ZD100TA/DA, ZD230TA/DA, ZD888TA/DA

TSPL

ZEBRA

Programming Guide

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Introduction

This section describes the features and functions that run on the ZD100, ZD230, and ZD888 printers.

Overview

The TSPL features enable the ZD100, ZD230, and ZD888 printers to work with many host systems that use TSC® printers. In most cases, no changes are required to the host application. This feature helps customers make a smooth transition to Zebra printers and saves them the time and expense of having to rewrite their host software.

TSPL Features

The TSPL features are as follows:

- The original device.
- Provides support for TSPL commands.
- Offers many outline fonts, barcodes, and specific commands and features of target printer models.

Use all other existing features of the ZD100, ZD230, and ZD888 printers when available.

Supported Printers

The following printers support TSPL language:

- ZD100TA/DA
- ZD230TA/DA
- ZD888TA/DA/CN/JD/CR/GV/TL

For complete printer operation, use this manual in combination with the user guide for your printer.

Configuring Network Connectivity

For detailed information on how to connect to your device, refer to the device's user guide.

Enable TSPL Mode

This feature supports auto-detection for the TSPL printing language.

Supported Commands

This section provides the commands supported by the ZD100 printers.

No.	Command	Function
1	SIZE	This command defines the label width and length.
2	GAP	This command defines the gap distance between two labels.
3	GAPDETECT	This command feeds the paper through the gap sensor to determine the paper and gap sizes.
4	BLINEDETECT	This command feeds the paper through the black mark sensor to determine the paper and black mark sizes.
5	AUTODETECT	This command feeds the paper through the gap/black mark sensor to determine the paper and gap/black mark sizes.
6	BLINE	This command sets the height of the black line and the user-defined extra label feeding length each form feed takes.
7	OFFSET	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.
8	SPEED	This command defines the print speed.
9	DENSITY	This command sets the printing darkness.
10	DIRECTION	This command defines the printout direction and mirror image.
11	REFERENCE	This command defines the reference point of the label.
12	SHIFT	This command moves the label's horizontal and vertical position.
13	CODEPAGE	This command defines the code page of international character set.
14	CLS	This command clears the image buffer.
15	FEED	This command feeds label with the specified length.
16	BACKFEED	This command feeds the label in reverse.
17	FORMFEED	This command feeds label to the beginning of next label.
18	HOME	This command will feed label until the internal sensor has determined the origin.
19	PRINT	This command prints the label format currently stored in the image buffer.

No.	Command	Function
20	SELFTEST	This command causes the printer to print out the printer information.
21	INITIALPRINTER	This command can restore printer settings to defaults.
22	BAR	This command draws a bar on the label format.
23	BARCODE	This command prints 1D barcodes.
24	BITMAP	This command draws bitmap images (as opposed to BMP graphic files).
25	BOX	This command draws rectangles on the label.
26	CIRCLE	This command draws a circle on the label.
27	ELLIPSE	This command draws an ellipse on the label.
28	ERASE	This command clears a specified region in the image buffer.
29	PDF417	This command defines a PDF417 2D barcode.
30	MPD417	This command defines a Micro PDF 417 barcode.
31	PUTPCX	This command prints PCX format images.
32	QRCODE	This command prints QR code.
33	REVERSE	This command reverses a region in image buffer.
34	TEXT	This command prints text on label.
35	<ESC>!?	This command obtains the printer status at any time, even in the event of printer error.
36	<ESC>!C	This command restarts the printer and omits to run AUTO.BAS.
37	<ESC>!R	This command resets the printer.
38	~!D	This command enters the printer into DUMP mode. In DUMP mode, the printer outputs code directly without interpretation.
39	DOWNLOAD	"DOWNLOAD" is a header of the file that is to be saved in the printer’s memory.
40	EOP	End of program.
41	FILES	This command prints out the total memory size, available memory size and files lists in the printer memory.
42	KILL	This command deletes a file in the printer memory.
43	RUN	This command executes a program resident in the printer memory.
44	OUT	This command returns data through the specific port.
45	SET COUNTER	This command sets the counter number in the program and its increments. Counters can be a real counter or a variable.
46	SET TEAR	This command is used to enable/disable feeding of labels to gap/ black mark position for tearing off.
47	SET RIBBON	This setting is used to enable/disable ribbon sensor detection.
48	SET PRINTKEY	This command will print one label and feed label gap to tear bar position for tearing away.
49	GETSETTING $()	This command is used to get printer settings.

No.	Command	Function
50	@LABEL	This variable counts how many pieces of labels have been printed.

SIZE

Description

This command defines the label width and length.

Syntax

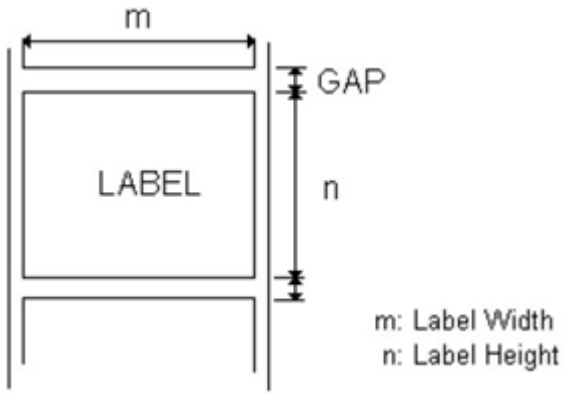
SIZE m[,n]	English system (inch)
SIZE m mm[,n mm]	Metric system (mm)
SIZE m dot[,n dot]	Dot measurement

Parameter	Description
M	Label width (inch/mm/dot)
[N]	Label length (inch/mm/dot);

NOTE:

- 200 DPI: 1 mm = 8 dots, default Label width and Label length are 812 dots
- 300 DPI: 1 mm = 12 dots, default Label width and Label length are 1200 dots
- For metric and dot systems, there must be a space between the parameter and "mm" or "dot"

Example

Sample Code	Result
• English System (inch): SIZE 3.5,3.00 • Metric system (mm): SIZE 100,100	

See Also

GAP, BLINE

GAP

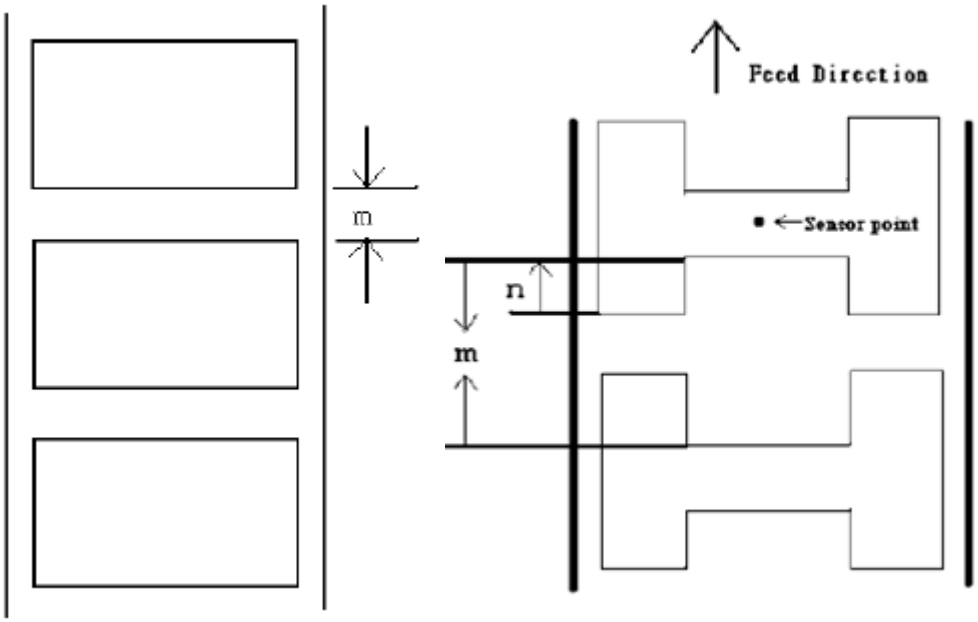
Description

Defines the gap distance between two labels.

Syntax

GAP m,n	English system (inch)
GAP m mm,n mm	Metric system (mm)
GAP m dot,n dot	Dot measurement

Parameter	Description
M	The gap distance between two labels. 0 ≤ m ≤ 127 (mm), 0 ≤ m ≤ 5 (inch)
N	The offset distance of the gap. n ≤ label length (mm or inch)
0,0	Continues label.



Parameter	Description

NOTE:

- 200 DPI : 1 mm = 8 dots

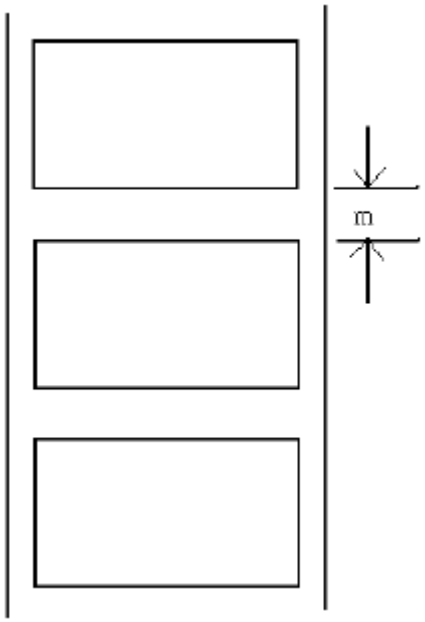
  - The default gap distance between two labels is 24 dots and the default offset of the gap is 0 dots.

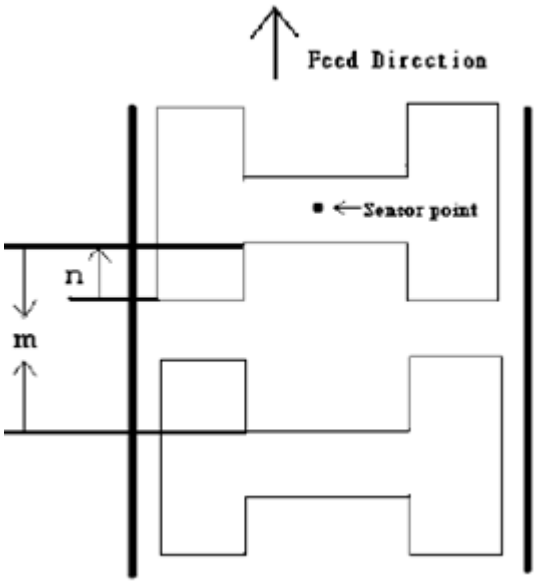
  300 DPI : 1 mm = 12 dots

  - The default gap distance between two labels is 36 dots and the default offset of the gap is 0 dots.

- For metric and dot systems, there must be a space between the parameter and mm.
- When the sensor type is changed from "Black Mark" to "GAP", send the "GAP" command to the printer first.

Example

Sample Code	Result
Normal Gap • English system (inch): GAP 0.12,0 • Metric system (mm): GAP 3,0 • Continuous label: GAP 0,0	Normal gap 

Sample Code	Result
Special gap • English system (inch): GAP 0.30,0.10 • Metric system (mm): GAP 7.62,2.54	Special gap 

See Also

SIZE, BLINE

GAPDETECT

Description

This command feeds the paper through the gap sensor to determine the paper and gap sizes, respectively. This command references the user's approximate measurements. If the measurements conflict with the actual size, the GAPDETECT command will not work properly. This calibration method can be applied to labels with pre-printed logos or texts.

Syntax

GAPDETECT [X,Y]

Parameter	Description
X	Paper length (in dots)
Y	Gap length (in dots)
NOTE: If the x, y parameters are ignored, then the printer will calibrate and determine the paper length and gap size automatically.	

See Also

GAP, SIZE, BLINEDETECT, AUTODETECT

BLINEDETECT

Description

This command feeds the paper through the black mark sensor to determine the paper and black mark sizes, respectively. This command references the user's approximate measurements. If the measurements conflict with the actual size, the BLINEDETECT command will not work properly. This calibration method can be applied to labels with pre-printed logos or texts.

Syntax

BLINEDETECT [x,y]

Parameter	Description
x	Paper length (in dots)
y	Gap length (in dots)

NOTE: If the x, y parameters are ignored, then the printer will calibrate and determine the paper length and gap size automatically.

Also See

GAP, SIZE, GAPDETECT, AUTODETECT

AUTODETECT

Description

This command feeds the paper through the gap/black mark sensor to determine the paper and gap/black mark sizes, respectively. This command references the user's approximate measurements. If the measurements conflict with the actual size, the AUTODETECT command will not work properly. This calibration method can be applied to labels with pre-printed logos or texts.

Syntax

AUTODETECT [x,y]

Parameter	Description
x	Paper length (in dots)
y	Gap length (in dots)

NOTE:

- If the x, y parameters are ignored, then the printer will calibrate and determine the paper length and gap/black mark size automatically.
- When using this command, the printer will detect the label using the appropriate sensor type, so do not set the GAP or BLINE command in your program.

See Also

GAP, SIZE, GAPDETECT, BLINEDETECT

BLINE

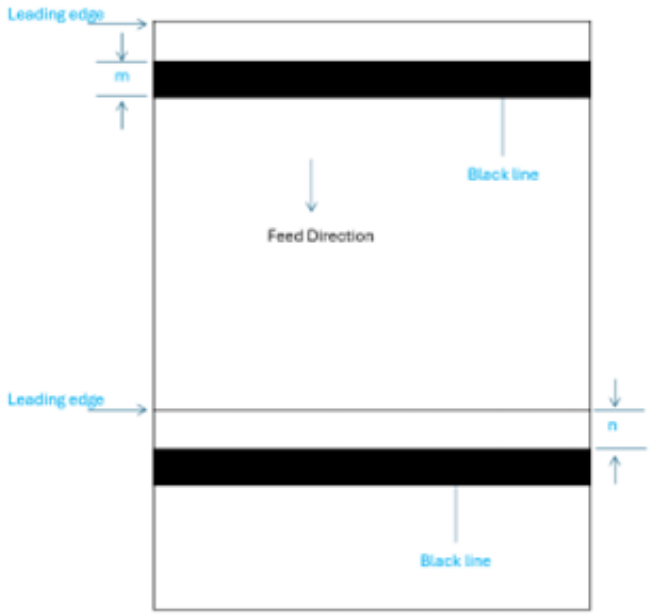
Description

This command sets the height of the black line and the user-defined extra label feeding length for each form feed take.

Syntax

BLINE m,n	English system (inch)
BLINE m mm,n mm	Metric system (mm)
BLINE m dot,n dot	Dot measurement

Parameter	Description
m	The height of black line either in mm or inch 0 ≤ m ≤ 127 (mm), 0 ≤ m ≤ 5 (inch)
n	The extra label feeding length 0 ≤ n ≤ label length
0,0	Continuous label



NOTE:

- For the metric system, there must be a space between the parameter and mm.
- When the sensor type is changed from "GAP to "Black Mark", send the "BLINE" command to the printer first.
- 200 DPI : 1 mm = 8 dots
- 300 DPI : 1 mm = 12 dots

Example

Sample Code
• English system (inch): BLINE 0.20,0.50 • Metric system (mm): BLINE 5.08,12.7

See Also

SIZE, GAP

OFFSET

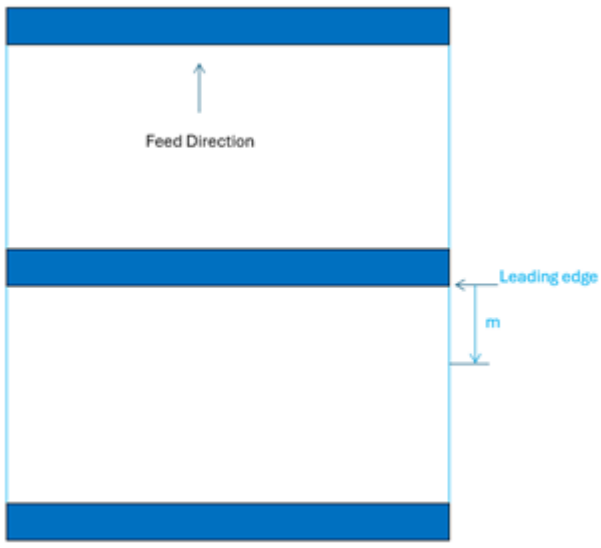
Description

This command defines the selective, extra label feeding length for each form feed take. It is especially useful in peel-off mode and cutter mode to adjust label stop position, ensuring labels register properly for their intended purposes. The printer backtracks the extra feeding length before the next run of printing.

Syntax

OFFSET m	English system (inch)
OFFSET m mm	Metric system (mm)
OFFSET m dot	Dot measurement

Parameter	Description
m	The offset distance (mm or inch) -25.4 ≤ m ≤ 25.4 (mm), -1 ≤ m ≤ 1 (inch)



Parameter	Description
	CAUTION: An improper offset value may cause a paper jam. • For the metric system, there must be a space between the parameter and mm. • 200 DPI : 1 mm = 8 dots • 300 DPI : 1 mm = 12 dots

Example

Sample Code
• English system (inch): OFFSET 0.5 • Metric system (mm) OFFSET 12.7

See Also

SIZE, GAP

SPEED

Description

This command defines the print speed.

Syntax

SPEED n

Parameter	Description
n	Printing speed in inch per second

NOTE:

- 200 DPI : 4, 6
- 300 DPI : 3, 5

Example

Sample Code
SPEED 10

See Also

DENSITY

DENSITY

Description

This command sets the printing darkness.

Syntax

DENSITY n

Parameter	Description
n	0 ~ 15: Printing speed in inch per second 0: Specifies the lightest level 15: Specifies the darkest level
	NOTE: Default DENSITY setting is 8.

Example

Sample Code
DENSITY 7

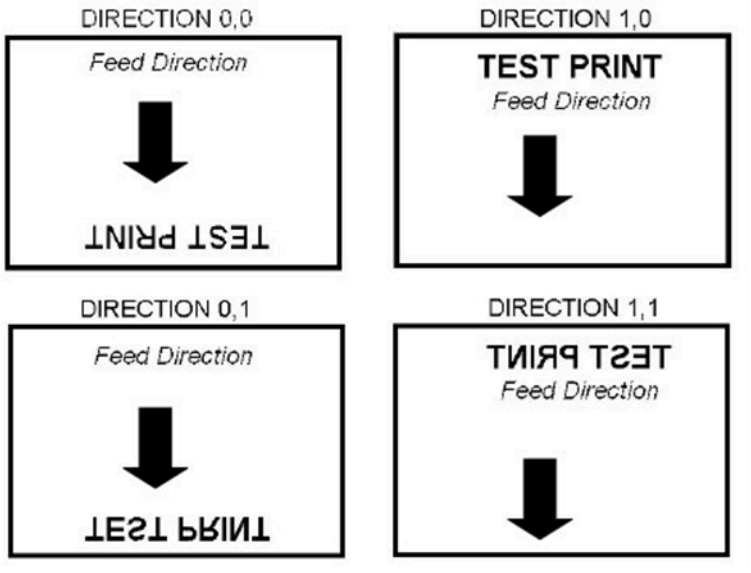
DIRECTION

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. Refer to the following illustrations.
m	0: Print normal image 1: Print mirror image 

Example

Sample Code
• DIRECTION 0 • DIRECTION 0,1

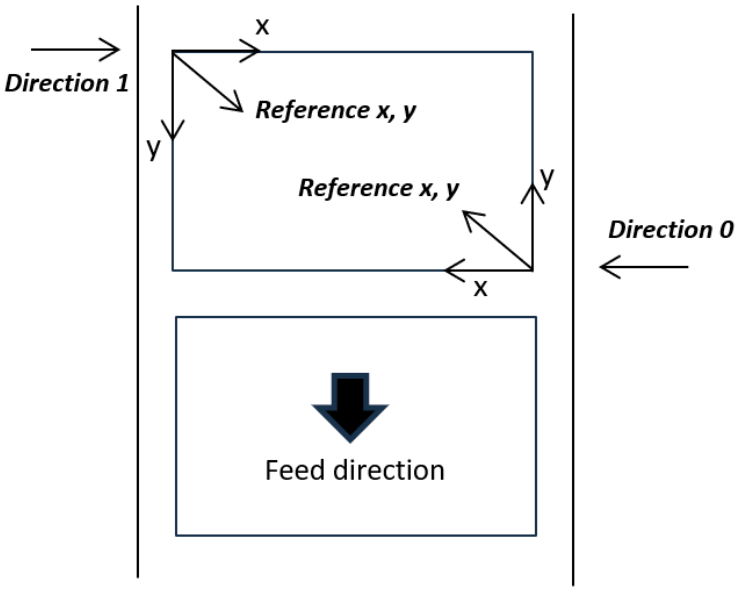
See Also

REFERENCE

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:

- 200 DPI : 1 mm = 8 dots
- 300 DPI : 1 mm = 12 dots

Example

Sample Code
REFERENCE 10,10

See Also

DIRECTION

SHIFT

Description

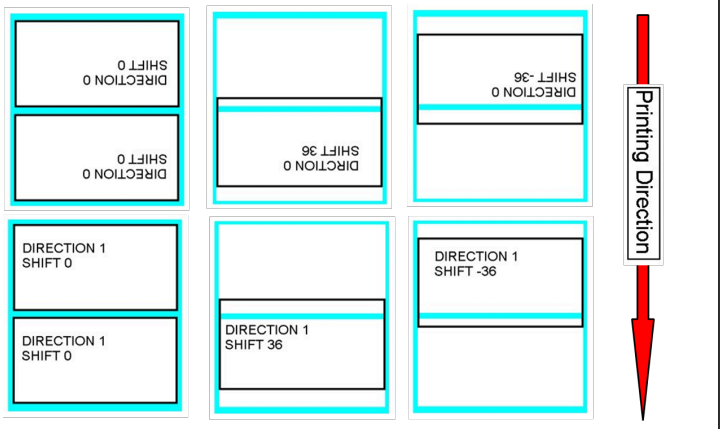
This command moves the label's vertical position. A positive value moves the label further from the printing direction; a negative value moves the label towards the printing direction.

Syntax

SHIFT [x]y

Parameter	Description
x	Horizontal coordinate (in dots) Optional. The maximum value is 1 inch. For 200 dpi printers, the range is -203 to 203; for 300 dpi printers, the range is -300 to 300. The unit is dot.
y	Vertical coordinate (in dots) The maximum value is 1 inch. For 200 dpi printers, the range is -203 to 203; for 300 dpi printers, the range is -300 to 300. The unit is dot.

Example

Sample Code	Result
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	

See Also

OFFSET, REFERENCE

CODEPAGE

Description

This command defines the code page for the international character set.

CODEPAGE n

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		8-bit code page		Windows code page		ISO code page	
n	Name	n	Name	n	Name	n	Name
USA	USA	**437**	United States	**936**	Simplified Chinese GBK		
				UTF-8	UTF 8		

NOTE: The DATA LENGTH parameter determines whether 7-bit or 8-bit communication is used.

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

See Also

SIZE, GAP, BLINE

FEED

Description

This command feeds labels with the specified length. The length is specified in dots.

Syntax

FEED n

Parameter	Description
n	unit: dot 1 ≤ n ≤ 9999

NOTE:

- 200 DPI : 1 mm = 8 dots
- 300 DPI : 1 mm = 12 dots

Example

Sample Code
FEED 40

See Also

BACKFEED, SIZE, BLINE, HOME, FORMFEED

BACKFEED

Description

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

Syntax

BACKFEED n

Parameter	Description
n	unit: dot 1 ≤ n ≤ 9999

NOTE:

- 200 DPI : 1 mm = 8 dots
- 300 DPI : 1 mm = 12 dots

CAUTION: An improper back feed value may cause a paper jam or wrinkle.

Example

Sample Code
BACKFEED 40

See Also

FEED, SIZE, GAP, BLINE, HOME, FORMFEED

FORMFEED

Description

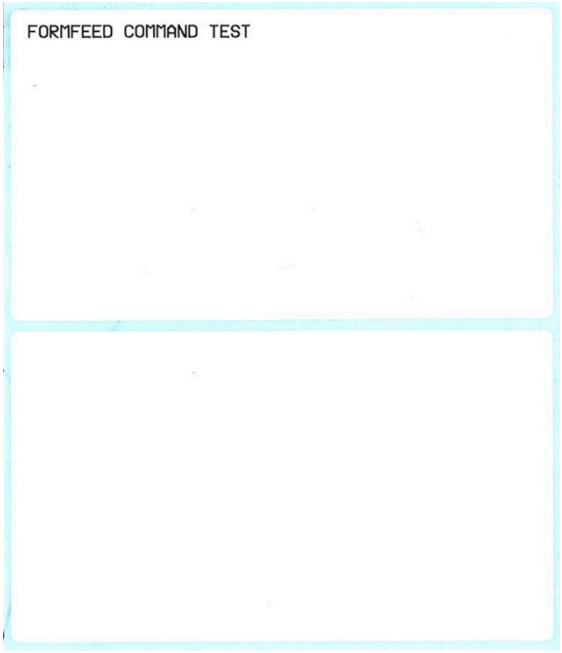
This command feeds the label to the beginning of the next label.

Syntax

FORMFEED n

Parameter	Description
None	N/A
NOTE: This command must be placed after SIZE command.	

Example

Sample Code	Result
SIZE 4,2.5 GAP 2 mm,0 DIRECTION 1 FORMFEED CLS TEXT 25,25, "3",0,1,1, "FORMFEED COMMAND TEXT" PRINT 1,1	

See Also

FEED, SIZE, GAP, BLINE, HOME, BACKFEED

HOME

Description

This command feeds the label until the internal sensor determines the origin. The size and gap of the label should be defined before using this command.

Syntax

HOME

Parameter	Description
None	N/A
Feeds the label to the origin position.	

PRINT

Description

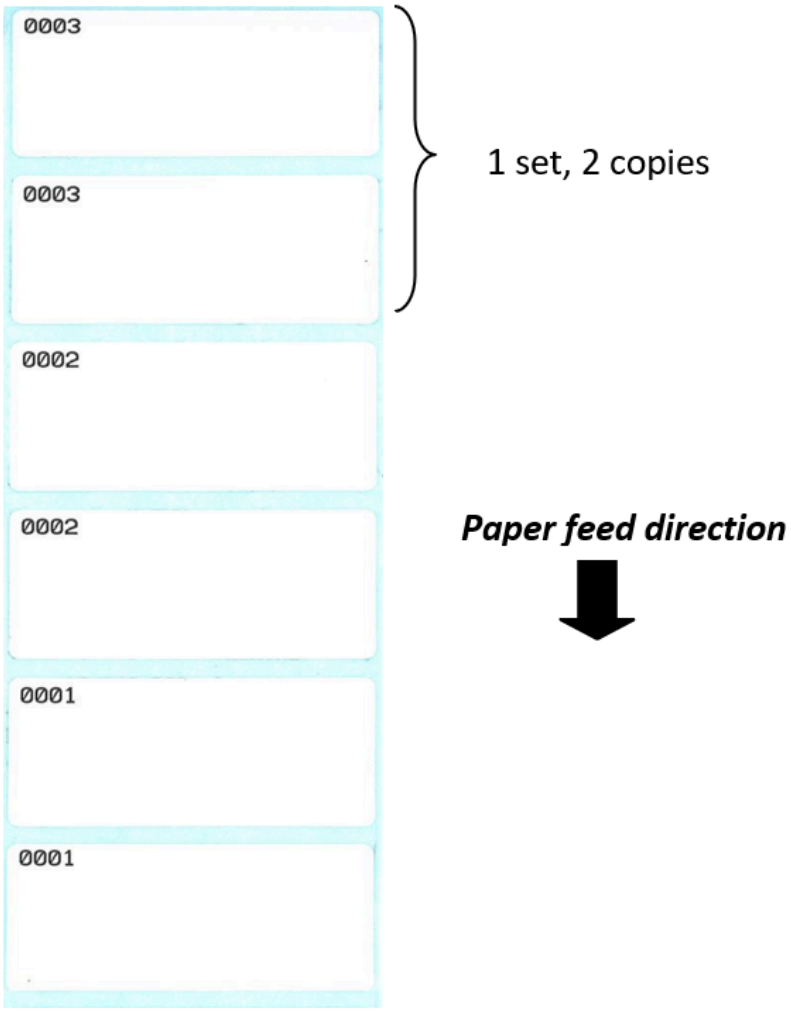
This command prints the label format currently stored in the image buffer.

Syntax

PRINT m[,n]

Parameter	Description
m	Specifies how many sets of labels will be printed.
n	1 ≤ n ≤ 999999999

Example

Sample Code	Result
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	

See Also

SET COUNTER, DOWNLOAD

SELFTEST

Description

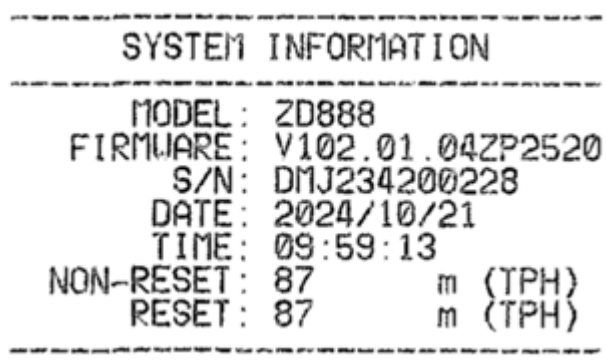
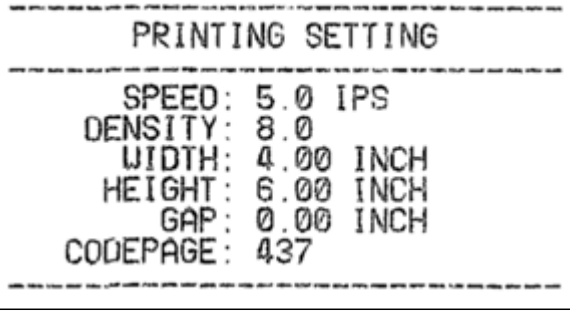
This command instructs the printer to print out its information.

Syntax

SELFTEST [page]

Parameter	Description
page	**omitted**: Print a self-test page with whole printer information. **SYSTEM**: Print a self-test page with printer settings. **PRINTER**: Print a self-test page with print-speed, density, paper size, and code page.

Example

Sample code	Result
SELFTEST SYSTEM	
SELFTEST PRINTER	

INITIALPRINTER

Description

Syntax

INITIALPRINTER

Parameter	Description
None	N/A

Example

Sample Code
INITIALPRINTER

BAR

Description

This command draws a bar on the label format.

Syntax

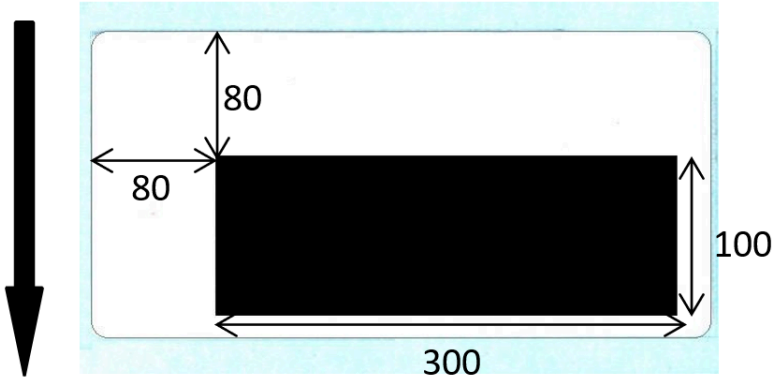
BAR x,y,width,height

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)

NOTE:

- 200 DPI : 1mm = 8 dots
  300 DPI : 1mm = 12 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	

See Also

BOX

BARCODE

Description

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

Code Type	Description						Max. data length
			1:1	1:2	1:3	2:5	3:7
128	Code 128, switching code subset automatically.	V					-
128M	Code 128, switching code subset manually.	V					-
EAN128	EAN128, switching code subset automatically.	V					-
EAN128M	EAN128M, switching code subset manually.	V					-
39	Code 39, switching standard and full ASCII mode automatically.		V	V	V		-
39C	Code 39 with check digit.		V	V	V		-
93	Code 93.			V			-
EAN13	EAN 13.	V					12
EAN13+2	EAN 13 with 2 digits add-on.	V					14
EAN13+5	EAN 13 with 5 digits add-on.	V					17
EAN8	EAN 8.	V					7
EAN8+2	EAN 8 with 2 digits add-on.	V					9
EAN8+5	EAN 8 with 5 digits add-on.	V					12
UPCA	UPC-A.	V					11
UPCA+2	UPC-A with 2 digits add-on.	V					13
UPCA+5	UPC-A with 5 digits add-on.	V					16
UPCE	UPC-E.	V					6
UPCE+2	UPC-E with 2 digits add-on.	V					8
UPE+5	UPC-E with 5 digits add-on.	V					11

Syntax

BARCODE X,Y, "code type",height,human readable,rotation,narrow,wide,[alignment,] "content"

Parameter	Description
X	Specify the x-coordinate bar code on the label
Y	Specify the y-coordinate bar code on the label
Code Type	
128	Code 128, switching code subset A, B, C automatically

<table>
<tr><th>Parameter</th><th>Description</th></tr>
<tr><td>128M</td><td>Code 128, switching code subset A, B, C manually
<table>
<tr><th>Control code</th><th>A</th><th>B</th><th>C</th></tr>
<tr><td>096</td><td>FNC3</td><td>FNC3</td><td>NONE</td></tr>
<tr><td>097</td><td>FNC2</td><td>FNC2</td><td>NONE</td></tr>
<tr><td>098</td><td>SHIFT</td><td>SHIFT</td><td>NONE</td></tr>
<tr><td>099</td><td>CODE C</td><td>CODE C</td><td>NONE</td></tr>
<tr><td>100</td><td>CODE B</td><td>FNC4</td><td>CODE B</td></tr>
<tr><td>101</td><td>FNC4</td><td>CODE A</td><td>CODE A</td></tr>
<tr><td>102</td><td>FNC1</td><td>FNC1</td><td>FNC1</td></tr>
<tr><td>103</td><td colspan="3">Start (CODE A)</td></tr>
<tr><td>104</td><td colspan="3">Start (CODE B)</td></tr>
<tr><td>105</td><td colspan="3">Start (CODE C)</td></tr>
</table>
Use "!" as a starting character for the control code, followed by three control codes. If the start subset is not set, the default starting subset is B.</td></tr>
<tr><td>EAN128</td><td>Code 128, switching code subset A, B, C automatically</td></tr>
<tr><td>EAN128M</td><td>Code 128, switching code subset A, B, C manually</td></tr>
<tr><td>39</td><td>Code 39 full ASCII</td></tr>
<tr><td>39C</td><td>Code 39 full ASCII with check digit</td></tr>
<tr><td>93</td><td>Code 93 full ASCII</td></tr>
<tr><td>EAN13</td><td>EAN 13</td></tr>
<tr><td>EAN13+2</td><td>EAN 13 with 2 digits add-on</td></tr>
<tr><td>EAN13+5</td><td>EAN 13 with 5 digits add-on</td></tr>
<tr><td>EAN8</td><td>EAN 8</td></tr>
<tr><td>EAN8+2</td><td>EAN 8 with 2 digits add-on</td></tr>
<tr><td>EAN8+5</td><td>EAN 8 with 5 digits add-on</td></tr>
<tr><td>UPCA</td><td>UPC-A</td></tr>
<tr><td>UPCA+2</td><td>UPC-A with 2 digits add-on</td></tr>
<tr><td>UPCA+5</td><td>UPC-A with 5 digits add-on</td></tr>
<tr><td>UPCE</td><td>UPC-E</td></tr>
<tr><td>UPCE+2</td><td>UPC-E with 2 digits add-on</td></tr>
<tr><td>UPCE+5</td><td>UPC-E with 5 digits add-on</td></tr>
<tr><td>height</td><td>Bar code height (in dots) Range: > 0</td></tr>
</table>

<table>
<tr><th>Parameter</th><th>Description</th></tr>
<tr><td>human readable</td><td>0 : not readable
1 : human readable aligns to left
2 : human readable aligns to center
3 : human readable aligns to right</td></tr>
<tr><td>rotation</td><td>0: No rotation
1: Rotate 90 degrees clockwise
2: Rotate 180 degrees clockwise
3: Rotate 270degrees clockwise</td></tr>
<tr><td>narrow</td><td>Width of narrow element (in dots)</td></tr>
<tr><td>wide</td><td>Width of wide element (in dots)
<table>
<tr><th></th><th>narrow:wide 1:1</th><th>narrow:wide 1:2</th><th>narrow:wide 1:3</th><th>narrow:wide 2:5</th></tr>
<tr><td>128</td><td>10x</td><td>-</td><td>-</td><td>-</td></tr>
<tr><td>EAN128</td><td>10x</td><td>-</td><td>-</td><td>-</td></tr>
<tr><td>EAN128M</td><td>10x</td><td>-</td><td>-</td><td>-</td></tr>
<tr><td>39</td><td>-</td><td>10x</td><td>10x</td><td>5x</td></tr>
<tr><td>39C</td><td>-</td><td>10x</td><td>10x</td><td>5x</td></tr>
<tr><td>93</td><td>-</td><td>-</td><td>10x</td><td>-</td></tr>
<tr><td>EAN13</td><td>8x</td><td>-</td><td>-</td><td>-</td></tr>
<tr><td>EAN13+2</td><td>8x</td><td>-</td><td>-</td><td>-</td></tr>
<tr><td>EAN13+5</td><td>8x</td><td>-</td><td>-</td><td>-</td></tr>
<tr><td>EAN8</td><td>8x</td><td>-</td><td>-</td><td>-</td></tr>
<tr><td>EAN8+2</td><td>8x</td><td>-</td><td>-</td><td>-</td></tr>
<tr><td>EAN8+5</td><td>8x</td><td>-</td><td>-</td><td>-</td></tr>
<tr><td>UPCA</td><td>8x</td><td>-</td><td>-</td><td>-</td></tr>
<tr><td>UPCA+2</td><td>8x</td><td>-</td><td>-</td><td>-</td></tr>
<tr><td>UPCA+5</td><td>8x</td><td>-</td><td>-</td><td>-</td></tr>
<tr><td>UPCE</td><td>8x</td><td>-</td><td>-</td><td>-</td></tr>
<tr><td>UPCE+2</td><td>8x</td><td>-</td><td>-</td><td>-</td></tr>
<tr><td>UPCE+5</td><td>8x</td><td>-</td><td>-</td><td>-</td></tr>
</table></td></tr>
<tr><td>alignment</td><td>Specify the alignment of barcode
0: default (left)
1: left
2: center
3: right</td></tr>
</table>

<table>
<tr><th>Parameter</th><th>Description</th></tr>
<tr><td>content</td><td>Content of barcode
Take note of the maximum number of digits of barcode content.
<table>
<tr><th>Code Type</th><th>Character Sets</th><th>Max. Data Length</th></tr>
<tr><td>128</td><td>See Character set for CODE128</td><td>-</td></tr>
<tr><td>128M</td><td>See Character set for CODE128</td><td>-</td></tr>
<tr><td>EAN128</td><td>See Character set for CODE128</td><td>-</td></tr>
<tr><td>EAN128M</td><td>See Character set for CODE128</td><td>-</td></tr>
<tr><td>39</td><td>0123456789[Space]ABCDEFGHIJKLMNOPQRSTUVWXYZ!
#$%&’()*+,-./:;#?
@[\]^_`abcdefghijklmnopqrstuvwxyz{|}~</td><td></td></tr>
<tr><td>39C</td><td>0123456789[Space]ABCDEFGHIJKLMNOPQRSTUVWXYZ!
#$%&’()*+,-./:;#?
@[\]^_`abcdefghijklmnopqrstuvwxyz{|}~</td><td></td></tr>
<tr><td>93</td><td>0123456789[Space]ABCDEFGHIJKLMNOPQRSTUVWXYZ!
#$%&’()*+,-./:;#?
@[\]^_`abcdefghijklmnopqrstuvwxyz{|}~</td><td></td></tr>
<tr><td>EAN13</td><td>0123456789</td><td>12</td></tr>
<tr><td>EAN13+2</td><td>0123456789</td><td>14</td></tr>
<tr><td>EAN13+5</td><td>0123456789</td><td>17</td></tr>
<tr><td>EAN8</td><td>0123456789</td><td>7</td></tr>
<tr><td>EAN13+2</td><td>0123456789</td><td>9</td></tr>
<tr><td>EAN13+5</td><td>0123456789</td><td>12</td></tr>
<tr><td>UPCA</td><td>0123456789</td><td>11</td></tr>
<tr><td>UPCA+2</td><td>0123456789</td><td>13</td></tr>
<tr><td>UPCA+5</td><td>0123456789</td><td>16</td></tr>
<tr><td>UPCE</td><td>0123456789</td><td>8</td></tr>
<tr><td>UPCE+2</td><td>0123456789</td><td>8</td></tr>
<tr><td>UPCE+5</td><td>0123456789</td><td>11s</td></tr>
</table></td></tr>
</table>

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

Value	128A	128B	128C	Value	128A	128B	128C	Value	128A	128B	128C
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	FNC 4	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	70	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 the CODE B start character. The next character will be the code 128 function character FNC3, which is then followed by the characters ABCD and EFGH encoded as the CODE A subset.

BITMAP

Description

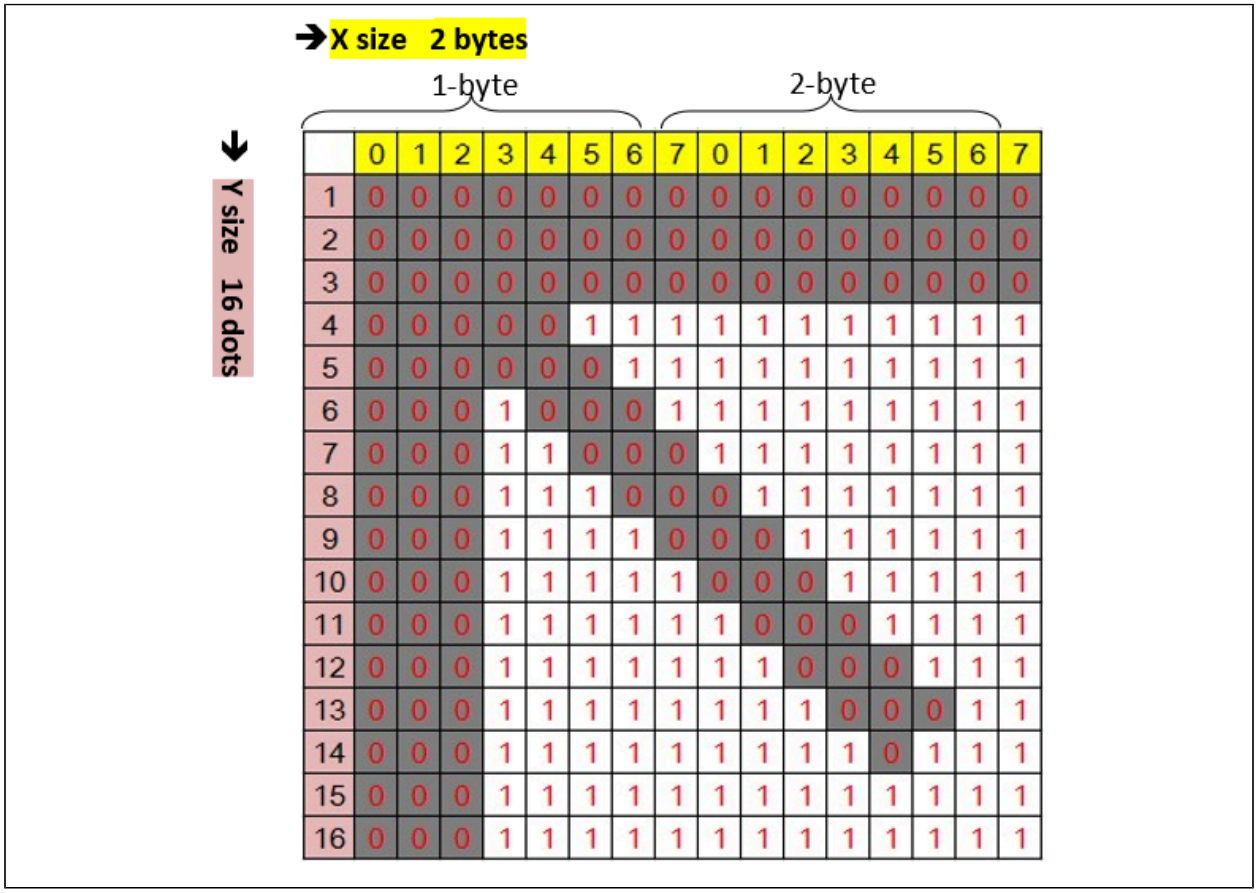
This command draws bitmap images (as opposed to BMP graphic files).

Syntax

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

Parameter	Description
X	Specify the x-coordinate
Y	Specify 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



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	

BOX

Description

This command draws rectangles on the label.

Syntax

BOX x,y,x_end,y_end,line thickness[,radius]

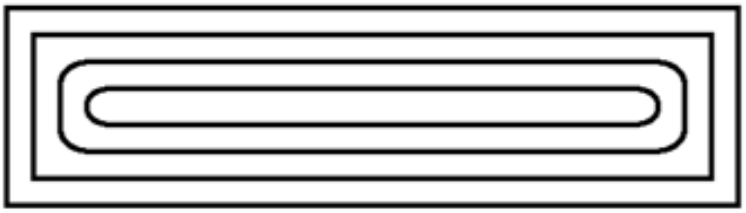
Parameter	Description
x	Specify the x-coordinate of upper left corner (in dots).
y	Specify the y-coordinate of upper left corner (in dots).

Parameter	Description
x_end	Specify the x-coordinate of lower right corner (in dots).
Y_end	Specify the y-coordinate of lower right corner (in dots).
line thickness	Line thickness (in dots).
radius	Optional. Specify the round corner. Default is 0.

NOTE:

- 200 DPI : 1 mm = 8 dots
- 300 DPI: 1 mm = 12 dots

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	

See Also

BAR

CIRCLE

Description

This command draws a circle on the label.

Syntax

CIRCLE X_start,Y_start,diameter,thickness

Parameter	Description
X_start	Specify the x-coordinate of upper left corner (in dots)
Y_start	Specify the y-coordinate of upper left corner (in dots)
diameter	Specify 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	

ELLIPSE

Description

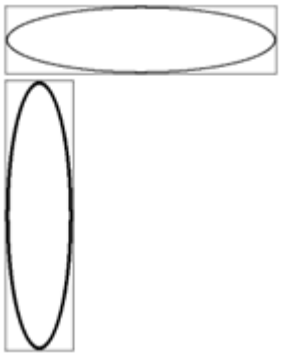
This command draws an ellipse on the label.

Syntax

ELLIPSE x,y,width,height,thickness

Parameter	Description
x	Specify the x-coordinate of upper left corner (in dots)
y	Specify the y-coordinate of upper left corner (in dots)
width	Specify the width of the ellipse (in dots)
height	Specify the height of the ellipse (in dots)
thickness	Thickness of the ellipse (in dots)

Example

Sample Code	Result
SIZE 4,3 GAP 0,0 DIRECTION 1 CLS BOX 10,10,410,110,1 ELLIPSE 10,10,400,100,2 BOX 10,120,110,520,1 ELLIPSE 10,120,100,400,5 PRINT 1	

ERASE

Description

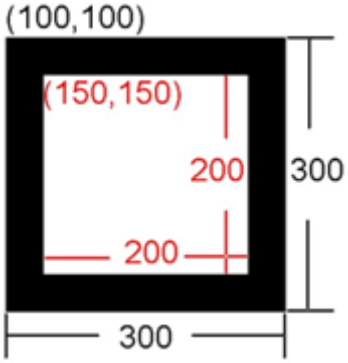
This command clears a specified region in the image buffer.

Syntax

ERASE x,y,x_width,y_height

Parameter	Description
x	The x-coordinate of the starting point (in dots)
y	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	

See Also

CLS

PDF417

Description

This command defines a PDF417 2D bar code.

Syntax

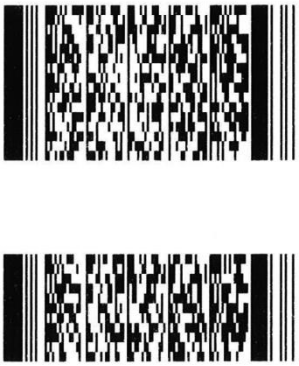
PDF417 x,y,width,height,rotate,[option], "content"

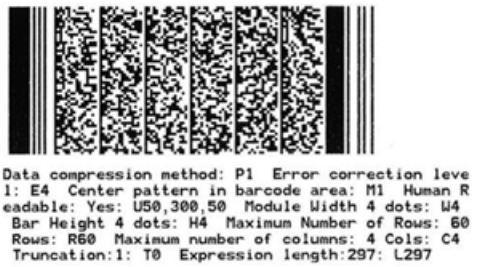
Parameter	Description
x	X-coordinate of starting point (in dot)
y	Y-coordinate of starting point (in dot)
width	Expected width (in dots) (width >= 0)
height	Expected height (in dots) (height >= 0)
rotate	Rotation counterclockwise 0: No rotation 90: Rotate 90 degrees 180: Rotate 180 degrees 270: Rotate 270 degrees
Option	

Parameter	Description
P	Data compression method 0: Auto encoding 1: Binary mode
E	Error correction level (Range: 0~8)
M	Center pattern in barcode area 0: The pattern will print upper left justified the area 1: The pattern is printed middle of area
Ux,y,c	Human readable x: Human readable characters in the specified x-coordinate y: Human readable characters in the specified y-coordinate c: Maximum characters of human readable character per line
W	Module width in dot (Range: 2~9)
H	Module height in dot (Range: 4~99)
R	Maximum number of rows (Range: 3~90)
C	Maximum number of columns (Range:1~30)
T	Truncation 0: Not truncated 1: Truncated
Lm	Expression length, (Range:1~2710, without “ for content)
content	Content of PDF417 2D bar code **NOTE:** If parameter Lm is used, double quotes (") are unnecessary for content. The maximum length of contents is 2710 numeric characters.

Example

Sample Code	Result
SIZE 4,1 GAP 0,0 DIRECTION 1 CLS PDF417 50,50,400,200,0, "Without Options" PRINT 1,1	

Sample Code	Result
SIZE 4,1.5 GAP 0,0 DIRECTION 1 CLS PDF417 50,50,400,200,0,E3, "Error correction level:3" PRINT 1,1 CLS PDF417 50,50,400,200,0,E4, "Error correction level:4" PRINT 1,1	
SIZE 4,1.5 GAP 0,0 DIRECTION 1 CLS PDF417 50,50,600,600,0,E4,W4, "Error correction level:4 module width 4 dots" PRINT 1,1 CLS PDF417 50,50,600,600,0,E4,W4,H4, "Error correction level:4 module width 4 dots bar height 4 dots" PRINT 1,1	
SIZE 4,1.5 GAP 0,0 DIRECTION 1 CLS PDF417 50,50,800,800,0,E4,W4,H4,R40,C4,T1, "Error correction level:4 Module Width 4 dots Bar Height 4 dots Maximum Number of Rows:5 Rows Maximum number of columns:90 Cols Truncation:1" PRINT 1,1	

Sample Code	Result
SIZE 4,2.5 GAP 0,0 DIRECTION 1 CLS PDF417 50,50,900,600,0,P1,E4,M1,U50,300,50,W4,H4,R60,C4,T0,L297,Data compression method: P1 Error correction level: E4 Center pattern in barcode area: M1 Human Readable: Yes: U50,300,50 Module Width 4 dots: W4 Bar Height 4 dots: H4 Maximum Number of Rows: 60 Rows: R60 Maximum number of columns: 4 Cols: C4 Truncation:1: T0 Expression length:297: L297 PRINT 1,1	

MPDF417

Description

This command defines a Micro PDF417 bar code.

Syntax

MPDF417 x,y,rotate,[Wn,][Hn,][Cn,] "content"

Parameter	Description
x	X-coordinate of starting point (in dot)
y	Y-coordinate of starting point (in dot)
rotate	Rotation 0: No rotation 90: Rotate 90 degrees 180: Rotate 180 degrees 270: Rotate 270 degrees
Wn	Optional. Module width in dot. Default is 1. (Range: >= 1)
Hn	Optional. Module height in dot. Default is 10. (Range: >= 1)

Parameter	Description
Cn	Optional. Number of columns. Once the parameter is set, the printer will calculate the proper rows for the barcode base on the content automatically. 0: Auto mode. 1: Column is 1 and the calculated suitable rows will be 11, 14, 17, 20, 24, and 28. 2: Column is 2 and the calculated suitable rows will be 8, 11, 14, 17, 20, 23, and 26. 3: Column is 3 and the calculated suitable rows will be 6, 8, 10, 12, 15, 20, 26, 32, 38, 44. 4: Column is 4and the calculated suitable rows will be 4, 6, 8, 10, 12, 15, 20, 26, 32, 38 and 44.
content	Content of Micro PDF 417 bar code.

Example

Sample Code
SIZE 4,1 GAP 0,0 CLS MPDF417 10,10,0, "ABCDEFGHIJKLMNOPQRSTUVWXYZ0123456789 " MPDF417 110,10,0,W2, "ABCDEFGHIJKLMNOPQRSTUVWXYZ0123456789 " MPDF417 210,10,0,W2,H3, "ABCDEFGHIJKLMNOPQRSTUVWXYZ0123456789 " MPDF417 310,10,0,W2,H3,C3, "ABCDEFGHIJKLMNOPQRSTUVWXYZ0123456789 " PRINT 1

Result


PUTPCX

Description

This command prints images in PCS format. It supports 2-color PCX format graphics.

Syntax

PUTPCX x,y,"filename"

Parameter	Description
x	X-coordinate of starting point (in dot)

Parameter	Description
y	Y-coordinate of starting point (in dot)
filename	The X-coordinate of the PCX format image The Y-coordinate of the PCX format image The downloaded PCX file name

Example

Sample Code	Result
Downloading PCX file into printer  SPEED 2 DENSITY 3 SIZE 4,1.5 GAP 0,0 DIRECTION 1 CLS PUTBMP 10,10, "SAMPLE.PCX" PRINT 1	

See Also

DOWNLOAD, BITMAP

QRCODE

Description

This command prints QR code.

Syntax

QRCODE x,y,ECC Level,cell width,mode,rotation,[justification,]model,]mask,]area],]length]"content"

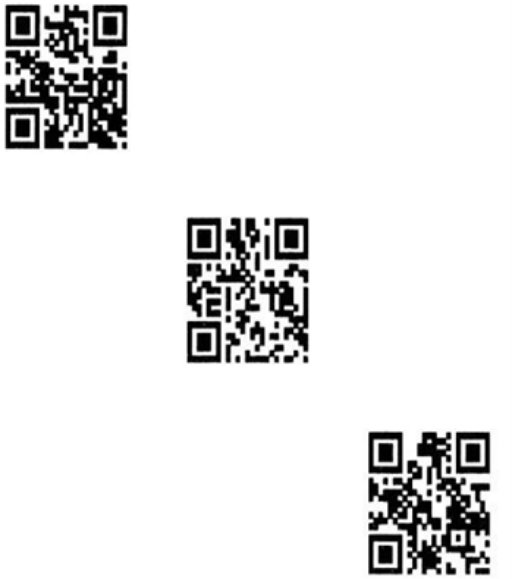
Parameter	Description
x	X-coordinate of starting point (in dot)
y	Y-coordinate of starting point (in dot)

Parameter	Description
ECC level	Error correction recovery level L: 7% M: 15% Q: 25% H: 30%
cell width	1~10 (in dot)
mode	Auto / manual encode A: Auto M: Manual
rotate	Rotation 0: No rotation 90: Rotate 90 degrees 180: Rotate 180 degrees 270: Rotate 270 degrees
[justification]	Barcode justification (J1 to J9 valid)
[mode]	M1: (default), original version M2: enhanced version (Almost smart phone is supported by this version.)
[mask]	S0~S8, default is S7
[area]	Maximum size of barcode area

Parameter	Description
[length] content	Content length; The encodable character set is described below. Encodable character set: **1.** Numeric data: (digits 0~9) **2.** Alphanumeric data Digits 0-9 Upper case letters A-Z **Manual mode example:** QRCODE 100,10,L,7,M,0,M1,S1, "ATHE FIRMWARE HAS BEEN UPDATED" (Where A: Alphanumeric data) QRCODE 100,10,M,7,M,0,M1,S2, "N123456" (Where N: Numeric data) QRCODE 100,10,Q,7,M,0,M1,S3, "N123456!ATHE FIRMWARE HAS BEEN UPDATED" (Where N: Numeric data ; !:Transfer char ; A: Alphanumeric data) QRCODE 100,10,H,7,M,0,M1,S3, "B0012Product name" (where B: Binary data ; 0012: 12 bytes) QRCODE 100,10,M,7,M,0,M1,S3, "K" (Where K: Kanji data)

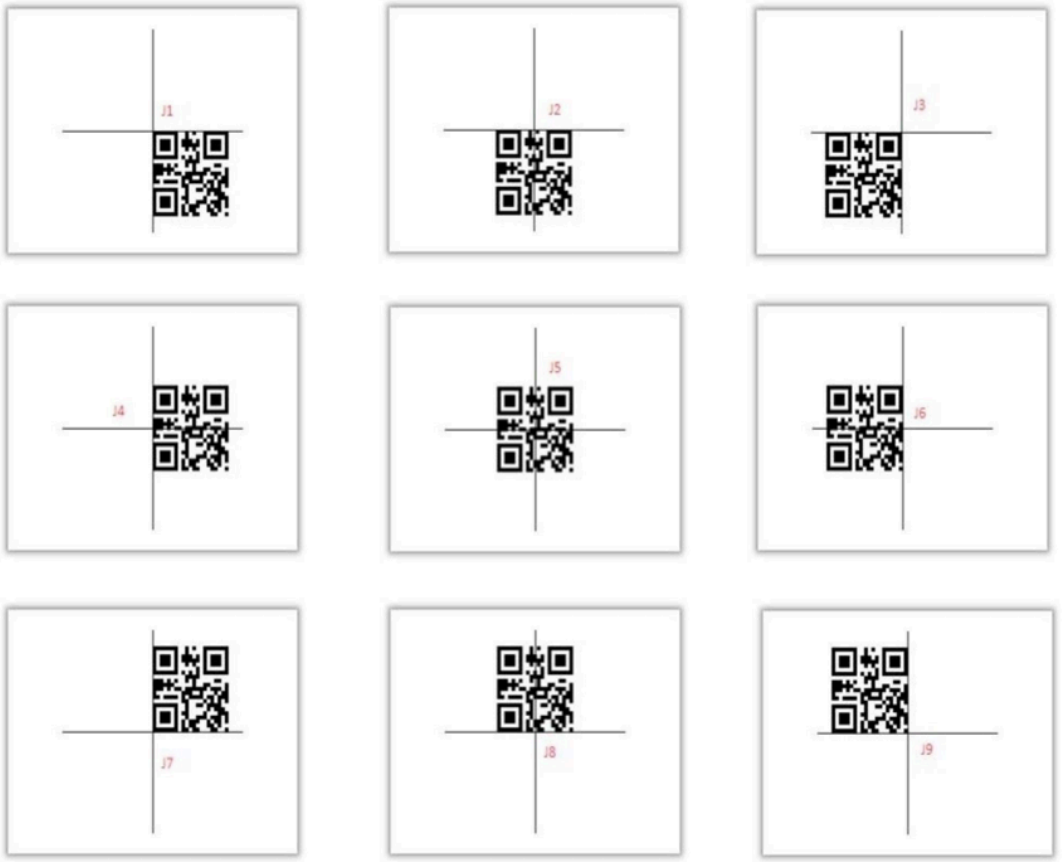
Example

Sample Code	Result
Auto mode example	

Sample Code	Result
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,M,4,A,0,M2, "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	

Sample Code	Result
Data string including double quote (") character, please use \["] instead 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 example	
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	

Sample Code	Result
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 including double quote (") character, please use \["] instead 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	
Data string for parameter [justification] & [area] SIZE 4,2.5 GAP 0,0 DIRECTION 1 CLS BAR 60,120,200,1 BAR 160,20,1,200 QRCODE 160,120,H,10,A,0,X100,J5,"123456789" PRINT 1,1	

Sample Code	Result
	

REVERSE

Description

This command reverses a region in the image buffer.

Syntax

REVERSE x_start,y_start,x_width,y_height

Parameter	Description
x_start	The x-coordinate of starting point (in dots)
y_start	The y-coordinate of starting point (in dots)
x_width	X-axis region width (in dots)
y_height	Y-axis region height (in dots)

NOTE:

- 200 DPI : 1 mm = 8 dots
- 300 DPI : 1 mm = 12 dots

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 the label.

Syntax

TEXT x,y,"font",rotation,x-multiplication,y-multiplication,[alignment,]"content"

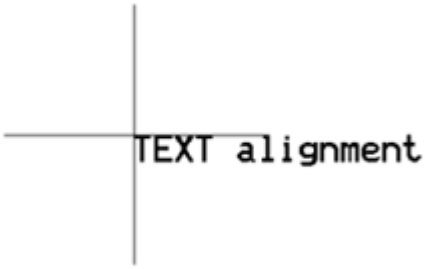
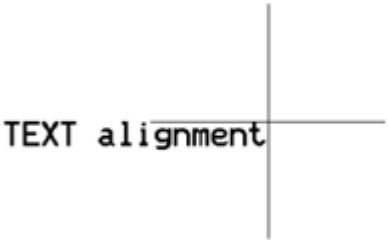
Parameter	Description
x	The x-coordinate of the text
y	The y-coordinate of the text
font	Font name 1: 8 x 12 fixed pitch dot font 2: 12 x 20 fixed pitch dot font 3: 16 x 24 fixed pitch dot font 4: 24 x 32 fixed pitch dot font 5: 32 x 48 dot fixed pitch font 6: 14 x 19 dot fixed pitch font OCR-B 7: 21 x 27 dot fixed pitch font OCR-B 8: 14 x 25 dot fixed pitch font OCR-A
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
y-multiplication	Vertical multiplication, up to 10x Available factors: 1~10

Parameter	Description
alignment	Optional. Specify the alignment of text. 0: Default (Left) 1: Left 2: Center 3: Right
content	Content of text string

NOTE:

- If there is any double quote (") within the text, please change it to \["].
- Supports SIMSUN.FNT to print Chinese.
- Does not support TTF font rendering.

Example

Sample Code	Result
SIZE 4,2 GAP 0,0 DIRECTION 1 CLS BAR 60,120,200,1 BAR 160,20,1,200 TEXT 160,120,"3",0,1,1,1,"TEXT alignment" PRINT 1,1	
SIZE 4,2 GAP 0,0 DIRECTION 1 CLS BAR 60,120,200,1 BAR 160,20,1,200 TEXT 160,120,"3",0,1,1,2,"TEXT alignment" PRINT 1,1	
SIZE 4,2 GAP 0,0 DIRECTION 1 CLS BAR 60,120,200,1 BAR 160,20,1,200 TEXT 160,120,"3",0,1,1,3,"TEXT alignment" PRINT 1,1	

<ESC>!?

Description

This command obtains the printer status at any time, even in the event of a 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 value of 0 signifies the printer is ready to print labels.

Syntax

<ESC>!?

Hex Receive	Printer Status
Hex Receive	**Printer Status**
00	Normal
01	Head opened
02	Paper Jam
03	Paper Jam and head opened
04	Out of paper
05	Out of paper and head opened
08	Out of ribbon
09	Out of ribbon and head opened
0A	Out of ribbon and paper jam
0B	Out of ribbon, paper jam, and head opened
0C	Out of ribbon and out of paper
0D	Out of ribbon, out of paper, and head opened
10	Pause
20	Printing
80	Other error

<ESC>!C

Description

This command restarts the printer and excludes running AUTO.BAS. The beginning of the command is an ESCAPE character (ASCII 27).

Syntax

<ESC>!C

NOTE: When the printer receives this command, it will restart itself regardless of whether AUTO.BAS exists.

<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

~!D

Example

Description

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

Syntax

~!D

~!D

DOWNLOAD

Description

"DOWNLOAD" is a header of the file that is to be saved in the printer's memory. The downloaded files can be divided into two categories: program files and data files (including text data files, PCX graphic files, and bitmap font files). The detailed descriptions regarding the download syntax for different files are as follows:

Syntax

1. Download a program file:

DOWNLOAD [n,] "FILENAME.BAS"

Parameter	Description
n	Specifies the memory used to save downloaded files. **N is ignored**: Download files to DRAM only. To save the files from DRAM to Flash memory before turning off the power, issue the MOVE command to the printer. **F**: Download files to main board flash memory.
FILENAME.BAS	The filename resident in the printer's memory.

Parameter	Description

NOTE:

- Filenames are case sensitive.
- File extensions must be ".BAS".
- Filenames must be in 8.3 format.
- It should be used with the EOP command.
- If memory is not specified, all files will be downloaded to DRAM.
- The priority of AUTO.BAS in each memory device is as follows:
  - DRAM > FLASH > CARD (Ext. FLASH)

No Battery is used to back up files in DRAM, which will be lost if the printer's power is lost.

2. Download a data file:

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

Parameter	Description
n	Specifies the memory location to save downloaded files. **N is ignored**: Download files to DRAM only. To save files from DRAM to Flash memory before turning off the power, issue the MOVE command to the printer. **F**: Download files to main board flash memory.
FILENAME	The name of the 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 the printer.

NOTE:

- For text data files, CR (carriage return) 0x0D and LF (Line Feed) 0x0A are the separators of data.
- If memory is not specified, all files will be downloaded to DRAM.
- There is no battery backup for files in DRAM, so they will be lost if the printer's power is lost.
- When writing a download program, the “DOWNLOAD” header must be placed at the beginning of the file, and “EOP” must be placed at the end of the program.
- To run the program, use the RUN command to start the download program.

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

Sample Code (The example program listed below will download to printer flash memory.)
DOWNLOAD F, “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 program. To declare the start and end of BASIC language commands used in a program. DOWNLOAD "FILENAME.BAS" must be added as the first line of the program, and the "EOP" statement as the last line of program.

Syntax

EOP

FILES

Description

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

Syntax

FILES

Example

Sample Code	Result
FILES	---------- DRAM FILE (0 FILES) ---------- PHYSICAL 2560 KBYTES AVAILABLE 256 KBYTES ---------- ---------- FLASH FILE (0 FILES) ---------- PHYSICAL 4096 KBYTES AVAILABLE 2560 KBYTES ----------

KILL

Description

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

Syntax

KILL [n], "FILENAME"

Parameter	Description
n	Specifies the memory location from which files will be deleted. **N is ignored**: Kills files saved in DRAM. **F**: Kills files from the main board flash memory.
FILENAME	The name of the data file that deletes from the printer memory (case sensitive).

NOTE:

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

Syntax examples:

KILL "FILENAME"	Delete the specified file in DRAM.
KILL "*"	Delete all files in DRAM.
KILL "*.PCX"	Delete all PCX files in DRAM.
KILL F, "FILENAME"	Delete the specified file in FLASH.

RUN

Description

This command executes a program residing in the printer's memory.

Syntax

RUN "FILENAME.BAS"

NOTE:

- The file name is case sensitive.
- The file must be in “FILENAME.BAS” format.

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"	DEMO PROGRAM

OUT

Description

This command returns data through a specific port.

Syntax

OUT [port] "prompt",variable

OUT [port] "prompt";variable

Parameter	Description
port	Optional. Specifies the port for returning data/string. By default, the data/string is returned from the port that sends data to the printer. **COM**: Returning data/string from the COM port. **USB**: Returning data/string from the USB port. **NET**: Returning data/string from the LAN port.
Prompt	Prompt string.
Variable	The output message.
,	The "prompt" and "variable" are separated by <0x0D><0x0A>.
;	The "variable" follows the "prompt" directly.

NOTE: Port parameter only supports USB.

SET COUNTER

Description

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

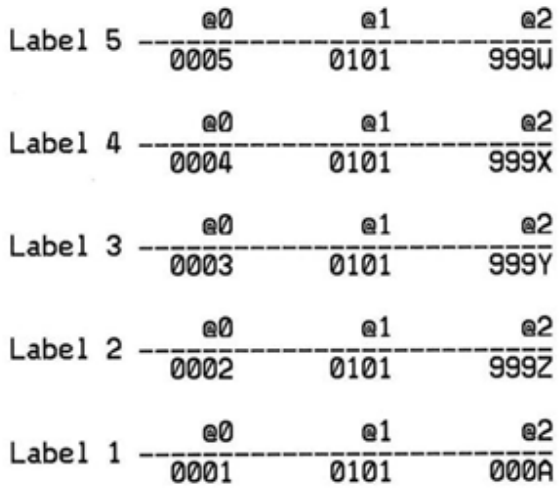
Syntax

SET COUNTER @n step

@n="Expression"

Parameter	Description
@n	n: counter number. There are 61 counters available (@0 ~ @60) in the printer. @0 to @50 will be cleared upon restarting the printer. @51 to @60 will be stored in the printer until the printer is restored to factory default.
Step	-999999999 <= step <= 999999999 If the counter is used as a fixed variable, set the increment to 0.
Expression	Initial string. The string length is 101 bytes.

Example

Sample Code	Result
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	

SET TEAR

Description

This command is used to enable/disable the feeding of labels to the gap/black mark position for tearing off.

This setting will be saved in the printer's memory when the printer is turned off.

Syntax

SET TEAR ON/OFF

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 printing. The beginning of the label will be aligned to the printhead.

Example

Sample Code
SIZE 3,3 GAP 0.08,0 DENSITY 8 SPEED 4 DIRECTION 0 REFERENCE 0,0 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 or disable ribbon sensor detection (Thermal Transfer Printing/Thermal Direct Printing). The printer will detect the presence of a ribbon to determine whether to use direct thermal or thermal transfer printing upon startup. This setting will NOT be saved in printer memory.

Syntax

SET RIBBON ON/OFF

Parameter	Description
ON	Thermal transfer printing
OFF	Thermal direct printing

SET PRINTKEY

Description

This command prints one label and feeds the label gap to the tear bar position for tearing away. Press the FEED button to print the next label or batch of labels. If the label content includes serial text or a barcode, it will update the serial number accordingly. This setting is saved in the printer's memory.

Syntax

SET PRINTEKY OFF/ON/AUTO/<num>

Parameter	Description
OFF	Disable this function.
ON	Enable this function.
AUTO	Enable this function.
<num>	Numbers of labels will be printed if FEED button is pressed.

Example

Sample Code
SIZE 4,2.5 GAP 0.12,0 SET PRINTKEY ON SET COUNTER @0 1 @0= "0001" CLS TEXT 10,10, "5",0,1,1,@0 PRINT 1

Sample Code		
Execute:		
Syntax	**Receive "PRINT"**	**Print Out**
SET PRINTKEY ON or **SET PRINTKEY AUTO**	**Receive "PRINT m"**	
	1. PRINT 2	Label 1~2
	2. Press FEED key	Label 3~4
	Receive "PRINT m,n"	
	1. PRINT 1,2	Label 1, Label 1
	2. Press FEED key	Label 2, Label 2
	Receive "PRINT -1,n"	
	1. PRINT -1,2	Label 1, Label 1
	2. Press FEED key	Label 1, Label 1

Syntax	Receive "PRINT"	Print Out
SET PRINTKEY 5	**Receive "PRINT m"**	
	1. PRINT 2	Label 1~2
	2. Press FEED key	Label 3~7
	Receive "PRINT m,n"	
	1. PRINT 1,2	Label 1, Label 1
	2. Press FEED key	Label 2~6
	Receive "PRINT -1,n"	
	1. PRINT -1,2	Label 1, Label 1
	2. Press FEED key	Label 1, Label 1

GETSETTING$()

Description

This command is used to get printer settings.

Syntax

GETSETTING$ (app$,sec$,key$)

Parameter			Description
app$	**sec$**	**key$**	
CONFIG	TSPL	PAPER SIZE	Return paper size
		PAPER WIDTH	Return paper width
		REFERENCE X	Return REFERENCE X value
		REFERENCE Y	Return REFERENCE Y value
		GAP SIZE	Return gap size

Parameter			Description
app$	sec$	key$	
		GAP OFFSET	Return gap offset
		BLINE SIZE	Return black mark size
		BLINE OFFSET	Return black mark offset
		DIRECTION	Return printing direction
		MIRROR	Return mirror status
		SHIFT X	Return SHIFT X value
		SHIFT Y	Return SHIFT Y value
		SPEED	Return print speed
		CODEPAGE	Return CODEPAGE
		PRINT KEY	Return print key
		DENSITY	Return print density
		OFFSET	Return OFFSET value
		PRINT MODE	Return print mode
	SENSOR	SENSOR TYPE	Return sensor type

@LABEL

Description

This variable counts how many pieces of labels have been printed. This attribute cannot be initialized if the printer is reset, but will be retained if the printer power is turned off.

Syntax

Write attribute: @LABEL=n or @LABEL="n"

Read attribute: @LABEL

Parameter	Description
n	Number of labels printed. 0<=n<=999999999