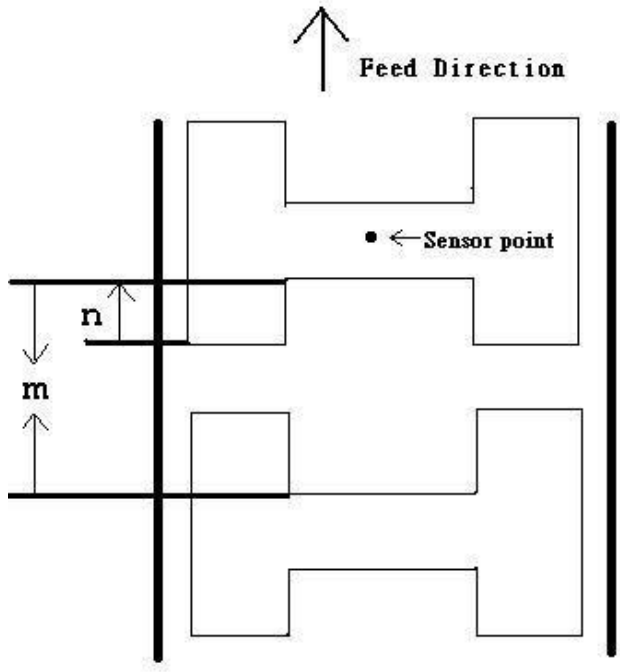
Metric system(mm)

GAP m mm, n mm

Parameter	Description
m	The gap distance between two labels
n	The offset distance of the gap n ≤ label length(inch or mm)
0,0	Continuous label

Note:For metric system, there must be a space between parameter and "mm".

Example

Sample Code	**Result**
Normal gap ▪ English system (inch): **GAP 0.12,0** ▪ Metric system (mm): **GAP 3 mm,0 mm** ▪ Continuous label: **GAP 0,0**	**Normal gap** 
Special gap ▪ English system (inch) **GAP 0.30,0.10** ▪ Metric system (mm) **GAP 7.62 mm,2.54 mm**	**Special gap** 

BLINE

Description

This command sets the height of black line and user-defined feeding position after print.

Syntax

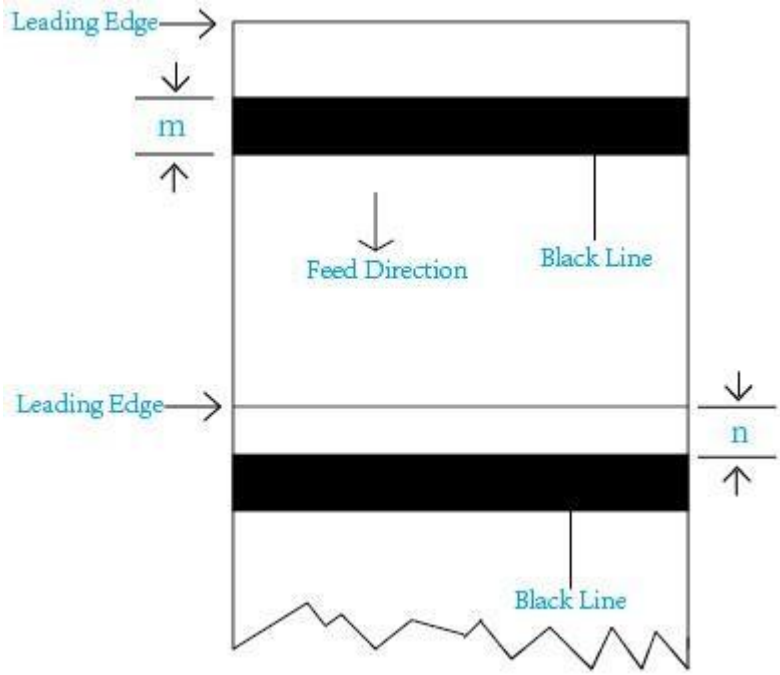
English system (inch)

BLINE m ,n

Metric system (mm)

BLINE m mm, n mm

Parameter	**Description**
m	The height of black line either in inch or mm
n	The offset distance of the gap n ≤ label length(inch or mm)



Note: For metric system, there must be a space between parameter and "mm". When the sensor type is changed from "GAP" to "Black Mark", please send the "BLINE" command to the printer first.

Example

Sample Code

- English system (inch):
  BLINE 0.20,0.50

- Metric system (mm):
  BLINE 5.08 mm,12.7 mm

OFFSET

Description

This command defines the selective, extra label feeding length each form feed takes, which, especially in peel-off mode and cutter mode, is used to adjust label stop position, so as for label to register at proper places for the intended purposes. The printer back tracks the extra feeding length before the next run of printing.

Syntax

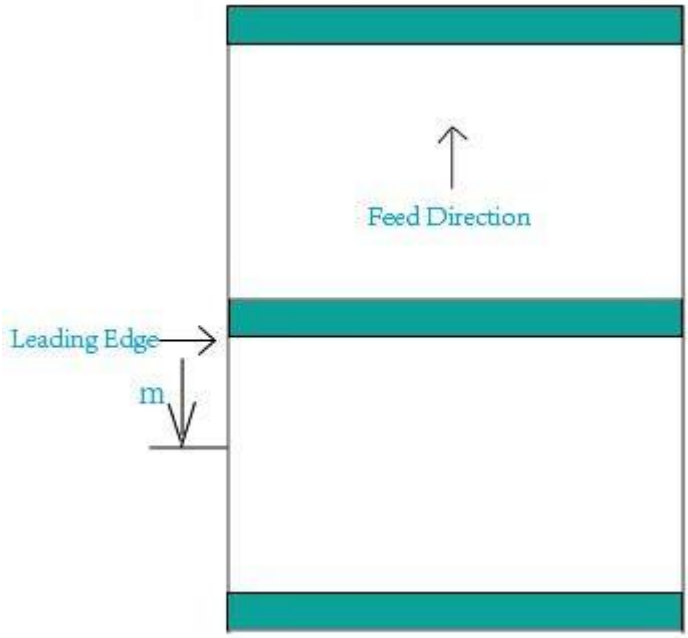
English system (inch)

OFFSET m

Metric system (mm)

OFFSET m mm

Parameter	**Description**
m	The offset distance (inch or mm), -1≤m≤1 (inch)



Note: Impropriety offset value may cause paper jam.

Example

Sample Code

- English system (inch):
  OFFSET 0.5

- Metric system (mm):
  OFFSET 12.7 mm

SPEED

Description

This command defines the print speed.

Syntax

SPEED n

Parameter	Description
n	printing speed in inch per second

Example

Sample code

```
SPEED 10
```

DENSITY

Description

This command sets the printing darkness.

Syntax

DENSITY n

Parameter	Description
n	0~15 0: specifies the highest level 15: specifies the darkest level

Note:Default DENSITY setting is 8.

Example

Sample code

```
DENSITY 8
```

DIRECTION AND MIRROR IMAGE

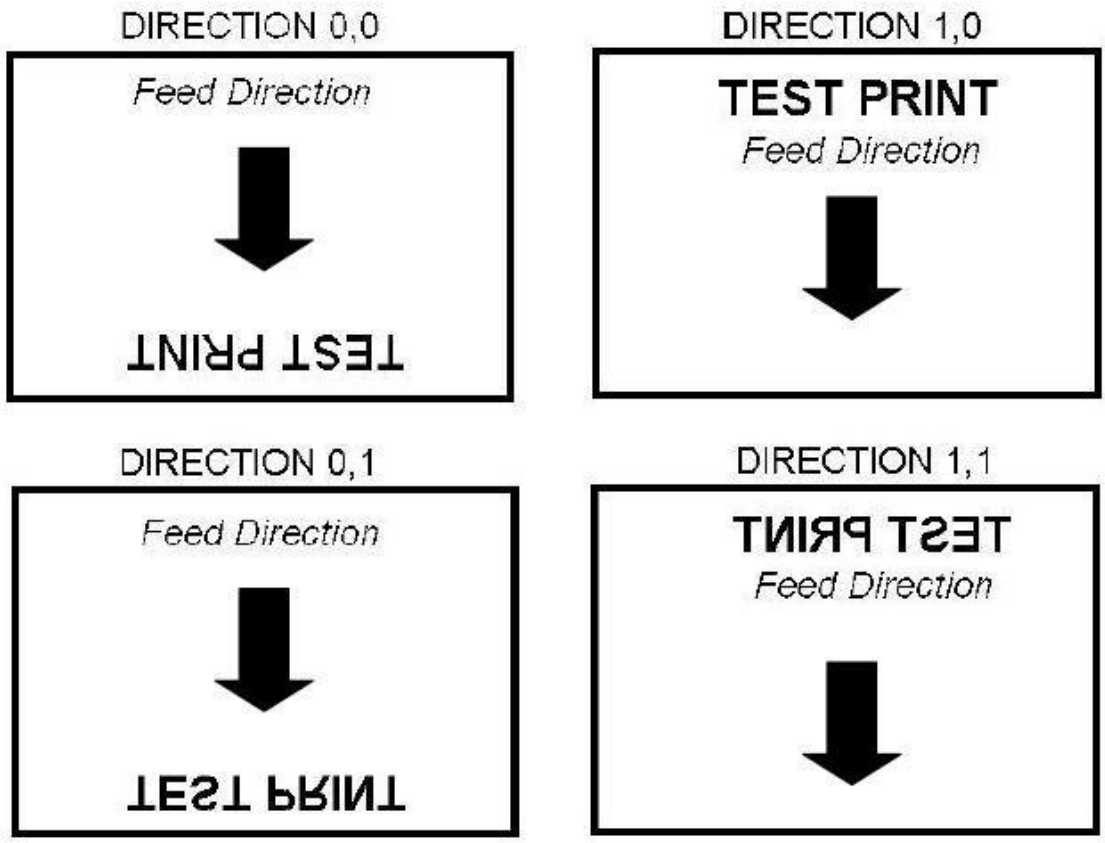
Description

This command defines the printout direction and mirror image. This will be stored in the printer memory.

Syntax

DIRECTION n[,m]

Parameter	Description
n	0 or 1. Please refer to the illustrations below:
m	0:Print normal image
	1:Print mirror image



Example

Sample code

- **DIRECTION 0**
- **DIRECTION 0,1**

REFERENCE

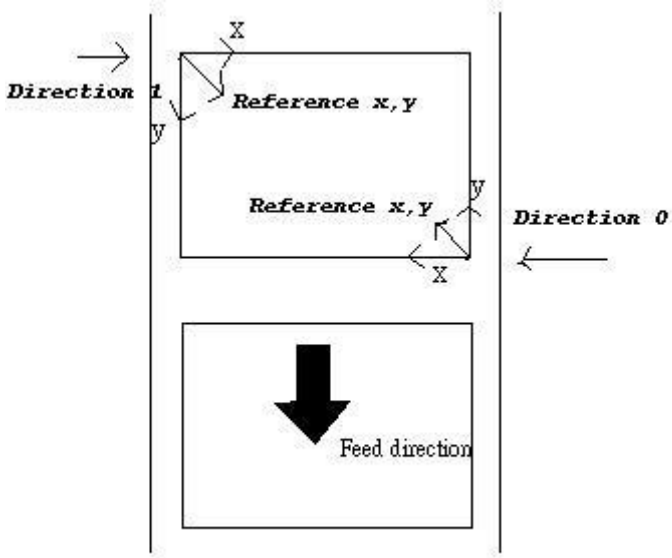
Description

This command defines the reference point of the label. The reference(origin) point varies with the print direction, as shown:

Syntax

REFERENCE x, y

Parameter	Description
x	Horizontal coordinate (in dots)
y	Vertical coordinate (in dots)



Note: 203DPI: 1mm=8dots

300DPI: 1mm=12dots

Example

Sample code
REFERENCE 10,10

SHIFT

Description

This command moves the label's vertical position. A positive value moves the label further from the printing direction; a negative value moves the label towards the printing direction.

Syntax

SHIFT n

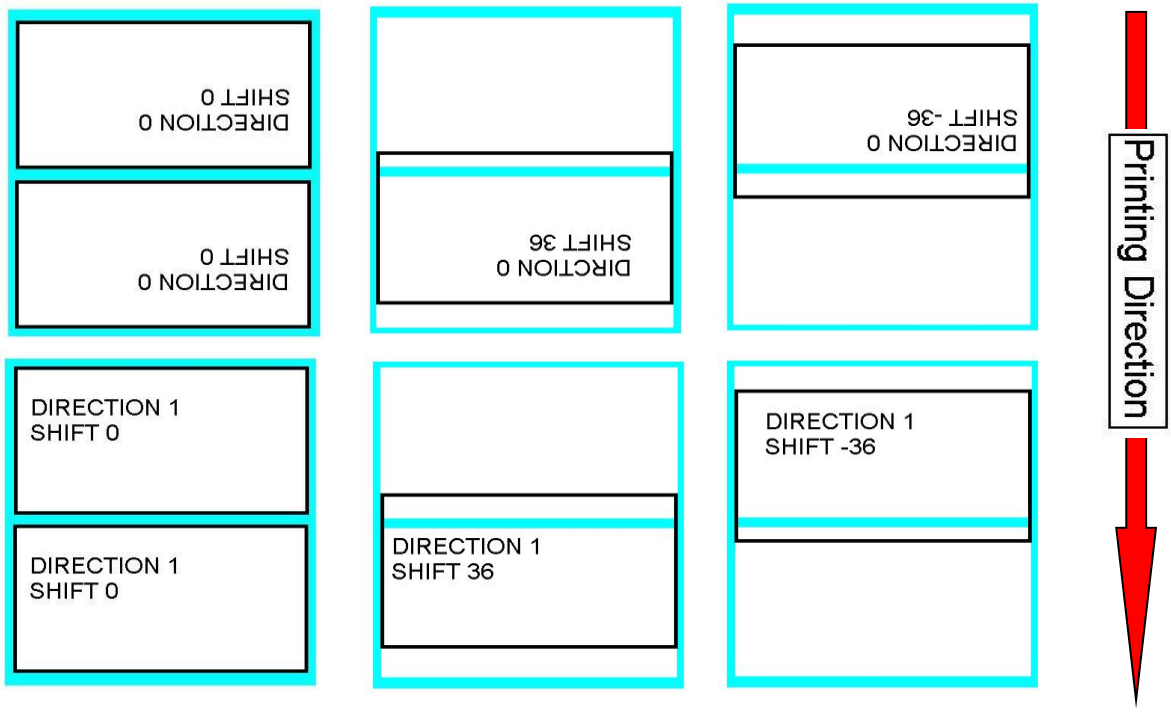
Parameter	Description
n	The value of n is: -90 ≤ n ≤ 90

Example

Sample Code

```
SIZE 4,2.5
GAP 2 mm,0
DIRECTION 0
SHIFT 36
OFFSET 0
CLS
TEXT 400,200,"3",0,1,1,"DIRECTION 0"
TEXT 400,250,"3",0,1,1,"SHIFT 36"
BOX 10,0,780,490,8
PRINT 3,1
```

Result



CODEPAGE

Description

This command defines the code page of international character set.

Syntax

CODEPAGE n

Note: DATA LENGTH determines 7-bit or 8-bit communications parameter.

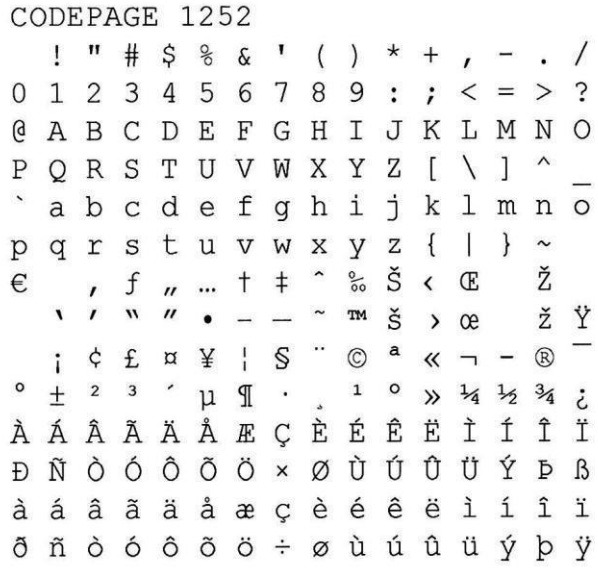
Parameter	Description
n	Name or number of code page, which can be divided into 7-bit code page and 8-bit code page. 7-bit code page name USA:USA BRI:British GER:German FRE:French DAN:Danish ITA:Italian SPA:Spanish SWE:Swedish SWI: Swiss 8-bit code page number 437:United States 850:Multilingual 852:Slavic 860:Portuguese 863:Canadian/French 865:Nordic 857:Turkish(TSPL2 printers only) Windows code page 1250:Central Europe(TSPL2 printers only) 1252:Latin I(TSPL2 printers only) 1253:Greek(TSPL 2 printers only) 1254:Trukish(TSPL2 printers only)

Example

Sample Code

```
DOWNLOAD “TEST.BAS”

str1$ = “”
J = 0
y = 50

CODEPAGE 1252
SIZE 4,3
GAP 0,0
DIRECTION 1
CLS
TEXT 10,10,”ROMAN.TTF”,0,12,12,”CODEPAGE 1252”
FOR I=32 TO 255
str1$=str1$+CHR$(I) +
“ “ J=J+1
IF J=16 THEN GOSUB drawTEXT
NEXT

PRINT 1
END

drawTEXT:
TEXT 10,y,”ROMAN.TTF”,0,12,12,str1$
str1$=””
J=0
y=y+40
RETURN
EOP
TEST
```

Result



CLS

Description

This command clears the image buffer.

Syntax

CLS

Parameter	Description
None	N/A

Note: This command must be placed after SIZE command.

Example

Sample code

```
CLS
```

FEED

Description

This command feeds label with the specified length. The length is specified by dot.

Syntax

FEED n

Parameter	Description
n	Unit: dot 1≤n≤9999

Example

FEED 80(=10mm)

BACKFEED

Description

This command feeds the label in reverse. The length is specified by dot.

Syntax

BACKFEED n

Parameter	Description
n	Unit: dot 1≤n≤9999

Note: Impropriety back feed value may cause paper jam or wrinkle.

Example

Sample code
BACKFEED 40

FORMFEED

Description

This command feeds the label to the beginning of next label.

Syntax

FORMFEED

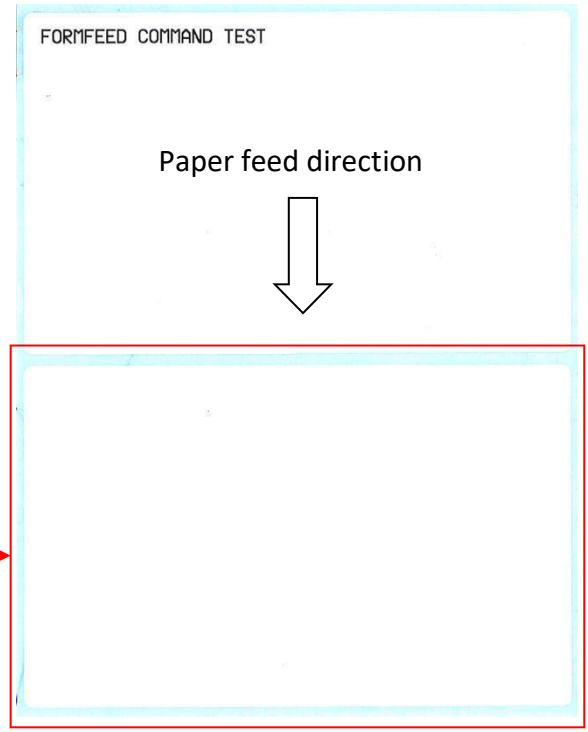
Parameter	Description
None	N/A

Example

Sample code

```
SIZE 4,2.5
GAP 2 mm,0
DIRECTION 1
FORMFEED
CLS
TEXT 25,25,”3”,0,1,1,”FORMFEED COMMAND TEST”
PRINT 1,1
```

Result



HOME

Description

This command will feed label until the internal sensor has determined the origin. Size and gap of the label should be defined before using this command.

Syntax

HOME

Parameter	Description
None	N/A

Example

Sample code

```
SIZE 4,2.5
GAP 2 mm,0
SET COUNTER @0 +1
@0=”000001”
HOME
CLS
BOX 1,1,360,65,12
TEXT 25,25,”3”,0,1,1,”HOME COMMAND TEST”
TEXT 25,80,”3”,0,1,1,@0
PRINT 3,1
```

PRINT

Description

This command prints the label format currently stored in the image buffer.

Syntax

PRINT m [,n]

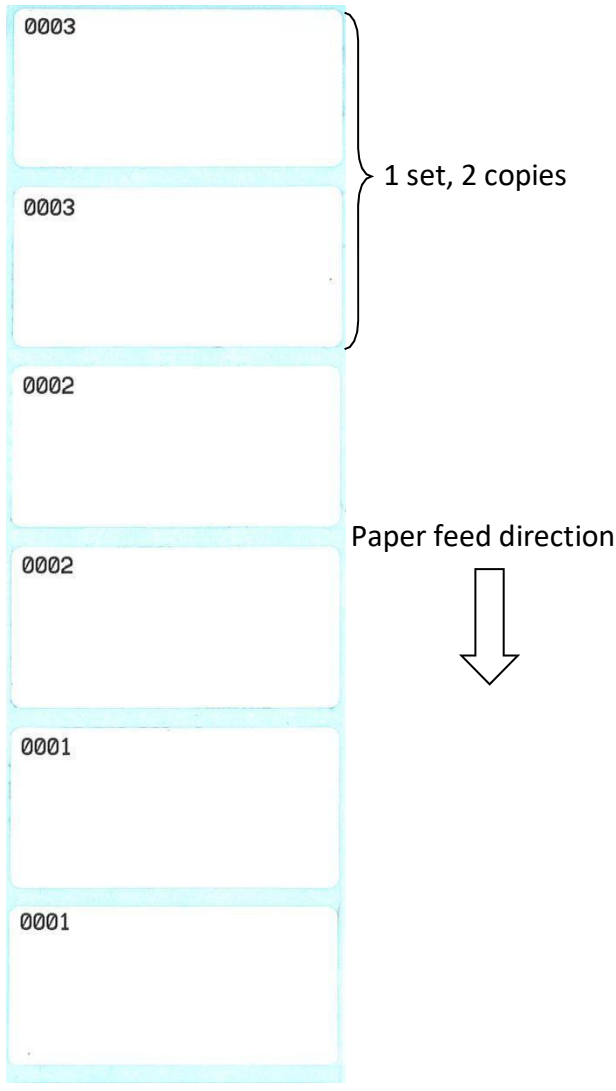
Parameter	Description
m	Specifies how many sets of labels will be printed. 1≤m≤999999999 If m=1, printer will print the last label content for n copies.
n	Specifies how many copies should be printed for each particular label set. 1≤n≤999999999

Example

Sample code

```
SIZE 50 mm,25 mm
GAP 3 mm,0
DIRECTION 1
SET COUNTER @1 1
@1="0001"
CLS
TEXT 10,10,"3",0,1,1,@1
PRINT 3,2
```

Result



SELFTEST

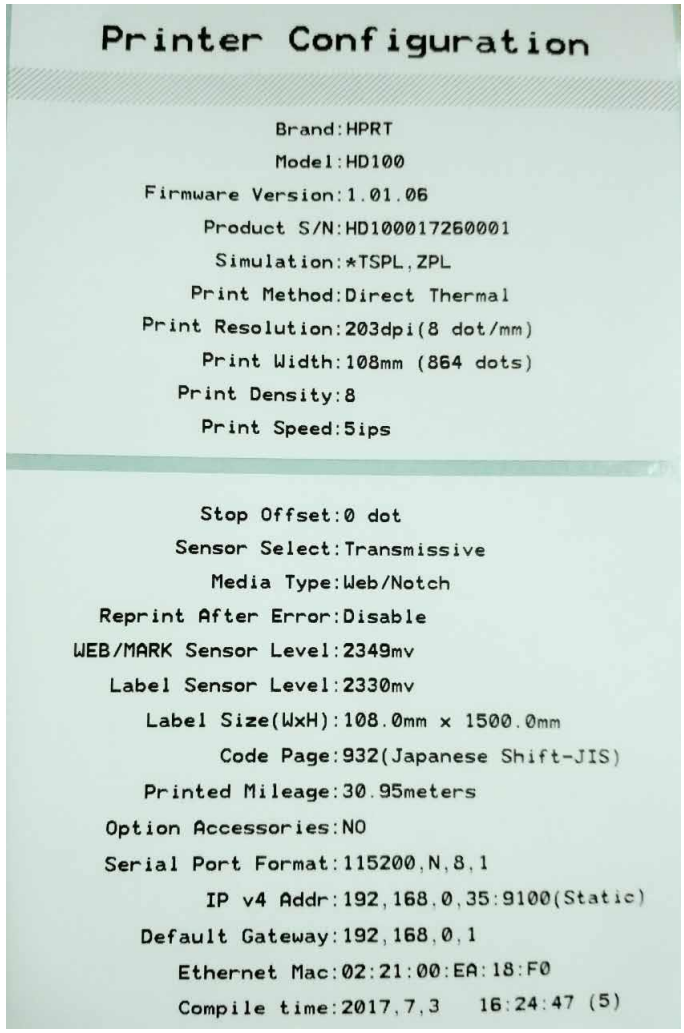
Description

At this command, the printer will print out the printer information.

Syntax

SELFTEST

Example

Sample code	Result
SELFTEST	

Label Formatting Commands

BAR

Description

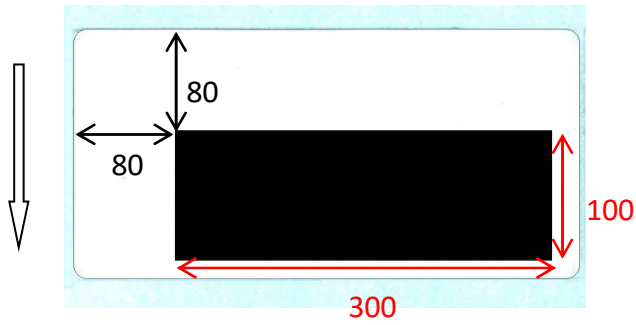
This command draws a bar on the label format.

Syntax

BAR x, y, width, height

Parameter	Description
x	The upper left corner x-coordinate (in dots)
y	The upper left corner y-coordinate (in dots)
width	Bar width (in dots)
height	Bar height (in dots)

Example

Sample code	Result
SIZE 50 mm,25 mm GAP 3 mm,0 DIRECTION 1 CLS BAR 80,80,300,100 PRINT 1,1	

BARCODE

Description

This command prints 1D barcodes. The available bar codes are listed below:

Code 128 (switching code subset automatically)
Code 128M (switching code subset manually)
Code 39
Code 93
EAN 13
EAN 8
UPC-A
UPC-E

Syntax

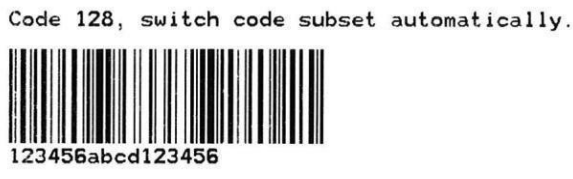
BARCODE X,Y, “code type”, height, human readable, rotation, narrow, wide, “code”

Parameter	**Description**
X	Specifies the x-coordinate of the bar code on the label
Y	Specifies the y-coordinate of the bar code on the label
code type	
128	Code 128, switching code subset A, B, C automatically.
128M	Code 128, switching code subset A, B, C manually.
height	Bar code height (in dots)
human readable	0:Not readable
	1: Human readable
rotation	0: No rotation
	90: Rotate 90 degrees clockwise
	180: Rotate 180 degrees clockwise
	270: Rotate 270 degrees clockwise
narrow	Width of narrow element (in dots)
wide	Width of wide element (in dots)

Character set for CODE 128

Value	128A	128B	128C	Value	128A	128B	128C	Value	128A	128B	128C
0	space	space	00	36	D	D	36	72	BS	h	72
1	!	!	01	37	E	E	37	73	HT	i	73
2	"	"	02	38	F	F	38	74	LF	j	74
3	#	#	03	39	G	G	39	75	VT	k	75
4	$	$	04	40	H	H	40	76	FF	l	76
5	%	%	05	41	I	I	41	77	CR	m	77
6	&	&	06	42	J	J	42	78	SO	n	78
7	'	'	07	43	K	K	43	79	SI	o	79
8	(	(	08	44	L	L	44	80	DLE	p	80
9	)	)	09	45	M	M	45	81	DC1	q	81
10	*	*	10	46	N	N	46	82	DC2	r	82
11	+	+	11	47	O	O	47	83	DC3	s	83
12	,	,	12	48	P	P	48	84	DC4	t	84
13	-	-	13	49	Q	Q	49	85	NAK	u	85
14	.	.	14	50	R	R	50	86	SYN	v	86
15	/	/	15	51	S	S	51	87	ETB	w	87
16	0	0	16	52	T	T	52	88	CAN	x	88
17	1	1	17	53	U	U	53	89	EM	y	89
18	2	2	18	54	V	V	54	90	SUB	z	90
19	3	3	19	55	W	W	55	91	ESC	{	91
20	4	4	20	56	X	X	56	92	FS	|	92
21	5	5	21	57	Y	Y	57	93	GS	}	93
22	6	6	22	58	Z	Z	58	94	RS	~	94
23	7	7	23	59	[	[	59	95	US	DEL	95
24	8	8	24	60	\	\	60	96	FNC 3	FNC 3	96
25	9	9	25	61	]	]	61	97	FNC 2	FNC 2	97
26	:	:	26	62	^	^	62	98	Shift B	Shift A	98
27	;	;	27	63	_	_	63	99	Code C	Code C	99
28	<	<	28	64	NUL	`	64	100	Code B	FNC4	Code B
29	=	=	29	65	SOH	a	65	101	FNC 4	Code A	Code A
30	>	>	30	66	STX	b	66	102	FNC 1	FNC 1	FNC 1
31	?	?	31	67	ETX	c	67	103	Start Code A		
32	@	@	32	68	EOT	d	68	104	Start Code B		
33	A	A	33	69	ENQ	e	69	105	Start Code C		
34	B	B	34	70	ACK	f	70				
35	C	C	35	71	BEL	g	71				

Example

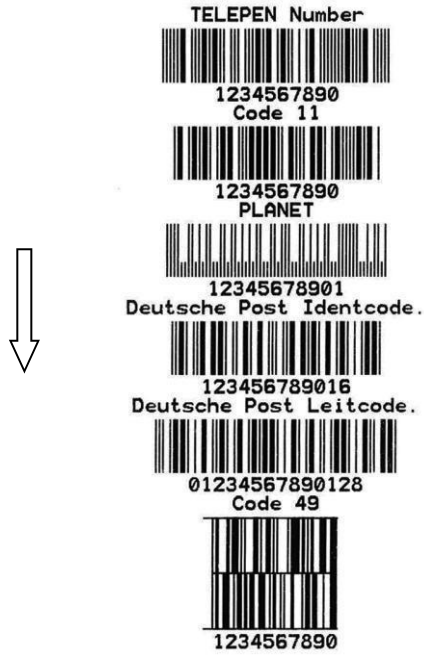
Sample Code	Result
SIZE 4,1 GAP 0,0 DIRECTION 1 CLS TEXT 10,10,"2",0,1,1,"Human readable alignment" BARCODE 10,50,"128",100,1,0,2,2,"left" BARCODE 310,50,"128",100,2,0,2,2,"center" BARCODE 610,50,"128",100,3,0,2,2,"right" PRINT 1	
SIZE 4,1 GAP 0,0 DIRECTION 1 CLS TEXT 10,10,"2",0,1,1,"Code 128, switch code subset automatically." BARCODE 10,50,"128",100,1,0,2,2,"123456abcd123456" PRINT 1	

```
SIZE 4,1
GAP 0,0
DIRECTION 1
CLS
TEXT 10,10,"2",0,1,1,"Code 128, switch code subset manually."
BARCODE 10,50,"128M",100,1,0,2,2,"!104!096ABCD!101EFGH"
PRINT 1
```

Note:
The above example of code 128M encoded with CODE B start character. The next character will be the code 128 function character FNC3 which is then followed by the ABCD characters and EFGH characters encoded as CODE A subset.


```
SIZE 4,1
GAP 0,0
DIRECTION 1
CLS
TEXT 10,10,"2",0,1,1,"TELEPEN"
BARCODE 10,50,"TELEPEN",100,1,0,2,6,"abcd1234ABCD"
PRINT 1
```


```
SIZE 4,4
GAP 0,0
DIRECTION 1
CLS
TEXT 400,26,"2",0,1,1,2,"TELEPEN Number"
BARCODE 400,50,"TELEPENN",60,2,0,2,6,2,"1234567890"
TEXT 400,136,"2",0,1,1,2,"Code 11"
BARCODE 400,160,"11",60,2,0,2,6,2,"1234567890"
TEXT 400,246,"2",0,1,1,2,"PLANET"
BARCODE 400,270,"PLANET",60,2,0,2,2,2,"12345678901"
TEXT 400,356,"2",0,1,1,2,"Deutsche Post Identcode."
BARCODE 400,380,"DPI",60,2,0,2,6,2,"12345678901"
TEXT 400,466,"2",0,1,1,2,"Deutsche Post Leitcode."
BARCODE 400,490,"DPL",60,2,0,2,6,2,"123456789012"
TEXT 400,576,"2",0,1,1,2,"Code 49"
BARCODE 400,600,"CODE49",60,2,0,2,2,2,"1234567890"
PRINT 1
```



BITMAP

Description

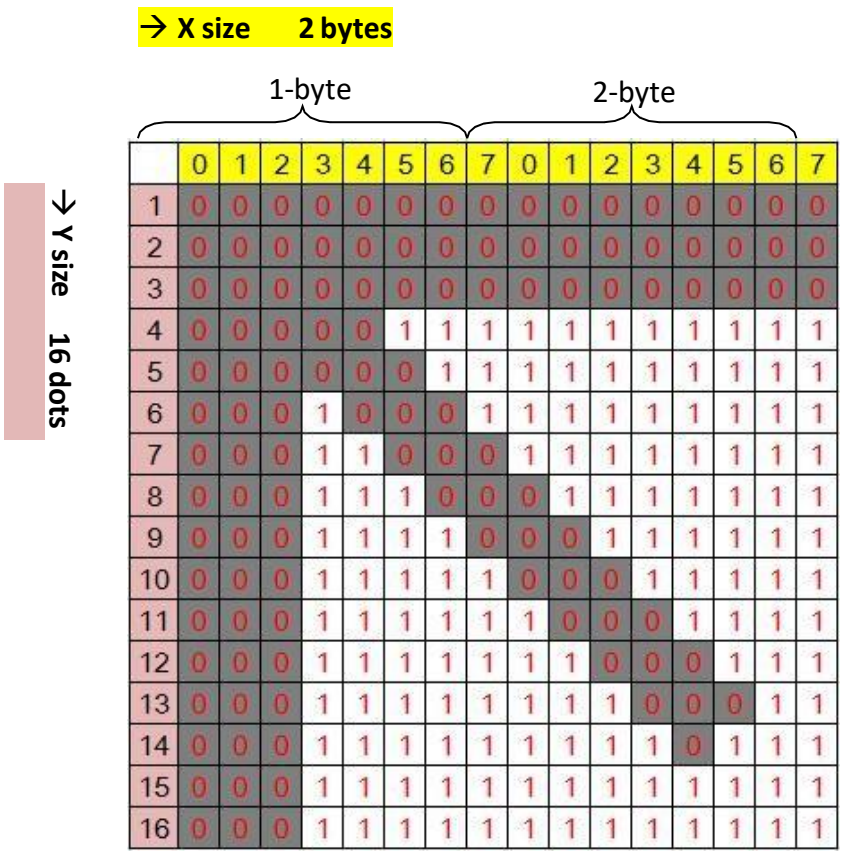
This command draws bitmap images(as opposed to BMP graphic files).

Syntax

BITMAP X,Y, width, height, mode, bitmap data…

Parameter	Description
X	Specifies the x-coordinate
Y	Specifies the y-coordinate
width	Image width(in bytes)
height	Image height(in dots)
mode	Graphic modes listed below
	0:OVERWRITE
	1:OR
	2:XOR
bitmap data	Bitmap data

Example



	0	1	2	3	4	5	6	7	0	1	2	3	4	5	6	7
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1
5	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1
6	0	0	0	1	0	0	0	1	1	1	1	1	1	1	1	1
7	0	0	0	1	1	0	0	0	1	1	1	1	1	1	1	1
8	0	0	0	1	1	1	0	0	0	1	1	1	1	1	1	1
9	0	0	0	1	1	1	1	0	0	0	1	1	1	1	1	1
10	0	0	0	1	1	1	1	1	0	0	0	1	1	1	1	1
11	0	0	0	1	1	1	1	1	1	0	0	0	1	1	1	1
12	0	0	0	1	1	1	1	1	1	1	0	0	0	1	1	1
13	0	0	0	1	1	1	1	1	1	1	1	0	0	0	1	1
14	0	0	0	1	1	1	1	1	1	1	1	1	0	1	1	1
15	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1
16	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1

Y- axis	X – axis			
	1-byte		2-byte	
	Binary	Hexadecimal	Binary	Hexadecimal
1	00000000	00	00000000	00
2	00000000	00	00000000	00
3	00000000	00	00000000	00
4	00000111	07	11111111	FF
5	00000011	03	11111111	FF
6	00010001	11	11111111	FF
7	00011000	18	11111111	FF
8	00011100	1C	01111111	7F
9	00011110	1E	00111111	3F
10	00011111	1F	00011111	1F
11	00011111	1F	10001111	8F
12	00011111	1F	11000111	C7
13	00011111	1F	11100011	E3
14	00011111	1F	11110111	F7
15	00011111	1F	11111111	FF
16	00011111	1F	11111111	FF

Sample Code (ASCII)	Hexadecimal	Result
SIZE 4,2 GAP 0,0 CLS BITMAP 200,200,2,16,0, ————————————— -?- ???? PRINT 1,1	53 49 5A 45 20 34 2C 32 0D 0A 47 41 50 20 30 2C 30 0D 0A 43 4C 53 0D 0A 42 49 54 4D 41 50 20 32 30 30 2C 32 30 30 2C 32 2C 31 36 2C 30 2C 00 00 00 00 00 00 07 FF 03 FF 11 FF 18 FF 1C 7F 1E 3F 1F 1F 1F 8F 1F C7 1F E3 1F E7 1F FF 1F FF 0D 0A 50 52 49 4E 54 20 31 2C 31 0D 0A	

BOX

Description

This command draws rectangles on the label.

Syntax

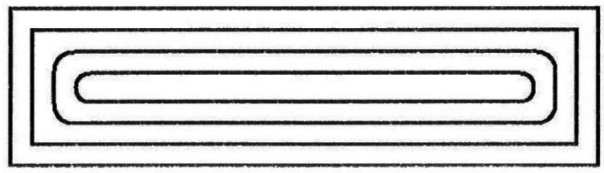
BOX X_start, Y_start, X_end, Y_end, line thickness

Parameter	Description
X_start	Specifies x-coordinate of upper left corner(in dots)
Y_start	Specifies y-coordinate of upper left corner(in dots)
X_end	Specifies x-coordinate of lower right corner(in dots)
Y_end	Specifies y-coordinate of lower right corner(in dots)
Line thickness	Line thickness(in dots)

Recommended max. Thickness of box is 12mm at 4” width. Thickness of box larger than 12mm may damage the power supply and affect the print quality.

Max. print ratio is different for each printer model. Desktop and industrial printer print ratio is limited to 20% and 30% respectively.

Example

Sample code	Result
SIZE 4,1.1 CLS BOX 60,60,610,210,4 BOX 80,80,590,190,4 BOX 100,100,570,170,4,20 BOX 120,120,550,150,4,20 PRINT 1	

CIRCLE

Description

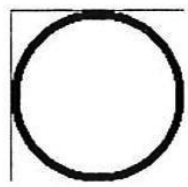
This command draws a circle on the label.

Syntax

CIRCLE X_start, Y_start, diameter, circle thickness

Parameter	Description
X_start	Specifies x-coordinate of upper left corner(in dots)
Y_start	Specifies y-coordinate of upper left corner(in dots)
diameter	Specifies the diameter of the circle(in dots)
thickness	Thickness of the circle(in dots)

Example

Sample code	Result
SIZE 80 mm,30 mm GAP 0,0 DIRECTION 1 CLS BAR 250,20,100,1 BAR 250,20,1,100 CIRCLE 250,20,100,5 PRINT 1	

ERASE

Description

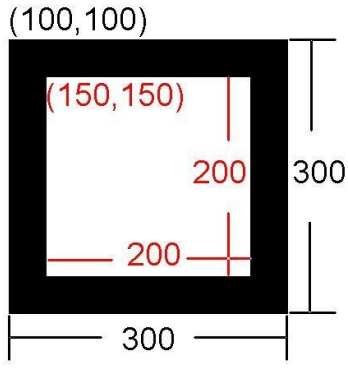
This command clears a specified region in the image buffer..

Syntax

ERASE X_start, Y_start, X_width, Y_height

Parameter	Description
X_start	The x-coordinate of the starting point(in dots)
Y_start	The y-coordinate of the starting point(in dots)
X_width	The region width in x-axis direction(in dots)
Y_height	The region height in y-axis direction(in dots)

Example

Sample code	Result
SIZE 4,2.5 GAP 0,0 DIRECTION 1 CLS BAR 100,100,300,300 ERASE 150,150,200,200 PRINT 1,1	

PUTPCX

Description

This command prints PCX format images.

Syntax

PUTPCX X,Y, “filename”

Parameter	Description
X	The x-coordinate of the PCX image
Y	The y-coordinate of the PCX image
filename	The downloaded PCX filename. Case sensitive

Example

Sample Code

```
SPEED 2
DENSITY 3
SIZE 4,1.5
GAP 0,0
DIRECTION 1
CLS
PUTBMP 10,10,”SAMPLE.PCX”
PRINT 1
```

Result

QRCODE

Description

This command prints QR code.

Syntax

QRCODE X, Y, ECC Level, cell width, mode, rotation, [model, mask] “Data string”

Parameter	Description
X	The upper left corner x-coordinate of the QR code
Y	The upper left corner y-coordinate of the QR code
ECC Level	Error correction recovery level
	L: 7%
	M: 15%
	Q: 25%
	H: 30%
Cell width	1,3,5,7,10,12
mode	Auto/manual encode
	A: Auto
	M: Manual
rotation	0: 0 degree
	90: 90 degree
	180: 180 degree
	270: 270 degree
model	M1: original version(default)
	M2: enhanced version
mask	S0，S3，S5,S7，S8，S9
Data string	The encodable character set is described as below

Encodable character set:

1). Numeric data: (digits 0~9)

2). Alphanumeric data

Digits 0-9

Upper case letters A-Z;

Nine other characters: space, $ % * + - . / :);

3). 8-bit byte data.

JIS 8-bit character set (Latin and Kana) in accordance with JIS X 0201

4). Kanji characters

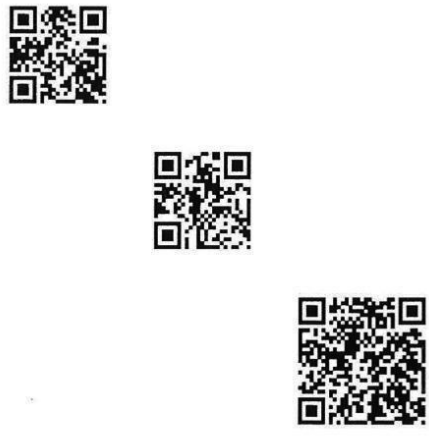
Shift JIS values 8140HEX –9FFCHEX and E040HEX –EAA4 HEX. These are values shifted from those of JIS X 0208. Refer to JIS X 0208 Annex 1 Shift Coded Representation for detail.

Data characters per symbol (for maximum symbol size):

	Model 1(Version 14-L)	Model 2(Version 40-L)
1). Numeric data	1,167 characters	7,089 characters
2). Alphanumeric data:	707 characters	4,296 characters
3). 8-bit byte data:	486 characters	2,953 characters
4). Kanji data:	299 characters	1,817 characters

*If "A" is the first character in the data string, then the following data after "A" is Alphanumeric data.
*If "N" is the first character in the data string, then the following data after "N" is numeric data.
*If "B" is the first character in the data string, then the following 4 digits after "B" is used to specify numbers of data. After the 4 digits is the number of bytes of binary data to be encoded.
*If "K" is the first character in the data string , then the following data after "K" is Kanji data.
*If "!" is in the data string and follows by "N", "A", "B", "K" then it will be switched to specified encodable character set.

Example

Sample code	Result
Auto mode example	
General data string **SIZE 4,2.5** **GAP 0,0** **DIRECTION 1** **CLS** **QRCODE 10,10,H,4,A,0,”ABCabc123”** **QRCODE 160,160,H,4,A,0,”123ABCabc”** **QRCODE 310,310,H,4,A,0,”印表機 ABCabc123”** **PRINT 1,1**	
Data string including <Enter> character (0Dh, 0Ah) **SIZE 4,2.5** **GAP 0,0** **DIRECTION 1** **CLS** **QRCODE 10,10,H,4,A,0, »ABC<Enter>** **abc<Enter>** **123 »** **QRCODE 160,160,H,4,A,0, »123<Enter>** **ABC<Enter>** **abc”** **QRCODE 310,310,H,4,A,0,”印表機<Enter>** **ABC<Enter>** **abc<Enter>** **123”** **PRINT 1,1**	
Data string concatenation (Must be used with DOWNLOAD ... EOP command) **DOWNLOAD “DEMO.BAS”** **SIZE 4,2.5** **GAP 0,0** **DIRECTION 1** **CLS** **QRCODE 10,10,H,4,A,0,”ABCabc123”+STR$(1234)** **QRCODE 160,160,H,4,A,0,”123ABCabc”+”1234”** **QRCODE** **310,310,H,4,A,0,”印表機ABCabc123”+”1234”+”** **abcd”** **PRINT 1,1** **EOP** **DEMO**	

Data string including double quote (“) character, please use \[“] instead of **SIZE 4,2.5** **GAP 0,0** **DIRECTION 1** **CLS** **QRCODE 10,10,H,4,A,0,”ABC\[“]abc\[“]123”** **QRCODE 160,160,H,4,A,0,”123\[“]ABC\[“]abc”** **QRCODE 310,310,H,4,A,0,”\[“]印表機\[“]ABCabc123”** **PRINT 1,1**	
Manual mode	
General data string **SIZE 4,2.5** **GAP 0,0** **DIRECTION 1** **CLS** **QRCODE 10,10,H,4,M,0,”AABC!B0003abc!N123”** **QRCODE 160,160,H,4,M,0,”N123!AABC!B0003abc”** **QRCODE 310,310,H,4,M,0,”K 印表機!AABC!B0006abc123”** **PRINT 1,1**	

Data string including <Enter> character, <Enter> is an 8-bit byte data

```
SIZE 4,2.5
GAP 0,0
DIRECTION 1
CLS
QRCODE 10,10,H,4,M,0,”AABC!B0007<Enter>
abc<Enter>
!N123”
QRCODE 160,160,H,4,M,0,”N123!B0002<Enter>
!AABC!B0005<Enter>
abc”
QRCODE 310,310,H,4,M,0,”K 印表機!B0002<Enter>
!AABC!B0010<Enter>
abc<Enter>
123”
PRINT 1,1
```

Data string concatenation (Must be used with DOWNLOAD ... EOP command)

```
DOWNLOAD “A.BAS”
SIZE 4,2.5
GAP 0,0
DIRECTION 1
CLS
QRCODE 10,10,H,4,M,0,”AABC!B0006abc123!N”+STR$(1234)
QRCODE 160,160,H,4,M,0,”N123!AABC!B0007abc”+”1234”
QRCODE 310,310,H,4,M,0,”K 印表
機!AABC!B0014abc123”+”1234”+”abcd”
PRINT 1,1
EOP
A
```

Data string including double quote (“) character, please use \[“] instead of **SIZE 4,2.5** **GAP 0,0** **DIRECTION 1** **CLS** **QRCODE 10,10,H,4,M,0,”AABC!B0005\[“]abc\[“]!N123”** **QRCODE 160,160,H,4,M,0,”N123!B0001\[“]!AABC!B0004\[“]abc”** **QRCODE 310,310,H,4,M,0,”B0001\[“]!K** **印表機!B0010\[“]ABCabc123”** **PRINT 1,1**	  

REVERSE

Description

This command reverses a region in image buffer.

Syntax

REVERSE X_start, Y_start, X_width,Y_height

Parameter	Description
X_start	The x-coordinate of the starting point (in dots)
Y_start	The y-coordinate fo the starting point (in dots)
X_width	X-axis region width (in dots)
Y_height	Y-axis region height (in dots)

Note: ***203DPI: 1mm=8dots***

300DPI:1mm=12dots

Max. print ratio is different for each printer model. Desktop and industrial printer print ratio is limited to 20% and 30% respectively.

Example

Sample code	Result
SIZE 4,2.5 GAP 0,0 DIRECTION 1 CLS TEXT 100,100,"3",0,1,1,"REVERSE" REVERSE 90,90,128,40 PRINT 1,1	

TEXT

Description

This command prints text on label

Syntax

TEXT X, Y, “font”, rotation, x-multiplication, y-multiplication, “content”

Parameter	Description
X	The x-coordinate of the text
Y	The y-coordinate of the text
font	Font name 0: Monotye CG Triumvirate Bold Condensed, font width and height is stretchable 1: 8 x 12 fixed pitch dot font 2: 12 x 20 fixed pitch dot font 3: 16 x 24 fixed pitch dot font 4: 24 x 32 fixed pitch dot font 5: 32 x 48 dot fixed pitch font 6: 14 x 19 dot fixed pitch font OCR-B 7: 21 x 27 dot fixed pitch font OCR-B 8: 14 x25 dot fixed pitch font OCR-A 9: GBK, font width and height is stretchable ROMAN.TTF: Monotye CG Triumvirate Bold Condensed, font width and height proportion is fixed
rotation	The rotation angle of text 0 : No rotation 90 : degrees, in clockwise direction 180 : degrees, in clockwise direction 270 : degrees, in clockwise direction
x-multiplication	Horizontal multiplication, up to 10x. Available factors: 1~10 For "ROMAN.TTF" true type font, this parameter is ignored. For font "0", this parameter is used to specify the width (point) of true type font. 1 point=1/72 inch.
Y-multiplication	Vertical multiplication, up to 10x Available factors: 1~10 *For true type font, this parameter is used to specify the*

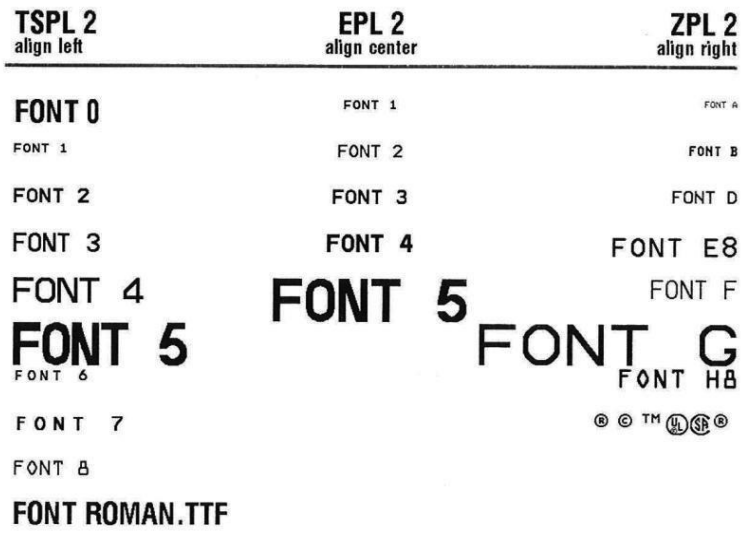
height (point) of true type font. 1 point=1/72 inch.

Example

Sample code

```
SIZE 4,3
GAP 0,0
DIRECTION 1
CLS
TEXT 10,10,” 0” ,0,12,12,” TSPL 2”
TEXT 10,40,” 0” ,0,8,8,” align left”
BAR 0,70,800,4
TEXT 10,110,” 0” ,0,12,12,” FONT 0”
TEXT 10,160,” 1” ,0,1,1,” FONT 1”
TEXT 10,210,” 2” ,0,1,1,” FONT 2”
TEXT 10,260,” 3” ,0,1,1,0,” FONT 3”
TEXT 10,310,” 4” ,0,1,1,0,” FONT 4”
TEXT 10,360,” 5” ,0,1,1,0,” FONT 5”
TEXT 10,410,” 6” ,0,1,1,1,” FONT 6”
TEXT 10,460,” 7” ,0,1,1,1,” FONT 7”
TEXT 10,510,” 8” ,0,1,1,1,” FONT 8”
TEXT 10,560,” ROMAN.TTF” ,0,12,12,” FONT ROMAN.TTF”

TEXT 400,10,” 0” ,0,12,12,2,” EPL 2”
TEXT 400,40,” 0” ,0,8,8,2,” align center”
TEXT 400,110,” 1.EFT” ,0,1,1,2,” FONT 1”
TEXT 400,160,” 2.EFT” ,0,1,1,2,” FONT 2”
TEXT 400,210,” 3.EFT” ,0,1,1,2,” FONT 3”
TEXT 400,260,” 4.EFT” ,0,1,1,2,” FONT 4”
TEXT 400,310,” 5.EFT” ,0,1,1,2,” FONT 5”

TEXT 800,10,” 0” ,0,12,12,3,” ZPL 2”
TEXT 800,40,” 0” ,0,8,8,3,” align right”
TEXT 800,110,” A.FNT” ,0,1,1,3,” FONT A”
TEXT 800,160,” B.FNT” ,0,1,1,3,” FONT B”
TEXT 800,210,” D.FNT” ,0,1,1,3,” FONT D”
TEXT 800,260,” E8.FNT” ,0,1,1,3,” FONT E8”
TEXT 800,310,” F.FNT” ,0,1,1,3,” FONT  F”
TEXT 800,360,” G.FNT” ,0,1,1,3,” FONT  G”
TEXT 800,410,” H8.FNT” ,0,1,1,3,” FONT H8”
TEXT 800,460,” GS.FNT” ,0,1,1,3,” ABCDEF”

PRINT 1
```

Result



Status Polling Commands(RS-232)

<ESC>!?

Description

This command obtains the printer status at any time, even in the event of printer error. An inquiry request is solicited by sending an <ESC> (ASCII 27, escape character) as the beginning control character to the printer. A one byte character is returned, flagging the printer status. A 0 signifies the printer is ready to print labels.

Syntax

<ESC>!?

Parameter	Description
N/A	N/A

Bit(return value)	Status
0	Head opened
1	Paper jam
2	Out of paper
3	Out of ribbon
4	Pause
5	Printing
6	Cover opened(option)

<ESC>!R

Description

This command resets the printer. The beginning of the command is an ESCAPE character (ASCII 27). The files downloaded in memory will be deleted. This command cannot be sent in dump mode.

Syntax

<ESC>!R

Parameter	Description
N/A	N/A

~!D

Description

This command enters the printer into DUMP mode. In DUMP mode, the printer outputs code directly without interpretation.

Syntax

~!D

Parameter	Description
None	N/A

Example

~!D

File Management Commands

DOWNLOAD

Description

"DOWNLOAD" is a header of the file that is to be saved in the printer's memory. The download files can be divided into two categories: program files and data files (including text data files, PCX graphic files and bitmap font files).

Syntax

1. Download a program file:

DOWNLOAD [n,] "FILENAME.BAS"

Parameter	**Description**
n	Specify memory used to save downloaded files. **n is ignored:** Download files to DRAM only. **E:** Download files to main board flash memory **F:** Download files to expansion memory module
FILENAME.BAS	The filename resident in printer memory

Note:

(1). Filenames are case sensitive.

(2). File extensions must be ".BAS".

(3). Filenames must in 8.3 format.

(4). It should use with EOP command.

(5). If memory is not specified, all files will be download to DRAM.

(6). Download same filename to same memory the previous file will be covered.

(7). No Battery is used to back up files in DRAM which will lost in the event printer power is lost.

(8). Download will failed when storage is insufficient.

2.Download a data file:

DOWNLOAD [n,] “FILENAME”, DATA SIZE, DATA CONTENT…..

Parameter	Description
n	Specify memory used to save downloaded files. **n is ignored:** Download files to DRAM only. **E:** Download files to main board flash memory **F:** Download files to expansion memory module
FILENAME	The name of data file that will remain resident in the printer memory(case sensitive)
DATA SIZE	The actual size in bytes of the data file(without header)
DATA CONTENT	The data which will be downloaded into printer

Note:

(1). For text data files, CR(carriage return) 0x0D and LF(Line Feed) 0x0A is the separator of data.

(2). If memory is not specified, all files will be download to DRAM.
No Battery is used to back up files in DRAM which will lost in the event printer power is lost.

Example

Sample code (The example program listed below will download to printer SDRAM.)

```
DOWNLOAD “EXAMPLE.BAS”
SIZE 4,4
GAP 0,0
DIRECTION 1
SET TEAR ON
CLS
TEXT 100,100,”3”,0,1,1,”EXAMPLE PROGRAM”
PRINT 1
EOP
```

EOP

Description

End of grogram. To declare the start and end of BASIC language commands used in a program. DOWNLOAD “FILENAME.BAS” must be added in the first line of the program, and “EOP” statement at the last line of program.

Syntax

EOP

Example

Sample code (The example program listed below will download to printer SDRAM.)

```
DOWNLOAD “DEMO.BAS”
SIZE 4,4
GAP 0,0
DIRECTION 1
SET TEAR ON
CLS
TEXT 100,100,”3”,0,1,1,”DEMO PROGRAM”
PRINT 1
EOP
```

FILES

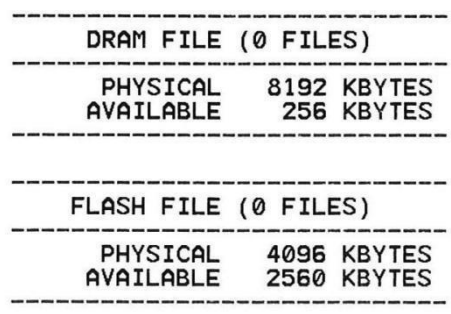
Description

This command prints out the total memory size, available memory size and files lists(or lists the files through RS-232) in the printer memory(both FLASH memory and DRAM).

Syntax

FILES

Example

Sample code	Result
FILES	

KILL

Description

This command deletes a file in the printer memory. The wild card(*) will delete all files resident in specified DRAM memory.

Syntax

KILL[n], “FILENAME”

Parameter	**Description**
n	Specify the memory location that files will be deleted. n is ignored: Kill files saved in DRAM.

Note:

(1). If optional parameter n is not specified, firmware will delete the file in DRAM.

(2).Syntax example

KILL “FILENAME” : Delete the specify file in DRAM

KILL “*.PCX” : Delete all PCX files in DRAM

KILL “*” : Delete all files in DRAM

Example

Users can use printer SELFTEST utility to list printer configurations and files saved in the printer memory, or use the FILES command to print the downloaded file list in printer. Follow the steps below to delete files in the printer memory via parallel port connection.

C :\>COPY CON LPT1<ENTER>
FILES<ENTER>
<CTRL><Z><ENTER>
C :\>COPY CON LPT1<ENTER>
KILL « DEMO.BAS « <ENTER>
<CTRL><Z><ENTER>
C :\>COPY CON LPT1<ENTER>
FILES<ENTER>
<CTRL><Z><ENTER>

Note: <ENTER> stands for PC keyboard “ENTER” key. <CTRL><Z> means to hold PC keyboard “CTRL” key then press the PC keyboard <Z> key

RUN

Description

This command executes a program resident in the printer memory.

This command is available for TSPL language printers only.

Syntax

RUN “FILENAME.BAS”

Example

Sample code	Result
DOWNLOAD “DEMO.BAS” SIZE 4,4 GAP 0,0 DIRECTION 1 SET TEAR ON CLS TEXT 100,100,”3”,0,1,1,”DEMO PROGRAM” PRINT 1 EOP RUN “DEMO.BAS”	
DOWNLOAD “DEMO.BAS” SIZE 4,4 GAP 0,0 DIRECTION 1 SET TEAR ON CLS TEXT 100,100,”3”,0,1,1,”DEMO PROGRAM” PRINT 1 EOP DEMO	

Device Reconfiguration Commands

SET COUNTER

Description

Counters can be a real counter or a variable. This setting sets the counter number in the program and its increments. There are three different types of counters: digit (0~9~0), lower case letter (a~z~a) or upper case letter (A~Z~A).

Syntax

SET COUNTER @n step

@n = "Expression"

Parameter	Description
@n	n: counter number. There are 51 counters available (@0~@50) in the printer.
step	The increment of the counter, can be positive or negative. -999999999 <= step <= 999999999 *If the counter is used as a fixed variable, please set the increment to 0.*
Expression	Initial string. String length is 101 bytes

Example

Sample Code

```
SET COUNTER @0 +1

SET COUNTER @1 +0
SET COUNTER @2 -1
SET COUNTER @3 1

@0= »0001 »

@1= »0101 »
@2= »000A »
@3= »1 »

SIZE 4,0.5

GAP 0,0
DIRECTION 1
CLS
TEXT 600,10, »3 »,0,1,1,3, »@0          @1          @2 »
TEXT 600,30, »3 »,0,1,1,3, »Label « +@3+ »
--------------------------«
TEXT 600,50, »3 »,0,1,1,3,@0+ »        « +@1+ »        « +@2
PRINT 5
```

Result

```
          @0        @1        @2
Label 5 ----------------------------
          0005      0101      999W

          @0        @1        @2
Label 4 ----------------------------
          0004      0101      999X

          @0        @1        @2
Label 3 ----------------------------
          0003      0101      999Y

          @0        @1        @2
Label 2 ----------------------------
          0002      0101      999Z

          @0        @1        @2
Label 1 ----------------------------
          0001      0101      000A
```

SET CUTTER

Description

This setting activates or deactivates the cutter and defines how many printed labels is to be cut at one time.

Syntax

SET CUTTER OFF/BATCH/pieces

Parameter	Description
OFF	Disable cutter function.
BATCH	Set printer to cut label at the end of printing job
Pieces	Set 3 printing labels per cut

Example

Sample code	Result
SIZE 3,3 GAP 0,0 SET CUTTER OFF SET PEEL OFF CLS TEXT 50,50,"3",0,1,1,"SET CUTTER OFF" PRINT 3	**The cutter function is disabling.**
SET CUTTER BATCH CLS TEXT 50,50,"3",0,1,1,"SET CUTTER BATCH" PRINT 3,2	**The cutter cuts once after 6 labels are printed.**
SET CUTTER 1 CLS TEXT 50,50,"3",0,1,1,"SET CUTTER 1" PRINT 3,2	**The cutter cuts every label.**
CLS TEXT 50,50,"3",0,1,1,"SET CUTTER 2" PRINT 3,2	**The cutter cuts every 2 labels.**

SET PEEL

Description

This setting is used to enable/disable the self-peeling function. The default setting for this function is off. When this function is set on, the printer stops after each label printing, and dose not print the next label until the peeled label is taken away. This setting will saved in printer memory when turning off the power.

Syntax

SET PEEL ON/OFF

Parameter	Description
ON	Enable the self-peeling function
OFF	Disable the self-peeling function

Example

Sample code

```
REM ***SELF-PEELING FUNCTION ON***
SIZE 4,4
GAP 0.12,0
DENSITY 8
SPEED 6
DIRECTION 0
REFERENCE 0,0
SET CUTTER OFF
SET PEEL ON
CLS
TEXT 50,100,”3”,0,1,1,”SELF-PEELING FUNCTION TEST”
PRINT 5
```

SET TEAR

Description

This setting is used to enable/disable feeding labels/black mark to position of tearing off.

Syntax

SET TEAR ON/OFF (TSPL language printers only)

Parameter	Description
ON	The label gap will stop at the tear off position after print.
OFF	The label gap will NOT stop at the tear off position after print. The beginning of label will be aligned to print head.

Example

Sample code

```
REM ***TEAR FUNCTION ON***
SIZE 3,3
GAP 0.08,0
DENSITY 8
SPEED 4
DIRECTION 0
REFERENCE 0,0
SET CUTTER OFF
SET PEEL OFF
SET TEAR ON
CLS
TEXT 50,100,”3”,0,1,1,”TEAR FUNCTION TEST”
PRINT 1
```

SET RIBBON

Description

This setting is used to enable/disable ribbon sensor detection. (Thermal Transfer Printing/Thermal Direct Printing) Printer will detect the presence of a ribbon to determine using either direct thermal or thermal transfer printing upon printer startup. This setting will be saved in printer memory after turning off the power.

Syntax

SET RIBBON ON/OFF

Parameter	Description
ON	Thermal transfer printing
OFF	Thermal direct printing

Example

Sample Code

```
REM *****Disable ribbon detection sensor for direct thermal printing.
SET RIBBON OFF
SIZE 4,1
GAP 0,0
CLS
TEXT 10,10, »3 »,0,1,1, »Direct thermal printing. »
PRINT 1

REM *****Enable ribbon detection sensor for thermal transfer printing.
SET RIBBON ON
SIZE 4,1
GAP 0,0
CLS
TEXT 10,10, »3 »,0,1,1, »Thermal transfer printing. »
PRINT 1

REM *****For using ink-in ribbon in TTP-384M.
SET RIBBON INSIDE
SIZE 4,1
GAP 0,0
CLS
TEXT 10,10, »3 »,0,1,1, »TTP-384M is using ink-in ribbon. »
PRINT 1

REM *****For using ink-out ribbon in TTP-384M.
SET RIBBON OUTSIDE
SIZE 4,1
GAP 0,0
CLS
TEXT 10,10, »3 »,0,1,1, »TTP-384M is using ink-out ribbon. »
PRINT 1
```

SET COM1

Description

This setting defines communication parameters for printer serial port.

Syntax

SET COM1 baud, parity, data, stop

Parameter	Description
baud	Baud rate, available baud rates are as listed :
	96: 9600 bps
	19: 19200 bps
	38: 38400 bps
	57: 57600 bps
	115: 115200 bps
parity	Parity check
	N: No parity check
	E: Even parity check
	O: Odd parity check
Data	Data bit
	8: 8 bits data
	7: 7 bits data
stop	Stop bit
	1: 1 stop bit
	2: 2 stop bits

Example

The parallel port is used to setup the printer serial port in this example via MS-DOS mode.

C:\>COPY CON LPT1<ENTER>
SET COM1 19,N,8,1<ENTER>
<CTRL><Z><ENTER>
C:\>

Note:
<ENTER> stands for PC keyboard "ENTER" key. <CTRL><Z> means to hold PC keyboard "CTRL" key then press the PC keyboard <Z> key.