Mobile Printer

Command Manual

Ver. 1.0

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1.1. Print Commands.

Woosim Printer supports the following commands for printing character and advancing paper.

Command	Name
LF	Print and line feed
ESC J	Print and feed paper
ESC d	Print and feed **n** lines
FF	Print and return to standard mode (in page mode)
ESC FF	Print data in page mode

LF

[Name]	Print and line feed			
[Format]	ASCII	LF		
	HEX	0A		
	Decimal	10		
[Description]	Prints the data in the print buffer and feeds one line based on the current line spacing.			
[Note]	This command sets the print position to the beginning of the line.			
[Reference]	**ESC 2, ESC 3**			

ESC J n

[Name]	Print and feed paper.			
[Format]	ASCII	ESC	J	n
	HEX	1B	4A	n
	Decimal	27	74	n
[Range]	$0 \leq n \leq 255$			
[Description]	Prints the data in the print buffer and feeds the paper **n** dots.			

ESC d n

[Name] Print and feed n lines

[Format]

ASCII	ESC	d	n
HEX	1B	64	n
Decimal	27	100	n

[Range] $0 \le n \le 255$

[Description] Prints the data in the print buffer and feeds n lines (text line).

[Note] 1) This command sets the print starting position to the beginning of the line.

2) This command does not affect the line spacing set by **ESC 2** or **ESC 3**.

[Reference] **ESC 2, ESC 3**

FF

[Name] Print and return to standard mode in page mode.

[Format]

ASCII	FF
HEX	0C
Decimal	12

[Description] Prints the data in the print buffer collectively and returns to standard mode.

[Note] 1) The buffer data is deleted after being printed.

2) The printing area set by **ESC W** is reset to the default setting.

3) This command sets the print position to the beginning of the line.

4) This command is enabled only in page mode.

[Reference] **ESC FF, ESC L, ESC S**

ESC FF

[Name] Print data in page mode.

[Format]

ASCII	ESC	FF
HEX	1B	0C
Decimal	27	12

[Description] In page mode, prints all buffered data in the printing area collectively.

[Note] This command is enabled only in page mode.

After printing the printer does not clear the buffered data, setting values for **ESC T** and **ESC W**, and the position for buffering.

[Reference] **FF, ESC L, ESC S**

1.2. Line Spacing Commands.

Woosim Printer supports the following commands for setting line spacing.

These commands only set the line spacing; they do not actually advance the paper.

The line spacing set using these commands affects the results of **LF** and **ESC d**.

Command	Name
ESC 2	Select default line spacing
ESC 3	Set line spacing

ESC 2

[Name]	Select default line spacing			
[Format]	ASCII	ESC	2	
	HEX	1B	32	
	Decimal	27	50	
[Description]	Selects 30 dots (approximately 3.75mm) spacing.			
[Note]	The line spacing can be set independently in standard mode and in page mode.			
[Reference]	**ESC 3**			

ESC 3 n

[Name]	Set line spacing			
[Format]	ASCII	ESC	3	n
	HEX	1B	33	n
	Decimal	27	51	n
[Range]	$0 \le n \le 255$			
[Description]	Sets the line spacing to **n** dots.			
[Note]	The line spacing can be set independently in standard mode and in page mode.			
[Reference]	**ESC 2**			

1.3. Character Commands.

Woosim Printer supports the following commands for setting character font and size.

Command	Name
ESC SP	Set right-side character spacing
ESC R	Select an international character set
ESC !	Select print mode
ESC -	Turn underline mode on/off
ESC E	Turn emphasized mode on/off
ESC t	Select character code table
ESC {	Turn upside-down mode on/off
GS !	Select character size
GS B	Turn white/black reverse printing mode on/off

ESC SP n

[Name]	Set right-side character spacing.			
[Format]	ASCII	ESC	SP	n
	HEX	1B	20	n
	Decimal	27	32	n
[Range]	$0 \le n \le 255$			
[Description]	Sets the character spacing for the right side of the character to **n** dots.			
[Note]	1) The right side character spacing for double-width mode is twice the normal value. When characters are enlarged, the right side character spacing is also enlarged. 2) This command sets values independently in page or standard mode.			
[Default]	n = 0			

ESC R n

[Name] Select an international character set.

[Format]

ASCII	ESC	R	n
HEX	1B	52	n
Decimal	27	82	n

[Range] $0 \le n \le 10$

[Description] Selects an international character set **n** from the following table.

[Default] n = 0

n	Character set	n	Character set	n	Character set
0	U.S.A	**5**	Sweden	**10**	Denmark II
1	France	**6**	Italy		
2	Germany	**7**	Spain		
3	U.K	**8**	Japan		
4	Denmark I	**9**	Norway		

ESC t n

[Name] Select character code table.

[Format]

ASCII	ESC	t	n
HEX	1B	74	n
Decimal	27	116	n

[Range] $0 \le n \le 5$

n = 255

[Description] Selects a code page ***n*** from the character code table as follows.

The alphanumeric characters (20H (decimal 32) to 7FH (decimal 127)) are the same for each page.

The extended characters (80H (decimal 128) to FFH (decimal 255)) are different for each page.

[Note] See Appendix A (Character code tables).

[Default] n = 0 (specially, default can be other)

n	Character Code Table
0	Page 0 [PC437 (USA, Standard Europe)]
1	Page 1 [Katakana]
2	Page 2 [Multilingual PC850]
3	Page 3 [Portuguese PC860]
4	Page 4 [Canadian-French PC863]
5	Page 5 [Nordic PC865]
255	Page 255 [Select DBCS(Japanese etc.)]

ESC ! n

[Name] Select print mode.

[Format]

ASCII	ESC	!	n
HEX	1B	21	n
Decimal	27	33	n

[Range] $0 \le n \le 255$

[Description] Select print mode(s) using n as follows.

[Note]

1) When both double-height and double-width modes are selected, quadruple size characters are printed.

2) The printer can underline all characters, but can not underline the space set By **HT**.

3) The thickness of the underline is that selected by **ESC -**, regardless of the character size.

4) **ESC -** can also turn on or off underline mode. However, the setting of the last received command is effective.

5) **GS !** can also select character size. However, the setting of the last received command is effective.

[Reference] **ESC -, ESC E, GS !**

Bit	Binary	Hex	Function
0 ~ 2	xxxx x000	00	Character font A (12 x 24)
	xxxx x001	01	Character font B (9 x 24)
	xxxx x010	02	Character font C (8 x 16)
	xxxx x011	03	Reserved
	xxxx x100	04	Reserved
	xxxx x101	05	Reserved
	xxxx x110	06	Reserved
	xxxx x111	07	Reserved
3	xxxx 0xxx	00	Emphasized mode not selected
	xxxx 1xxx	08	Emphasized mode selected
4	xxx0 xxxx	00	Double-height mode not selected
	xxx1 xxxx	10	Double-height mode selected
5	xx0x xxxx	00	Double-width mode not selected
	xx1x xxxx	20	Double-width mode selected
6	x0xx xxxx	00	Reserved
	x1xx xxxx	40	Reserved
7	0xxx xxxx	00	Underline mode not selected
	1xxx xxxx	80	Underline mode selected

ESC - n

[Name] Turn underline mode on/off

[Format]

ASCII	ESC	-	n
HEX	1B	2D	n
Decimal	27	45	n

[Range] $0 \le n \le 2$

$48 \le n \le 50$

[Description] Turns underline mode on or off, based on the following values of n;

n	Function
0, 48	Turns off underline mode
1. 49	Turns on underline mode (1 dot thick).
2, 50	Turns on underline mode (2 dot thick)

[Notes] 1) The printer can underline all characters (including right-side character spacing), but cannot underline the space set by **HT**.

2) The printer cannot underline white/black inverted characters.

3) When underline mode is turned off by setting the value of n to 0 or 48, the following data is not underlined, and the underline thickness set before the mode is turned off does not change.

The default underline thickness is 1 dot.

4) Changing the character size does not affect the current underline thickness

5) Underline mode can also be turned on or off by using **ESC !**.

However, that the last received command is effective.

[Default] n = 0

[Reference] **ESC !**

ESC E n

[Name] Turn emphasized mode on/off.

[Format]

ASCII	ESC	E	n
HEX	1B	45	n
Decimal	27	69	n

[Range] $0 \le n \le 255$

[Description] Turns emphasized mode on or off.

When the LSB(least significant bit) is 0, emphasized mode is turned off.

When the LSB(least significant bit) is 1, emphasized mode is turned on.

[Note] 1) Only the least significant bit of **n** is available.

2) This command and **ESC !** turn on and off emphasized mode in the same way. Be careful when this command is used with **ESC !**.

[Default] n = 0

[Reference] **ESC !**

ESC { n

[Name] Turn upside-down printing mode on/off.

[Format]

ASCII	ESC	{	n
HEX	1B	7B	n
Decimal	27	123	n

[Range] $0 \le n \le 255$

[Description] Turns upside-down printing mode on or off

When the LSB is 0, upside-down mode is turned off.

When the LSB is 1, upside-down mode is turned on.

[Note] 1) Only the least significant bit of **n** is available.

2) This command is enabled only when processed at the beginning of a line in standard mode.

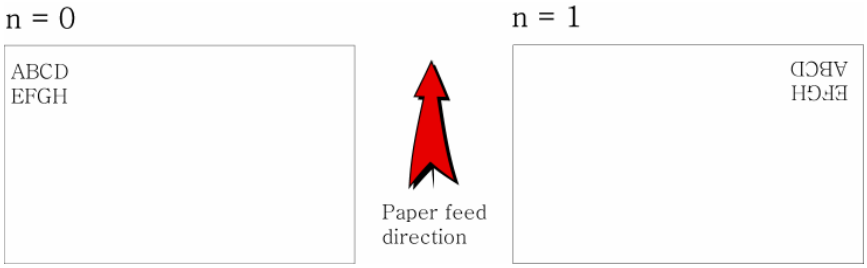
3) When this command is input in page mode, the printer performs only internal flag operations.

4) This command does not affect printing in page mode.

5) In upside-down printing mode, the printer rotates the line to be printed by 180 degree and then prints it.

[Default] n = 0

[Example]



GS ! n

[Name] Select character size

[Format]

ASCII	GS	!	n
HEX	1D	21	n
Decimal	29	33	n

[Range] 0 ≤ bit0~2 ≤ 7, 0 ≤ bit4~6≤ 7

[Description] (1 ≤ vertical number of times normal font size ≤ 8,
1 ≤ horizontal number of times normal font size ≤ 8)

Selects the character height using bits 0 to 2 and selects the character width using bit 4 to 6, as follows;

[Notes] 1) This command is effective for all characters.

2) The bit 3 and bit 7 are ignored.

3) In standard mode, the vertical direction is the paper feed direction, and the horizontal direction is perpendicular to the paper feed direction.

4) In page mode, vertical and horizontal directions are based on the character orientation.

5) The **ESC !** command can also turn double width and double height modes on or off.

Hex	Decimal	Height
00	0	1 (normal)
01	1	2 (double Height)
02	2	3
03	3	4
04	4	5
05	5	6
06	6	7
07	7	8

Character Height Selection

Hex	Decimal	Width
00	0	1 (normal)
10	16	2 (double Width)
20	32	3
30	48	4
40	64	5
50	80	6
60	96	7
70	112	8

Character Width Selection

[Default] n = 0

[Reference] **ESC !**

GS B n

[Name] Turn white/black reverse printing mode on/off.

[Format]

ASCII	GS	B	n
HEX	1D	42	n
Decimal	29	66	n

[Range] $0 \le n \le 255$

[Description] Turns White/Black reverse printing mode on or off.

[Notes] 1) When the LSB is 0, white/black reverse printing mode is turned on.

2) When the LSB is 1, white/black reverse printing mode is turned off.

3) Only the lowest bit of n is valid.

4) This command is available for built in characters and user defined characters.

5) When white/black reverse printing mode is on, it also applied to character spacing set by **ESC SP**.

6) This command does not affect the space between lines.

7) White/black reverse mode has a higher priority than underline mode. Even if underline mode is on, it is disabled (but not canceled) when white/black reverse mode is selected.

[Default] n = 0

1.4. Print Position Commands.

Woosim supports the following commands for setting the print position

Command	Name
ESC $	Set absolute print position
**ESC **	Set relative print position
ESC a	Select justification
HT	Horizontal tab
ESC D	Set horizontal tab positions
GS L	Set left margin
GS W	Set printing area width
ESC W	Set printing area in page mode
ESC T	Select print direction in page mode
GS $	Set absolute vertical print position in page mode
**GS **	Set relative vertical print position in page mode
ESC O	Set print starting position.

ESC $ nL nH

[Name]	Set absolute print position				
[Format]	ASCII	ESC	$	nL	nH
	HEX	1B	24	nL	nH
	Decimal	27	36	nL	nH
[Range]	0 ≤ nL ≤ 255				
	0 ≤ nH ≤ 255				
[Description]	Set the print starting position based on the beginning of the line.				
[Notes]	1) This command moves the print starting position to (nL + nH * 256) dots from the beginning of the line.				
	2) Any setting that exceeds the printable area is ignored.				
[Reference]	**ESC \, GS $, GS **				

ESC \ nL nH

[Name]	Set relative print position				
[Format]	ASCII	ESC	\	nL	nH
	HEX	1B	5C	nL	nH
	Decimal	27	92	nL	nH
[Range]	$0 \le nL \le 255$,				
	$0 \le nH \le 255$				
[Description]	Set the print starting position based on the current position				
[Notes]	1) This command moves the print starting position to (nL + nH * 256) dots from the current position.				
	2) Any setting that exceeds the printable are is ignored				
	3) When pitch N is specified to the right, nL + nH * 256 = N				
	When pitch N is specified to the left (the negative direction), use the complement of 65536.				
[Reference]	**ESC $**				

ESC a n

[Name] Select justification

[Format]

ASCII	ESC	a	n
HEX	1B	61	n
Decimal	27	97	n

[Range] $0 \le n \le 2$

$48 \le n \le 50$

[Description] Aligns the character data in one line to the specified position.

n selects the type of justification as follows;

n	Justification
0, 48	Left justification
1, 49	Center justification
2, 50	Right justification

[Notes]

1) The command is enabled only when processed at the beginning of the line in standard mode.

2) If this command is input in page mode, the printer performs only internal flag operations.

3) This command has no effect in page mode.

4) This command executes justification in the area between the current position and the end of printing area.

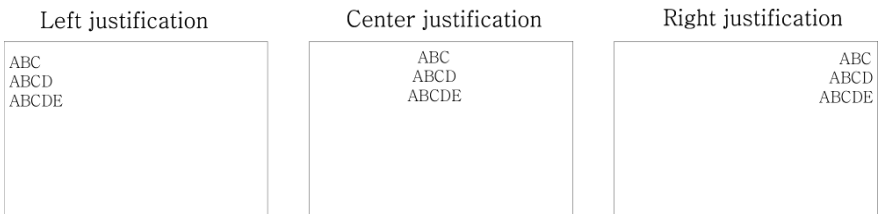
5) This command is available only with text data.

6) When this command is used, **HT, ESC $ or ESC** \ can not be used.

7) When this command is used, the top of line data has to be text data.

[Default] n = 0

[Example]



HT

[Name] Horizontal Tab

[Format] ASCII HT

HEX 09

Decimal 9

[Description] Moves the print position to the next horizontal tab position.

[Note] 1) This command is ignored unless the next horizontal tab position has been set.

2) If the next horizontal tab position exceeds the printing area, the printer executes buffer-full printing of the current line and horizontal tab processing from the beginning of the next line.

3) Horizontal tab positions are set with **ESC D**.

4) The default tab positions are every 0 characters.

[Reference] **ESC D**

ESC D n1…nk NUL

[Name] Set horizontal tab positions.

[Format]

ASCII	ESC	D	n1…nk	NUL
HEX	1B	44	n1…nk	00
Decimal	27	68	n1…nk	0

[Range] $1 \leq n \leq 255$, $1 \leq k \leq 32$

[Description] Set horizontal tab position

[Notes] 1) **n** specifies the column number from the beginning of the line.

2) **k** indicates the total number of horizontal tab positions to be set.

3) This command cancels the previous horizontal tab settings.

4) When setting n=8, the print position is moved to column 9 by sending HT.

5) Data exceeding 32 tab positions is processed as normal data.

6) Transmit [n]k in ascending order and place a NUL(00H) at the end.

7) When [n]k is less than or equal to the preceding value [n]k-1, tab setting is finished and the following data is processed as normal data.

8) **ESC D** NUL cancels all horizontal tab positions.

[Default] The default tab positions are at intervals of 0 characters.

[Reference] **HT**

GS L nL nH

[Name] Set left margin.

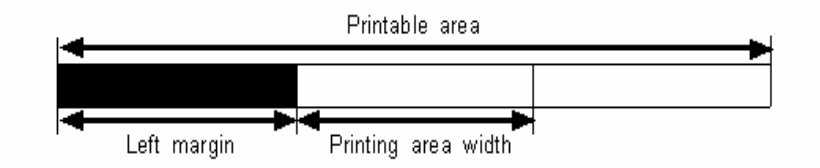
[Format]

ASCII	GS	L	nL	nH
HEX	1D	4C	nL	nH
Decimal	29	76	nL	nH

[Range] $0 \le nL \le 255$, $0 \le nH \le 255$

[Description] Set the left margin using nL and nH.

[Notes] 1) The left margin is set to (nL + nH *256) dots.



2) In page mode, the printer performs only internal flag operations.

3) This command does not affect printing in page mode.

4) If the setting exceeds the printable area, this command is ignored.

5) If any data in buffer exists the printer prints out the data and then executes this command.(It's same as <CR> <GS> L)

[Default] nL = 0, nH = 0

[Reference] **GS W**

GS W nL nH

[Name] Set printing area width

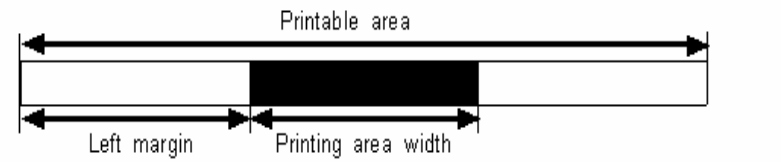
[Format]

ASCII	GS	W	nL	nH
HEX	1D	57	nL	nH
Decimal	29	87	nL	nH

[Range] $0 \le nL \le 255$, $0 \le nH \le 255$

[Description] Sets the printing area width to the area specified by nL and nH.

[Notes] 1) The printing area width is set to (nL+nH *256) dots.



2) In page mode, the printer performs only internal flag operations.

3) This command does not affect printing in page mode.

4) If the [left margin + printing area width] exceeds the printable area, this command is ignored.

5) If any data in buffer exists the printer prints out the data and then executes this command.(It's same as <CR> <GS> W)

[Default] **2** inch product : nL = 128, nH = 1

3 inch product : nL = 64, nH = 2

4 inch product : nL = 64, nH = 3

[Reference] **GS L**

ESC W xL xH yL yH dxL dxH dyL dyH

[Name] Set printing area in page mode

[Format]

ASCII	ESC	W	xL	xH	yL	yH	dxL	dxH	dyL	dyH
HEX	1B	57	xL	xH	yL	yH	dxL	dxH	dyL	dyH
Decimal	27	87	xL	xH	yL	yH	dxL	dxH	dyL	dyH

[Range] $0 \le xL,xH,yL,yH,dxL,dxH,dyL,dyH \le 255$

(except for dxL=dxH=0 or dyL=dyH=0)

[Description] Sets the size and position of the printing area in page mode as follows:

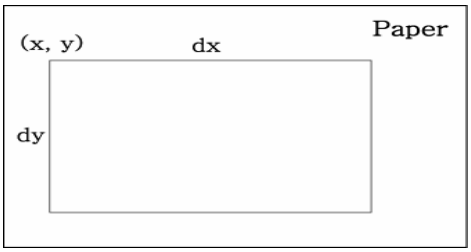
Horizontal starting position (x) = (xL + xH * 256)

Vertical starting position (y) = (yL +yH * 256)

Printing area width (dx) = (dxL + dxH * 256)

Printing area height (dy) = (dyL + dyH * 256)

The printing area is set as shown in the figure below.



[Note] 1) In standard mode, the printer executes only internal flag operation.

2) If the horizontal or vertical starting position is set outside the printable area or if the printing area width or height is set to 0, this command is ignored.

3) If (x + dx > printable area), the printing area width is set to (printable area - x).

4) If (y + dy > printable area), the printing area height is set to (printable area - y).

[Default] xL = xH = yL = yH = 0

2 inch product : dxL = 128, dxH = 1

3 inch product : dxL = 64, dxH = 2

4 inch product : dxL = 64, dxH = 3

dyL = 96, dyH = 9

[Reference] **CAN, ESC L, ESC T**

ESC T n

[Name] Select print direction in page mode

[Format]

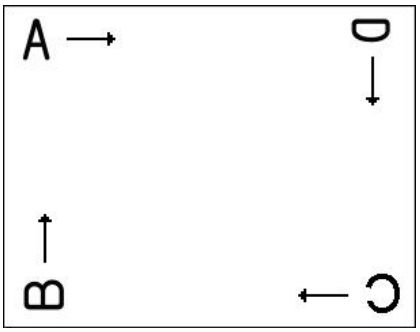
ASCII	ESC	T	n
HEX	1B	54	n
Decimal	27	84	n

[Range] $0 \le n \le 3$ or $48 \le n \le 51$

[Description] Selects the print direction and starting position in page mode.

n specifies the print direction and starting position as follows;

n	Print direction	Starting position
0,48	Left to right	Upper left (A in the figure)
1,49	Bottom to top	Lower left (B in the figure)
2,50	Right to left	Lower right (C in the figure)
3,51	Top to bottom	Upper right (D in the figure)



[Notes] 1) In standard mode, the printer executes only internal flag operation.

2) This command sets the direction and starting position in the printing area set by **ESC W**.

3) If the starting position is the upper left or lower right of the printing area, data is buffered in the direction perpendicular to the paper feed direction.

4) If the starting position is the upper right or lower left of the printing area, data is buffered in the paper feed direction.

[Default] n = 0

[Reference] **ESC $, ESC L, ESC W, ESC \, GS $, GS **

GS $ nL nH

[Name]	Set absolute vertical print position in page mode.				
[Format]	ASCII	GS	$	nL	nH
	HEX	1D	24	nL	nH
	Decimal	29	36	nL	nH
[Range]	$0 \leq nL \leq 255, 0 \leq nH \leq 255$				
[Description]	Sets the absolute vertical print starting position for buffered data in page mode.				
[Notes]	1) This command sets the absolute print position to (nL+nH * 256) dots.				
	2) This command is effective only in page mode.				
	3) If the position exceeds the specified printing area, this command is ignored.				
	4) This command operates depending on the print starting position set by **ESC T**. When the starting position is set to the upper left or lower right, this command sets the absolute position in the vertical direction. When the starting position is set to the upper right or lower left, this command sets the absolute position in the horizontal direction.				
[Reference]	**ESC $, ESC T, ESC W, ESC \, GS **				

GS \ nL nH

[Name]	Set relative vertical print position in page mode				
[Format]	ASCII	GS	\	nL	nH
	HEX	1D	5C	nL	nH
	Decimal	29	92	nL	nH
[Range]	0 ≤ nL ≤ 255, 0 ≤ nH ≤ 255				
[Description]	Sets the relative vertical print starting position from the current position.				
[Notes]	1) This command moves the vertical print starting position to (nL + nH * 256) dots from the current vertical printing position. 2) This command is effective only in page mode. 3) When pitch N is specified to the movement downward; nL + nH * 256 = N When pitch N is specified to the movement upward (the negative direction), use the complement of 65536. (nL + nH * 256 = 65536 - N) 4) Any setting that exceeds the specified printing area is ignored. 5) This command operates depending on the print starting position set by **ESC T**. When the starting position is set to the upper left or lower right, this command sets the absolute position in the vertical direction. When the starting position is set to the upper right or lower left, this command sets the absolute position in the horizontal direction.				
[Reference]	**ESC $, ESC T, ESC W, ESC \, GS $,**				

ESC O xL xH yL yH

[Name]	Set print starting position.							
[Format]	ASCII	ESC	O	xL	xH	yL	yH	
	HEX	1B	4F	xL	xH	yL	yH	
	Decimal	27	79	xL	xH	yL	yH	
[Description]	Set horizontal starting position and vertical starting position in page mode. Horizontal starting position = xL + xH * 256 Vertical starting position = yL + yH * 256							
[Note]	This command is effective only in page mode.							

1.5. Bit-Image Commands.

Woosim Printer supports the following bit-image command.

Command	Name
ESC *	Select bit image mode
ESC X 4	Define user-defined bit image

ESC * m nL nH d1 dk

[Name] Select bit-image mode.

[Format]

ASCII	ESC	*	m	nL	nH	d1…dk
HEX	1B	2A	m	nL	nH	d1…dk
Decimal	27	42	m	nL	nH	d1…dk

[Range] m = 0,1,32,33

$0 \le nL \le 255$

$0 \le nH \le 3$

$0 \le d \le 255$

[Description] Selects a bit-image mode using m for the number of dots specified by nL and nH, as follows:

m	mode	Vertical direction		Horizontal direction	
		Number of Dots	Dot density	Dot density	Number of Data
0	8 dot single density	8	≒68 DPI	≒102 DPI	nL+nH*256
1	8 dot double density	8	≒68 DPI	≒203 DPI	nL+nH*256
32	24 dot single density	24	≒203 DPI	≒102 DPI	(nL+nH*256)*3
33	24 dot double density	24	≒203 DPI	≒203 DPI	(nL+nH*256)*3

[Notes]

1) If the values of m is out of the specified range, nL and data following are processed an normal data.

2) The nL and nH indicate the number of dots of the bit image in the horizontal direction.

3) The number of dots is calculated by nL + nH * 256.

4) If the bit-image data input exceeds the number of dots to be printed on a line, the excess data is ignored.

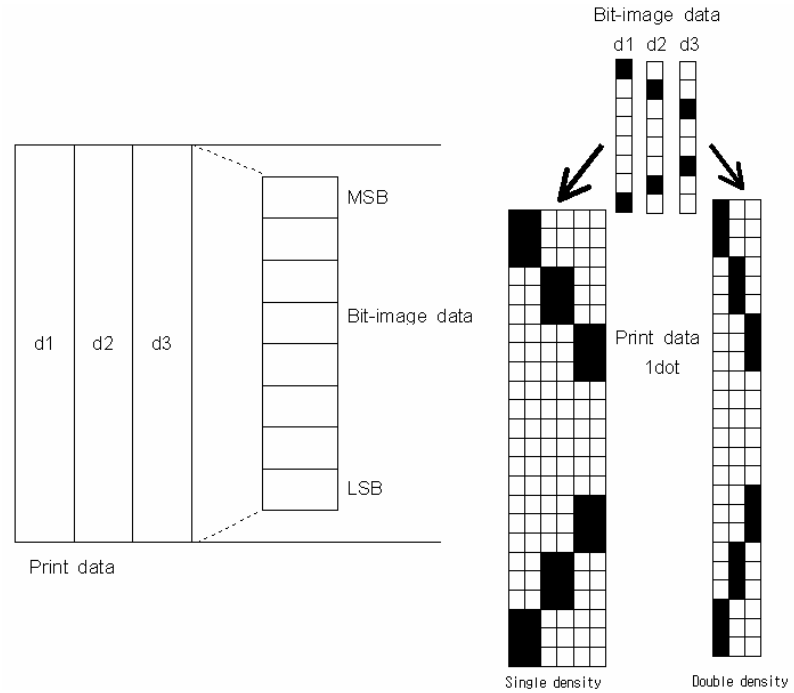
5) d indicates the bit-image data. set a corresponding bit to 1 to print a dot or to 0 to not print a dot.

6) After printing a bit image, the printer returns to normal data processing mode.

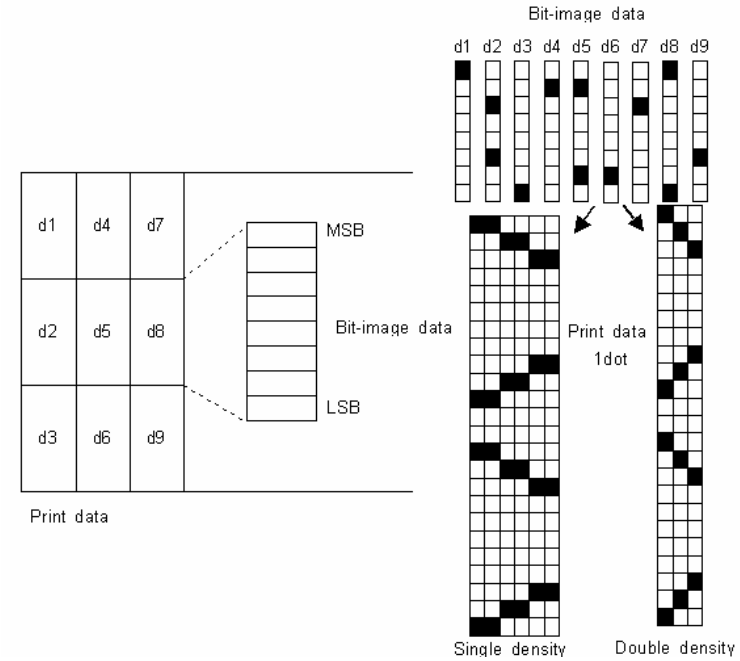
7) This command is not affected by print modes (emphasized, underline, character size or White/Black reverse printing), except upside-down printing mode.

8) The relationship between the image data and the dots to be printed is as follows;

- When 8-dot bit image is selected



- When 24-dot bit image is selected



ESC X 4 x y d1…dk

[Name] Define user-defined bit-image

[Format]

ASCII	ESC	X	4	x	y	d1…dk
HEX	1B	58	34	x	y	d1…dk
Decimal	27	88	52	x	y	d1…dk

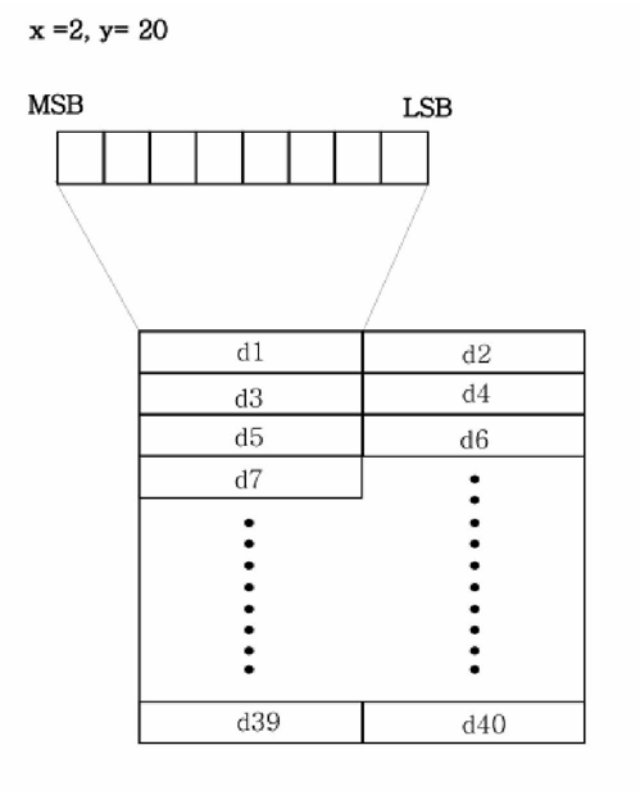
[Description] **ESC X 4** ***x y d1*** ... ***d(***x * y***)*** defines a user-defined bit image using ***x***.

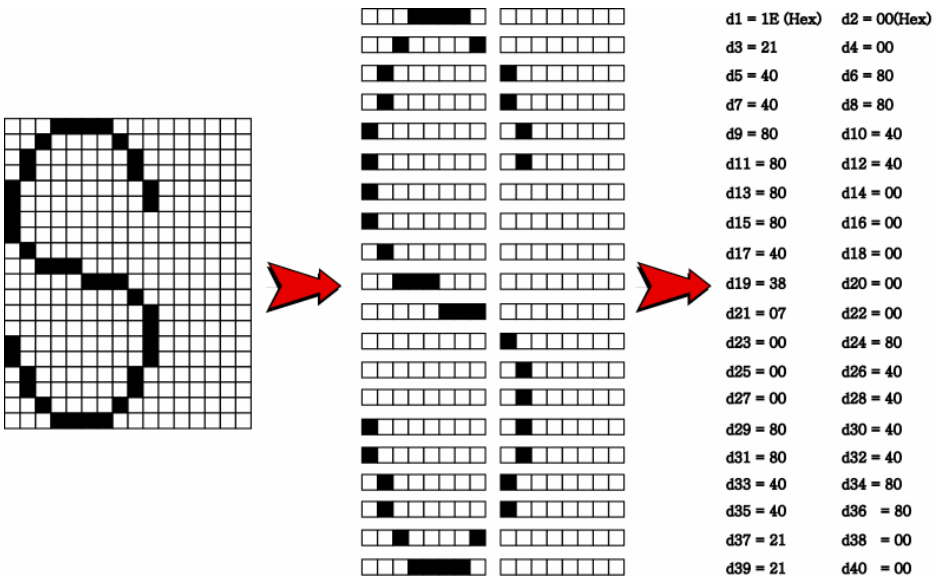
8 dots in the horizontal direction and ***y*** dots in the vertical direction.

- Horizontal direction dots = (x * 8)dots

- Vertical direction dots = (y)dots

[Note] Defined bit-image can be printed by LF command, but if image is continuously printed there will be one-line gap between images.





[Reference] **ESC W, ESC O, FF**

ESC X 2 y

[Name] Print user-defined bit-image

[Format]

ASCII	ESC	X	2	y
HEX	1B	58	32	y
Decimal	27	88	50	y

[Range] 1 <= y <= 255

[Description] **ESC X 2** command is for printing Bit-Image.

The value of y must be same as the value of y of **ESC X 4**.

[Note] 1) Defined bit-image can be printed by this command, and if image is continuously printed by it there will be no gap between images.

2) To perform efficient (high throughput) print, use this command instead of ESC X 4 with LF command.

1.6. Status Commands.

Woosim Printer supports the following status commands.

Command	Name
ESC v	Transmit printer status
DLE EOT EOT	Real-time printer status transmission

ESC v

[Name] Transmit printer status

[Format]

ASCII	ESC	v
HEX	1B	76
Decimal	27	118

[Description] transmits the printer status.

① SM-S2xx(SC40N), SM-S4xx(WC40)

These products have only one paper sensor.

Therefore the printer status means paper in or paper out.

Printer Status	
Paper IN	**Paper OUT**
0 (30H)	1 (31H)

② SM-Txx(i350), SM-S3xx(SWC40)

The SM-Txx(i350) has paper sensor, mark sensor and cover sensor.

The SM-S3xx(SWC40) has paper sensor and mark sensor but cover sensor is optional.

Normal status value is 0(30H) or 4(34H).

Bit	0 / 1	Status
0	0	Paper sensor : paper present
	1	Paper sensor : paper not present
1	0	Cover sensor : cover closed
	1	Cover sensor : cover opened
2	0	Mark sensor : mark found
	1	Mark sensor : mark not found
3	-	Not used
4	1	Fixed
5	1	Fixed
6	-	Not used
7	-	Not used

[Reference] **DLE EOT EOT**

DLE EOT EOT

[Name] Real-time printer status transmission

[Format]

ASCII	DLE	EOT	EOT
HEX	10	04	04
Decimal	16	4	4

[Description] transmits real time printer status.

[Notes] The printer status value is same as **ESC v**.

[Reference] **ESC v**

1.7. Barcode Commands.

The **Woosim Printer** supports the following barcode commands.

Command	Name
GS h	Set barcode height
GS w	Set barcode width
GS k	Print bar code
GS H	Turn Human Readable Interpretation (HRI) characters print mode on/off.

GS h n

[Name]	Set barcode height			
[Format]	ASCII	GS	h	n
	HEX	1D	68	n
	Decimal	29	104	n
[Range]	$0 \leq n \leq 255$			
[Description]	Sets the height of a barcode by dot unit.			
[Default]	n = 60			

GS w n

[Name] Set barcode width

[Format]

ASCII	GS	w	n
HEX	1D	77	n
Decimal	29	119	n

[Range] $1 \leq n \leq 8$

[Description] Sets the width of a barcode by dot unit.

If the value of n is out of area, this command is ignored.

[Note] This command affects to PDF417 code print.

[Default] n = 2

n	Multi − Level Barcode Module width(mm)	Binary Level Barcode	
		Thin Element width(mm)	Thick Element width(mm)
1	0.125	0.125	0.375 (= 0.125 * 3)
2	0.25	0.25	0.625 (= 0.25 * 2.5)
3	0.375	0.375	1.125 (= 0.375 * 3)
4	0.5	0.5	1.25 (= 0.5 * 2.5)
5	0.625	0.625	1.875 (= 0.625 * 3)
6	0.75	0.75	1.875 (= 0.75 * 2.5)
7	0.875	0.875	2.625 (= 0.875 * 3)
8	1.0	1.0	2.5 (= 1.0 * 2.5)

GS k m d1…dk NUL □GS k m n d1…dn

[Name] Print barcode

[Format]

□ASCII	GS	k	m d1…dk NUL
HEX	1D	6B	m d1…dk 00
Decimal	29	107	m d1…dk 0
□ ASCII	GS	k	m n d1…dn
HEX	1D	6B	m n d1…dn
Decimal	29	107	m n d1…dn

[Range] □ 0 ≤ m ≤ 6 (k and d depends on the bar code system used.)

□ 65 ≤ m ≤ 73 (n and d depends on the bar code system used.)

[Description] Selects a barcode system and print the barcode.

Each **m** specifies a barcode system as follows;

GS k m d1…dk NUL

m	Barcode System	Number of character	Remarks
0	UPC-A	11 ≤ k ≤ 12	48 ≤ d ≤ 57
1	UPC-E	11 ≤ k ≤ 12	48 ≤ d ≤ 57
2	EAN13	11 ≤ k ≤ 13	48 ≤ d ≤ 57
3	EAN8	7 ≤ k ≤ 8	48 ≤ d ≤ 57
4	CODE39	1 ≤ k	48 ≤ d ≤ 57, 65 ≤ d ≤ 90, d = 32, 36, 37, 43, 45, 46,47
5	ITF	1 ≤ k (even number)	48 ≤ d ≤ 57
6	CODABAR	1 ≤ k	48 ≤ d ≤ 57, 65 ≤ d ≤ 68, d = 36, 43, 45, 46, 47, 58

GS k m n d1…dn

m	Barcode System	Number of characters	Remarks
65	UPC-A	11 ≤ n ≤ 12	48 ≤ d ≤ 57
66	UPC-E	11 ≤ n ≤ 12	48 ≤ d ≤ 57
67	EAN13	11 ≤ n ≤ 13	48 ≤ d ≤ 57
68	EAN8	7 ≤ n ≤ 8	48 ≤ d ≤ 57
69	CODE39	1 ≤ n ≤ 255	48 ≤ d ≤ 57, 65 ≤ d ≤ 90, d = 32, 36, 37, 43, 45, 46,47
70	ITF	1 ≤ n ≤ 255 (even number)	48 ≤ d ≤ 57
71	CODABAR	1 ≤ n ≤ 255	48 ≤ d ≤ 57, 65 ≤ d ≤ 68, d = 36, 43, 45, 46, 47, 58
72	CODE93	1 ≤ n ≤ 255	0 ≤ d ≤ 127
73	CODE128	2 ≤ n ≤ 255	0 ≤ d ≤ 127 d=C1H (FNC1) d=C2H (FNC2) d=C3H (FNC3) d=C4H (FNC4)

[Notes] 1) The **GS k m d1…dk NUL** command must be terminated by **NUL**.

2) In the **GS k m n d1…dn** command, **n** is the number of data.

3) When the number of data for ITF barcode is odd, the printer adds 0 (30H) in front of the first data.

4) Be sure to keep spaces on both right and left sides of a bar code. Spaces are different depending on the type of the bar code.

[Reference] **GS h, GS w, GS H, ESC L, ESC W, ESC FF**

GS H n

[Name]	Turn HRI characters print mode on/off			
[Format]	ASCII	GS	H	n
	HEX	1D	48	n
	Decimal	29	72	n
[Range]	n = 0, 1, 48 or 49			
[Description]	Turns HRI characters print mode on or off.			
	When the LSB(least significant bit) of **n** is 1, the mode is turned on;			
	When the LSB is 0, the mode is turned off.			
[Note]	This command affects to PDF417 code print.			
[Default]	n = 0			

GS Z n

[Name] Select 2D barcode type

[Format]

ASCII	GS	Z	n
HEX	1D	5A	n
Decimal	27	90	n

[Range] n=0 : PDF417 (default)

n=1 : DATAMATRIX (ECC200)

n=2 : QR-CODE

ESC Z m n k d d1…dn

[Name] Print 2D barcode

[Format]

ASCII	ESC	Z	m	n	k	d	d1…dn
HEX	1B	5A	m	n	k	d	d1…dn
Decimal	27	90	m	n	k	d	d1…dn

[Description] PDF417 :

m specifies column number of 2D bar code. ($1 \leq m \leq 30$)

n specifies security level to restore when bar code image is damaged.($0 \leq n \leq 8$)

k is used for define horizontal and vertical ratio.($2 \leq k \leq 5$)

d is consist of 2 byte. 1st byte is lower number and 2nd byte is upper number.

The size of **PDF417** is influenced by barcode width command (**GS w n**).

DATAMATRIX (ECC200) :

m specifies height of the symbol. (0:auto size)

n specifies width of the symbol. (0:auto size)

k specifies module size. (1~8)

d is consist of 2 byte. 1st byte is lower number and 2nd byte is upper number.

When **m** or **n** is 0, the printer selects the barcode size automatically.

The auto sized method are recommended.

<< Table for DATAMATRIX (ECC200) size >>

Symbol - size		Capacity (bytes)			ECC(%)	Remark
Row	Column	Numeric	Alpa-numeric	Byte (8bit)		
10	10	6	3	3	62.5	
12	12	10	6	5	58.3	
8	18	10	6	5	58.3	rectangular
14	14	16	9	8	55.6	
8	32	20	12	10	52.4	rectangular
16	16	24	15	12	50.0	
12	26	32	21	16	46.7	rectangular
18	18	36	24	18	43.8	
20	20	44	30	22	45.0	
12	36	44	30	22	45.0	rectangular
22	22	60	42	30	40.0	
16	36	34	45	32	42.9	rectangular
24	24	72	51	36	40.0	
26	26	88	63	44	38.9	
16	48	98	72	49	36.4	rectangular
32	32	124	90	62	36.7	
36	36	172	126	86	32.8	
40	40	228	168	114	29.6	
44	44	288	213	144	28.0	

(continued)

Symbol - size		Capacity (bytes)			ECC(%)	Remark
Row	Column	Numeric	Alpa-numeric	Byte (8bit)		
48	48	348	258	174	28.1	
52	52	408	303	204	29.2	
64	64	560	417	280	28.6	
72	72	736	549	368	28.1	
80	80	912	681	456	29.6	
88	88	1152	861	576	28.0	
96	96	1392	1041	696	28.1	
104	104	1632	1221	816	29.2	
120	120	2100	1572	1050	28.0	
132	132	2608	1953	1304	27.6	
144	144	3116	2334	1558	28.5	

Used only square type for auto-sized symbol.

QR-CODE :

m specifies version of the symbol. (1~40, 0:auto size)

n specifies EC level. (L:7%, M:15%,Q:25%,H:30%)

k specifies module size. (1~8)

d is consist of 2 byte. 1st byte is lower number and 2nd byte is upper number.

When **m** is 0, the printer selects the barcode size automatically.

The auto sized method are recommended.

<< Table for QR-CODE size (version) >>

Version	Capacity (Codewords) by EC level			
	L (7%)	M (15%)	Q (25%)	H (30%)
1	19	16	13	9
2	34	28	22	16
3	55	44	34	26
4	80	64	48	36
5	108	86	62	46
6	136	108	76	60
7	156	124	88	66
8	194	154	110	86
9	232	182	132	100
10	274	216	154	122
11	324	254	180	140
12	370	290	206	158
13	428	334	244	180
14	461	365	261	197
15	523	415	295	223
16	589	453	325	253
17	647	507	367	283
18	721	563	397	313
19	795	627	445	341

(continued)

Version	Capacity (Codewords) by EC level			
	L (7%)	M (15%)	Q (25%)	H (30%)
20	861	669	485	385
21	932	714	512	406
22	1006	782	568	442
23	1094	860	614	464
24	1174	914	664	514
25	1276	1000	718	538
26	1370	1062	754	596
27	1468	1128	808	628
28	1531	1193	871	661
29	1631	1267	911	701
30	1735	1373	985	745
31	1843	1455	1033	793
32	1955	1541	1115	845
33	2071	1631	1171	901
34	2191	1725	1231	961
35	2306	1812	1286	986
36	2434	1914	1354	1054
37	2566	1992	1426	1096
38	2702	2102	1502	1142
39	2812	2216	1582	1222
40	2956	2334	1666	1276

Codewords are calculated by data compression.

The actual data can be more than the codewords.

1.8. Miscellaneous function commands.

Woosim Printer supports the following miscellaneous function commands;

Command	Name
ESC @	Initialize printer
ESC L	Select page mode
ESC S	Select standard mode
CAN	Cancel print data in page mode

ESC @

[Name]	Initialize printer.		
[Format]	ASCII	ESC	@
	HEX	1B	40
	Decimal	27	64
[Description]	Clears the data in the print buffer and resets the printer configuration that is in effect when the power was turned on.		
[Notes]	The data in the receive buffer is not cleared.		

ESC L

[Name]	Select page mode		
[Format]	ASCII	ESC	L
	HEX	1B	4C
	Decimal	27	76
[Description]	Switches from standard mode to page mode.		
[Notes]	1) This command has effective in standard mode. 2) By **FF** or **ESC S**, the printer returns to standard mode. 3) This command sets the position to the position specified by **ESC T** within the printing area defined by **ESC W**.		

4) This command switches the settings for the following commands (in which the values can be set independently in standard mode and page mode) to those for page mode;

Set right-side character spacing : **ESC SP**

Select default line spacing : **ESC 2**, **ESC 3**

5) The printer returns to standard mode when power is turned on, the printer is reset, or **ESC @** is used.

[Reference] **FF, CAN, ESC FF, ESC S, ESC T, ESC W, GS $, GS **

ESC S

[Name] Select standard mode

[Format]

ASCII	ESC	S
HEX	1B	53
Decimal	27	83

[Description] Switches from page mode to standard mode.

[Note] 1) This command is effective only in page mode.

2) Data buffer in page mode is cleared.

3) This command sets the print position to the beginning of the line.

4) The printing area set by **ESC W** are initialized.

5) This command switches the settings for the following commands (in which the values can be set independently in standard mode and page mode) to those for standard mode;

Set right-side character spacing : **ESC SP**

Select default line spacing : **ESC 2**, **ESC 3**

6) In standard mode, the following commands are enabled only for setting.

Set printing area in page mode : **ESC W**

Select print direction in page mode : **ESC T**

7) Standard mode is selected automatically when power is turned on, the printer is reset, or command **ESC @** is used.

[Reference] **FF, ESC FF, ESC L**

CAN

[Name]	Cancel print data in page mode
[Format]	ASCII CAN
	HEX 18
	Decimal 24
[Description]	In page mode, deletes all data in the current printable area.
[Notes]	This command is enable only in page mode.
[Reference]	**ESC L, ESC W**

1.9. Line & box commands.

Woosim Printer supports the following line & box commands;

Command	Name
GS i	Print line & box in page mode

GS i

[Name]	Print line & box in page mode							
[Format]	ASCII	GS	i	xL	xH	yL	yH	n
	HEX	1D	69	xL	xH	yL	yH	n
	Decimal	29	105	xL	xH	yL	yH	n
[Description]	Print line & box in page mode							
	Horizontal length : xL + xH * 256 (dots)							
	Vertical length : yL + yH * 256 (dots)							
	Line thickness : n (dots)							
	If the horizontal length is 0, it becomes vertical line							
	If the vertical length is 0, it becomes horizontal line							
[Range]	$0 \le xL, xH, yL, yH \le 255$							
	$0 \le n \le 255$							

1.10. Magnetic Card Reader Commands.

Woosim Printer supports the following magnetic card reader commands;

Command	Name
ESC M C	Set 1 track (2 track) card reader mode.
ESC M D	Set 2 track (3 track) card reader mode.
ESC M E	Set 1,2 track (2,3 track) card reader mode.
EOT	Cancel card reader mode

ESC M C

[Name]	Set 1 track (2 track) card reader mode.			
[Format]	ASCII	ESC	M	C
	HEX	1B	4D	43
	Decimal	27	77	67
[Description]	Enter the magnetic card reader mode for 1 track (2 track).			
[Note]	The printer waits for reading the card.			
	After successful reading,			
	the printer send the data to host and exits the magnetic card reader mode.			

ESC M D

[Name]	Set 2 track (3 track) card reader mode.			
[Format]	ASCII	ESC	M	D
	HEX	1B	4D	44
	Decimal	27	77	68
[Description]	Enter the magnetic card reader mode for 2 track (3 track).			
[Note]	The printer waits for reading the card.			
	After successful reading,			
	the printer send the data to host and exits the magnetic card reader mode.			

ESC M E

[Name] Set 1,2track (2,3 track)card reader mode.

[Format]

ASCII	ESC	M	E
HEX	1B	4D	45
Decimal	27	77	69

[Description] Enter the magnetic card reader mode for 1,2 track (2,3 track).

[Note] The printer waits for reading the card.

After successful reading,

the printer send the data to host and exits the magnetic card reader mode.

EOT

[Name] Cancel card reader mode.

[Format]

ASCII	EOT
HEX	04
Decimal	4

[Description] Cancel and exit the card reader mode .

Card specification

The table below summarizes the format of the data stored on each magnetic track.

	ISO-1 Track (IATA)
Recording Density	210 BPI
Recording Capacity	79 characters
Data Format	Alphanumeric
Data Capacity	76 characters

	ISO-2 Track (ABA)
Recording Density	75 BPI
Recording Capacity	40 characters
Data Format	Numeric
Data Capacity	37 characters

	ISO-3 Track (MINTS)
Recording Density	210 BPI
Recording Capacity	107 characters
Data Format	Numeric
Data Capacity	104 characters

Magnetic Card Data Trasmittion Format

< 1 / 2 Track Version >

- **Track 1**

02H 43H 31H 31H 1CH	DATA (76 Characters)	1CH 03H 0DH 0AH

- **Track 2**

02H 44H 31H 31H 1CH	DATA (37 Characters)	03H 0DH 0AH

- **Track 1,2**

02H 45H 31H 31H 1CH 1CH	DATA(76)	1CH	DATA(37)	1CH 03H 0DH 0AH

< 2 / 3 Track Version >

- **Track 2**

02H 43H 31H 31H 1CH	DATA (37 Characters)	1CH 03H 0DH 0AH

- **Track 3**

02H 44H 31H 31H 1CH	DATA (104 Characters)	03H 0DH 0AH

- **Track 2,3**

02H 45H 31H 31H 1CH 1CH	DATA(37)	1CH	DATA(104)	1CH 03H 0DH 0AH

1.11. Instruction for Auto Power Down mode.

The printer in the Power Down Mode will recover to the Print Ready Mode when receiving commands or button operations.
However, print data received while shifting from the Power Down Mode to the print Ready Mode (for approx. 1 sec.) is discarded and cannot be printed.
Therefore, if the printer is in the Power Down Mode, please be sure to recover it to the Print Ready Mode before sending print data.

[How to Recover to Print Ready Mode & How to Check]

1) Send the Status command(DLE EOT EOT), and Try to re-send it until receiving the transmission value which is from 30H to 37H.

Or

2) Press the FEED Button or the MODE Button (the Power Button for SM-T300 series) and confirm that the Power lamp (Green LED) is turned on.

Appendix A

Character Code Tables

1. Table 0 (PC437: USA, Standard Europe)

	00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F
00	NUL 0000	STX 0001	SOT 0002	ETX 0003	EOT 0004	ENQ 0005	ACK 0006	BEL 0007	BS 0008	HT 0009	LF 000A	VT 000B	FF 000C	CR 000D	SO 000E	SI 000F
10	DLE 0010	DC1 0011	DC2 0012	DC3 0013	DC4 0014	NAK 0015	SYN 0016	ETB 0017	CAN 0018	EM 0019	SUB 001A	ESC 001B	FS 001C	GS 001D	RS 001E	US 001F
20	SP 0020	! 0021	" 0022	# 0023	$ 0024	% 0025	& 0026	' 0027	(0028	) 0029	* 002A	+ 002B	, 002C	- 002D	. 002E	/ 002F
30	0 0030	1 0031	2 0032	3 0033	4 0034	5 0035	6 0036	7 0037	8 0038	9 0039	: 003A	; 003B	< 003C	= 003D	> 003E	? 003F
40	@ 0040	A 0041	B 0042	C 0043	D 0044	E 0045	F 0046	G 0047	H 0048	I 0049	J 004A	K 004B	L 004C	M 004D	N 004E	O 004F
50	P 0050	Q 0051	R 0052	S 0053	T 0054	U 0055	V 0056	W 0057	X 0058	Y 0059	Z 005A	[005B	\ 005C	] 005D	^ 005E	_ 005F
60	` 0060	a 0061	b 0062	c 0063	d 0064	e 0065	f 0066	g 0067	h 0068	i 0069	j 006A	k 006B	l 006C	m 006D	n 006E	o 006F
70	p 0070	q 0071	r 0072	s 0073	t 0074	u 0075	v 0076	w 0077	x 0078	y 0079	z 007A	{ 007B	| 007C	} 007D	~ 007E	DEL 007F
80	Ç 00C7	ü 00FC	é 00E9	â 00E2	ä 00E4	à 00E0	å 00E5	ç 00E7	ê 00EA	ë 00EB	è 00E8	ï 00EF	î 00EE	ì 00EC	Ä 00C4	Å 00C5
90	É 00C9	æ 00E6	Æ 00C6	ô 00F4	ö 00F6	ò 00F2	û 00FB	ù 00F9	ÿ 00FF	Ö 00D6	Ü 00DC	¢ 00A2	£ 00A3	¥ 00A5	₧ 20A7	ƒ 0192
A0	á 00E1	í 00ED	ó 00F3	ú 00FA	ñ 00F1	Ñ 00D1	ª 00AA	º 00BA	¿ 00BF	⌐ 2310	¬ 00AC	½ 00BD	¼ 00BC	¡ 00A1	« 00AB	» 00BB
B0	░ 2591	▒ 2592	▓ 2593	│ 2502	┤ 2524	╡ 2561	╢ 2562	╖ 2556	╕ 2555	╣ 2563	║ 2551	╗ 2557	╝ 255D	╜ 255C	╛ 255B	┐ 2510
C0	└ 2514	┴ 2534	┬ 252C	├ 251C	─ 2500	┼ 253C	╞ 255E	╟ 255F	╚ 255A	╔ 2554	╩ 2569	╦ 2566	╠ 2560	═ 2550	╬ 256C	╧ 2567
D0	╨ 2568	╤ 2564	╥ 2565	╙ 2559	╘ 2558	╒ 2552	╓ 2553	╫ 256B	╪ 256A	┘ 2518	┌ 250C	█ 2588	▄ 2584	▌ 258C	▐ 2590	▀ 2580
E0	α 03B1	ß 00DF	Γ 0393	π 03C0	Σ 03A3	σ 03C3	µ 00B5	τ 03C4	Φ 03A6	Θ 0398	Ω 03A9	δ 03B4	∞ 221E	φ 03C6	ε 03B5	∩ 2229
F0	≡ 2261	± 00B1	≥ 2265	≤ 2264	⌠ 2320	⌡ 2321	÷ 00F7	≈ 2248	° 00B0	∙ 2219	· 00B7	√ 221A	ⁿ 207F	² 00B2	■ 25A0	NBSP 00A0

2. Table 1 (KATAKANA)

	00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F
00	NUL 0000	STX 0001	SOT 0002	ETX 0003	EOT 0004	ENQ 0005	ACK 0006	BEL 0007	BS 0008	HT 0009	LF 000A	VT 000B	FF 000C	CR 000D	SO 000E	SI 000F
10	DLE 0010	DC1 0011	DC2 0012	DC3 0013	DC4 0014	NAK 0015	SYN 0016	ETB 0017	CAN 0018	EM 0019	SUB 001A	ESC 001B	FS 001C	GS 001D	RS 001E	US 001F
20	SP 0020	! 0021	″ 0022	# 0023	$ 0024	% 0025	& 0026	’ 0027	(0028	) 0029	* 002A	+ 002B	, 002C	- 002D	. 002E	/ 002F
30	0 0030	1 0031	2 0032	3 0033	4 0034	5 0035	6 0036	7 0037	8 0038	9 0039	: 003A	; 003B	< 003C	= 003D	> 003E	? 003F
40	@ 0040	A 0041	B 0042	C 0043	D 0044	E 0045	F 0046	G 0047	H 0048	I 0049	J 004A	K 004B	L 004C	M 004D	N 004E	O 004F
50	P 0050	Q 0051	R 0052	S 0053	T 0054	U 0055	V 0056	W 0057	X 0058	Y 0059	Z 005A	[005B	¥ 005C	] 005D	^ 005E	_ 005F
60	` 0060	a 0061	b 0062	c 0063	d 0064	e 0065	f 0066	g 0067	h 0068	i 0069	j 006A	k 006B	l 006C	m 006D	n 006E	o 006F
70	p 0070	q 0071	r 0072	s 0073	t 0074	u 0075	v 0076	w 0077	x 0078	y 0079	z 007A	{ 007B	| 007C	} 007D	~ 007E	DEL 007F
80		81	82	83	84	85	86	87	88	89	8A	8B	8C	8D	8E	8F
90	90	91	92	93	94	95	96	97	98	99	9A	9B	9C	9D	9E	9F
A0		。 FF61	「 FF62	」 FF63	、 FF64	・ FF65	ヲ FF66	ァ FF67	ィ FF68	ゥ FF69	ェ FF6A	ォ FF6B	ャ FF6C	ュ FF6D	ョ FF6E	ッ FF6F
B0	ー FF70	ア FF71	イ FF72	ウ FF73	エ FF74	オ FF75	カ FF76	キ FF77	ク FF78	ケ FF79	コ FF7A	サ FF7B	シ FF7C	ス FF7D	セ FF7E	ソ FF7F
C0	タ FF80	チ FF81	ツ FF82	テ FF83	ト FF84	ナ FF85	ニ FF86	ヌ FF87	ネ FF88	ノ FF89	ハ FF8A	ヒ FF8B	フ FF8C	ヘ FF8D	ホ FF8E	マ FF8F
D0	ミ FF90	ム FF91	メ FF92	モ FF93	ヤ FF94	ユ FF95	ヨ FF96	ラ FF97	リ FF98	ル FF99	レ FF9A	ロ FF9B	ワ FF9C	ン FF9D	゙ FF9E	゚ FF9F
E0	E0	E1	E2	E3	E4	E5	E6	E7	E8	E9	EA	EB	EC	ED	EE	EF
F0	F0	F1	F2	F3	F4	F5	F6	F7	F8	F9	FA	FB	FC			

3. Table 2 (PC850:MULTILINGUAL)

	00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F
00	NUL 0000	STX 0001	SOT 0002	ETX 0003	EOT 0004	ENQ 0005	ACK 0006	BEL 0007	BS 0008	HT 0009	LF 000A	VT 000B	FF 000C	CR 000D	SO 000E	SI 000F
10	DLE 0010	DC1 0011	DC2 0012	DC3 0013	DC4 0014	NAK 0015	SYN 0016	ETB 0017	CAN 0018	EM 0019	SUB 001A	ESC 001B	FS 001C	GS 001D	RS 001E	US 001F
20	SP 0020	! 0021	" 0022	# 0023	$ 0024	% 0025	& 0026	' 0027	(0028	) 0029	* 002A	+ 002B	, 002C	- 002D	. 002E	/ 002F
30	0 0030	1 0031	2 0032	3 0033	4 0034	5 0035	6 0036	7 0037	8 0038	9 0039	: 003A	; 003B	< 003C	= 003D	> 003E	? 003F
40	@ 0040	A 0041	B 0042	C 0043	D 0044	E 0045	F 0046	G 0047	H 0048	I 0049	J 004A	K 004B	L 004C	M 004D	N 004E	O 004F
50	P 0050	Q 0051	R 0052	S 0053	T 0054	U 0055	V 0056	W 0057	X 0058	Y 0059	Z 005A	[005B	\ 005C	] 005D	^ 005E	_ 005F
60	` 0060	a 0061	b 0062	c 0063	d 0064	e 0065	f 0066	g 0067	h 0068	i 0069	j 006A	k 006B	l 006C	m 006D	n 006E	o 006F
70	p 0070	q 0071	r 0072	s 0073	t 0074	u 0075	v 0076	w 0077	x 0078	y 0079	z 007A	{ 007B	| 007C	} 007D	~ 007E	DEL 007F
80	Ç 00C7	ü 00FC	é 00E9	â 00E2	ä 00E4	à 00E0	å 00E5	ç 00E7	ê 00EA	ë 00EB	è 00E8	ï 00EF	î 00EE	ì 00EC	Ä 00C4	Å 00C5
90	É 00C9	æ 00E6	Æ 00C6	ô 00F4	ö 00F6	ò 00F2	û 00FB	ù 00F9	ÿ 00FF	Ö 00D6	Ü 00DC	ø 00F8	£ 00A3	Ø 00D8	× 00D7	ƒ 0192
A0	á 00E1	í 00ED	ó 00F3	ú 00FA	ñ 00F1	Ñ 00D1	ª 00AA	º 00BA	¿ 00BF	® 00AE	¬ 00AC	½ 00BD	¼ 00BC	¡ 00A1	« 00AB	» 00BB
B0	░ 2591	▒ 2592	▓ 2593	| 2502	┤ 2524	Á 00C1	Â 00C2	À 00C0	© 00A9	╣ 2563	║ 2551	╗ 2557	╝ 255D	¢ 00A2	¥ 00A5	┐ 2510
C0	└ 2514	┴ 2534	┬ 252C	├ 251C	─ 2500	┼ 253C	ã 00E3	Ã 00C3	╚ 255A	╔ 2554	╩ 2569	╦ 2566	╠ 2560	═ 2550	╬ 256C	¤ 00A4
D0	ð 00F0	Ð 00D0	Ê 00CA	Ë 00CB	È 00C8	ı 0131	Í 00CD	Î 00CE	Ï 00CF	┘ 2518	┌ 250C	▉ 2588	▄ 2584	¦ 00A6	Ì 00CC	▀ 2580
E0	Ó 00D3	ß 00DF	Ô 00D4	Ò 00D2	õ 00F5	Õ 00D5	µ 00B5	þ 00FE	Þ 00DE	Ú 00DA	Û 00DB	Ù 00D9	ý 00FD	Ý 00DD	¯ 00AF	´ 00B4
F0	- 00AD	± 00B1	‗ 2017	¾ 00BE	¶ 00B6	§ 00A7	÷ 00F7	¸ 00B8	° 00B0	¨ 00A8	· 00B7	¹ 00B9	³ 00B3	² 00B2	■ 25A0	NBSP 00A0

4. Table 3 (PC860: Portuguese)

	HEX	8	9	A	B	C	D	E	F
HEX	BIN	1000	1001	1010	1011	1100	1101	1110	1111
0	0000	Ç 128	É 144	á 160	▒ 176	└ 192	╨ 208	α 224	≡ 240
1	0001	ü 129	À 145	í 161	▒ 177	┴ 193	╤ 209	ß 225	± 241
2	0010	é 130	È 146	ó 162	▒ 178	┬ 194	╥ 210	Γ 226	≥ 242
3	0011	â 131	ô 147	ú 163	│ 179	├ 195	╙ 211	π 227	≤ 243
4	0100	ã 132	õ 148	ñ 164	┤ 180	─ 196	╘ 212	Σ 228	⌠ 244
5	0101	à 133	ò 149	Ñ 165	╡ 181	┼ 197	╒ 213	σ 229	⌡ 245
6	0110	Á 134	Ú 150	ª 166	╢ 182	╞ 198	╓ 214	µ 230	÷ 246
7	0111	ç 135	ù 151	º 167	╖ 183	╟ 199	╫ 215	τ 231	≈ 247
8	0000	ê 136	Ì 152	¿ 168	╕ 184	╚ 200	╪ 216	Φ 232	° 248
9	1001	Ê 137	Õ 153	⌐ 169	╣ 185	╔ 201	┘ 217	Θ 233	• 249
A	1010	è 138	Ü 154	¬ 170	║ 186	╩ 202	┌ 218	Ω 234	· 250
B	1011	Í 139	¢ 155	½ 171	╗ 187	╦ 203	■ 219	δ 235	√ 251
C	1100	Ô 140	£ 156	¼ 172	╝ 188	╠ 204	▬ 220	∞ 236	n 252
D	1101	ì 141	Ù 157	¡ 173	╜ 189	═ 205	▌ 221	ø 237	² 253
E	1110	Ã 142	Pt 158	« 174	╛ 190	╬ 206	▐ 222	∈ 238	■ 254
F	1111	Â 143	Ó 159	» 175	┐ 191	╧ 207	▀ 223	∩ 239	SP 255

5. Table 4 (PC863:Canadian-French)

	HEX	8	9	A	B	C	D	E	F
HEX	BIN	1000	1001	1010	1011	1100	1101	1110	1111
0	0000	Ç 128	É 144	á 160	▒ 176	└ 192	╨ 208	α 224	≡ 240
1	0001	ü 129	æ 145	í 161	▒ 177	┴ 193	╤ 209	ß 225	± 241
2	0010	é 130	Æ 146	ó 162	▒ 178	┬ 194	╥ 210	Γ 226	≥ 242
3	0011	â 131	ô 147	ú 163	│ 179	├ 195	╙ 211	π 227	≤ 243
4	0100	ä 132	ö 148	ñ 164	┤ 180	─ 196	╘ 212	Σ 228	⌠ 244
5	0101	à 133	ò 149	Ñ 165	╡ 181	┼ 197	╒ 213	σ 229	⌡ 245
6	0110	å 134	û 150	ª 166	╢ 182	╞ 198	╓ 214	µ 230	÷ 246
7	0111	ç 135	ù 151	º 167	╖ 183	╟ 199	╫ 215	τ 231	≈ 247
8	1000	ê 136	ÿ 152	¿ 168	╕ 184	╚ 200	╪ 216	Φ 232	° 248
9	1001	ë 137	Ö 153	⌐ 169	╣ 185	╔ 201	┘ 217	Θ 233	• 249
A	1010	è 138	Ü 154	¬ 170	║ 186	╩ 202	┌ 218	Ω 234	· 250
B	1011	ï 139	ø 155	½ 171	╗ 187	╦ 203	■ 219	δ 235	√ 251
C	1100	î 140	£ 156	¼ 172	╝ 188	╠ 204	▄ 220	∞ 236	n 252
D	1101	ì 141	Ø 157	¡ 173	╜ 189	═ 205	▌ 221	ø 237	² 253
E	1110	Ä 142	Pt 158	« 174	╛ 190	╬ 206	▐ 222	∈ 238	■ 254
F	1111	Å 143	ƒ 159	¤ 175	┐ 191	╧ 207	▀ 223	∩ 239	SP 255

6. Table 5 (PC865:Nordic)

	HEX	8	9	A	B	C	D	E	F
HEX	BIN	1000	1001	1010	1011	1100	1101	1110	1111
0	0000	Ç 128	É 144	á 160	▒ 176	└ 192	╨ 208	α 224	≡ 240
1	0001	ü 129	æ 145	í 161	▒ 177	┴ 193	╤ 209	ß 225	± 241
2	0010	é 130	Æ 146	ó 162	▒ 178	┬ 194	╥ 210	Γ 226	≥ 242
3	0011	â 131	ô 147	ú 163	│ 179	├ 195	╙ 211	π 227	≤ 243
4	0100	ä 132	ö 148	ñ 164	┤ 180	─ 196	╘ 212	Σ 228	⌠ 244
5	0101	à 133	ò 149	Ñ 165	╡ 181	┼ 197	╒ 213	σ 229	⌡ 245
6	0110	å 134	û 150	ª 166	╢ 182	╞ 198	╓ 214	µ 230	÷ 246
7	0111	ç 135	ù 151	º 167	╖ 183	╟ 199	╫ 215	τ 231	≈ 247
8	1000	ê 136	ÿ 152	¿ 168	╕ 184	╚ 200	╪ 216	Φ 232	° 248
9	1001	ë 137	Ö 153	⌐ 169	╣ 185	╔ 201	┘ 217	Θ 233	• 249
A	1010	è 138	Ü 154	¬ 170	║ 186	╩ 202	┌ 218	Ω 234	· 250
B	1011	ï 139	ø 155	½ 171	╗ 187	╦ 203	■ 219	δ 235	√ 251
C	1100	î 140	£ 156	¼ 172	╝ 188	╠ 204	▬ 220	∞ 236	n 252
D	1101	ì 141	Ø 157	¡ 173	╜ 189	═ 205	▌ 221	ø 237	² 253
E	1110	Ä 142	₧ 158	« 174	╛ 190	╬ 206	▐ 222	∈ 238	■ 254
F	1111	Å 143	ƒ 159	¤ 175	┐ 191	╧ 207	▀ 223	∩ 239	SP 255

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