Line Thermal Printer

Command Emulator
STAR Line Mode

Command Specifications

Rev 1.00

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Special Products Division

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This is the Command Emulator Command Specifications Manual created based on Command Emulator dedicated commands and the Star Line Mode Command Specifications Manual.

Information contained herein applies to the following models.

< Applicable Models>
· TSP100 Series

1. Command Emulator

The commands outlined below are dedicated to the Command Emulator.

1.1. Command List

Commands	Name
ESC US A	Set print region with in mm units
ESC US f	Switch to country of destination
ESC US p	Specify delimiter

1.2. Command Details

ESC US A n

[Name] Set print region with in mm units

[Code]

ASCII	ESC	US	A	n
Hexadecimal	1B	1F	41	n
Decimal	27	31	65	n

[Defined Area] 0 ≤ n ≤ 255

[Initial Value] Depends on Config setting

[Function] Sets the printer region width to n mm.
This sets the print region width when processing this command, and unprinted data remaining in the expanded buffer is printed.
The print region width is set by left side alignment. The left and right margin settings are initialized.
The print region width is set by left alignment so the horizontal tab positions are not initialized.
ESC @ initialize this command setting. (Returns to the Config setting)

ESC US f n

[Name] Switch to country of destination

[Code]

ASCII	ESC	US	f	n
Hexadecimal	1B	1F	66	n
ecimal	27	31	102	n

[Defined Area] 0 ≤ n ≤ 4
48 ≤ n ≤ 52 (“0” ≤ n ≤ “4”)

[Initial Value] Depends on Config setting

[Function] Specifies country of destination.
ESC @, and CAN initialize this command setting. (Returns to the Config set ting)

n	Country of Destination
0 ,“0”	SBCS
1 ,“1”	Japan
2 ,“2”	China
3 ,“3”	Taiwan
4 , “4”	Korea

Only in STAR Line Mode; See the specifications below.
The default ANK pitch is switched by the memory switch writing command <ESC> <GS> #.

	Default ANK Pitch	International Characters		Code Page	
		Defau	<ESC> “R” n	Default	<ESC><GS> “t” n
SBCS	12/15 dots	USA	Command Enabled	Normal	Command Enabled
Japan	12/15 dots	Japan	Command Disabled (Ignores 3 Bytes)	Normal (Katakana)	Command Disabled (Ignores 4 Bytes)
China	13/15 dots	USA	Command Enabled	Normal (Katakana)	Command Disabled (Ignores 4 Bytes)
Taiwan	13/15 dots	USA	Command Enabled	Normal (Katakana)	Command Disabled (Ignores 4 Bytes)
Korea	13/15 dots	Korea	Command Disabled (Ignores 3 Bytes)	Normal (Katakana)	Command Disabled (Ignores 4 Bytes)

ESC US p n

[Name] Specify delimiter

[Code]

ASCII	ESC	US	p	n
Hexadecimal	1B	1F	70	n
Decimal	27	31	112	n

[Defined Area] 0 ≤ n ≤ 3
48 ≤ n ≤ 51 (“0” ≤ n ≤ “3”)

[Initial Value] ———

[Function] Specifies delimiter.

n	Content
0 ,“0”	Top of document
1 ,“1”	Top of page
2 ,“2”	Bottom of page
3 ,“3”	Bottom of document

This command determines the printing job data boundary for the command emulator plug-in. The plug-in finds these delimiters and executes a process.
If the command emulator plug-in is not registered, these delimiters are ignored.

2. STAR Line Mode Command

2.1. Command List

- Font Style and Character Set

Commands		Difference to F/W Specifications (When applicable)
ESC RS F	Select font	4 bytes ignored
ESC GS t	Specify code page	IBM block uses vertical 24 dot fonts (for ESC/POS)
ESC GS =	Write blank code page data	*1
ESC R	Specify international character set	
ESC /	Specify/cancel slash zero	
ESC SP	Set ANK right space	
ESC M	Specify ANK 12 dot pitch	
ESC P	Specify ANK 15 dot pitch	
ESC :	Specify ANK 16 dot pitch	
ESC g	Specify ANK 14 dot pitch	

- Character Expansion Settings

Commands		Difference to F/W Specifications (When applicable)
ESC i	Set/cancel the double wide/high printing	
ESC W	Set/cancel the double wide printing	
ESC h	Set/cancel the double high printing	
SO	Set double wide printing	
DC4	Cancel double wide printing	
ESC SO	Set printing vertical double high characters	
ESC DC4	Cancel printing magnified character height	

- Print Modes

Commands		Difference to F/W Specifications (When applicable)
ESC E	Select emphasized printing	
ESC F	Cancel emphasized printing	
ESC -	Select/cancels underline mode	
ESC _	Select/cancels upperline mode	
ESC 4	Selects white/black inverted printing	
ESC 5	Cancel white/black inverted printing	
SI	Selects upside-down printing	
DC2	Cancel upside-down printing	

- Line Spacing

Commands		Difference to F/W Specifications (When applicable)
LF	Line feed	
CR	Carriage return (same as line feed)	
ESC a	Feed paper n lines	
ESC z	Select line feed amount	
ESC 0	Specify line feed to 3 mm	
ESC J	n/4 mm line feed	
ESC I	n/8mm line feed	

• Page Control

Commands		Difference to F/W Specifications (When applicable)
FF	Form feed	
ESC C	Set page length to n lines	
ESC C 0	Set page length in 24 mm units	
VT	Feed paper to vertical table position	
ESC B	Set vertical tab position	

• Horizontal Direction Position

Commands		Difference to F/W Specifications (When applicable)
ESC I	Set left margin	Enabled only at top of line (Specification 2 of the Star Line Mode Command Specifications)
ESC Q	Set right margin	Enabled only at top of line (Specification 2 of the Star Line Mode Command Specifications)
HT	Move print position to horizontal tab position	
ESC D	Set/cancel horizontal tab position	Reference point is lefts edge of paper (same as TSP1000)
ESC GS A	Move absolute position	
ESC GS R	Move relative position	
ESC GS a	Specify position alignment	

• Download

Commands		Difference to F/W Specifications (When applicable)
ESC &	Register/delete download characters	
ESC %	Set/cancel download characters	

• Bit Image Graphics

Commands		Difference to F/W Specifications (When applicable)
ESC K	Standard density bit image	
ESC L	High density bit image	
ESC k	Fine bit image	
ESC X	Fine bit image (wire dot conversion)	

• Logos

Commands		Difference to F/W Specifications (When applicable)
ESC FS q	Register logo data	*1 Registration size up to 65535 x 65535 (normally 1023 x 288)
ESC FS p	Print logo data	

• Bar Codes

Commands		Difference to F/W Specifications (When applicable)
ESC b	Print bar code	

• Cutter Control

Commands		Difference to F/W Specifications (When applicable)
ESC d	Paper cut instruction	

• External Device Drive

Commands		Difference to F/W Specifications (When applicable)
ESC BEL	Set pulse width for external device drive	
BEL	External device 1 drive instruction	
FS	External device 1 drive instruction	
SUB	External device 2 drive instruction	
EM	External device 2 drive instruction	
ESC GS BEL	Ring buzzer	

• Print Setting

Commands		Difference to F/W Specifications (When applicable)
ESC RS d	Set print density	
ESC RS r	Set print speed	

• Status

Commands		Difference to F/W Specifications (When applicable)
ESC RS a	Set status transmission conditions	4 bytes ignored
ESC ACK SOH	Real-time printer status (ASB Status)	When using a serial port emulator, operations are possible.
ENQ	Real-time printer status (1)	
EOT	Real-time printer status (2)	
ETB	Update of ETB status	1 byte ignored
ESC RS E	Clear ETB counter, ETB status	4 bytes ignored

• Chinese Characters

Commands		Difference to F/W Specifications (When applicable)
ESC p	Set to JIS Chinese character mode	
ESC q	Cancel JIS Chinese character mode	
ESC $	Set/cancel JIS Chinese character mode	
ESC s	Set two byte Chinese characters left/right spaces	
ESC t	Set 1 byte Chinese characters left/right spaces	
ESC r	Register Chinese download characters	

• Others

Commands		Difference to F/W Specifications (When applicable)
CAN	Cancel print data and initialize	Does not clear reception buffer. Not real-time command.
ESC @	Command initialization	
ESC GS #	Set memory switch	*2
ESC ?	Reset printer	Only reset command (command for manufacturing unsupported)

• Raster

Commands		Difference to F/W Specifications (When applicable)
ESC * r R	Initialize raster mode	2 bytes ignored
ESC * r A	Enter raster mode	2 bytes ignored
ESC * r B	Quit raster mode	2 bytes ignored
ESC * r C	Clear raster data	2 bytes ignored
ESC * r D	Drawer drive	2 bytes ignored
ESC * r E	Set EOT mode	2 bytes ignored
ESC * r F	Set FF mode	2 bytes ignored
ESC * r P	Set page length	2 bytes ignored
ESC * r Q	Set print quality	2 bytes ignored

Commands		Difference to F/W Specifications (When applicable)
ESC * r m l	Set left margin	2 bytes ignored
ESC * r m r	Set right margin	2 bytes ignored
ESC * r T	Set top margin	2 bytes ignored
ESC * r K	Set print color	2 bytes ignored
b n1 n2 d1 … dk	Transfer raster data (auto line feed)	Processes from top of data as ASCII data
k n1 n2 d1 … dk	Transfer raster data	Processes from top of data as ASCII data
ESC * r Y	Move vertical direction position (Line feed for specified dots)	2 bytes ignored
ESC FF NUL	Execute form feed mode	2 bytes ignored
ESC FF EOT	Execute EOT mode	2 bytes ignored

• Black Mark

Commands		Difference to F/W Specifications (When applicable)
ESC d	Paper cut instruction	Same as operations in normal mode
FF	Form feed	
ESC C	Set page length to n lines	
ESC C 0	Set page length in 24 mm units	
VT	Feed paper to vertical table position	
ESC B	Set vertical tab position	

• 2-Color Printing

Commands		Difference to F/W Specifications (When applicable)
ESC RS c	Specify printing color in 2 color printing mode	
ESC RS C	Select/cancel 2 color printing mode	
ESC 4	Specify white/black inversion and printing color red	
ESC 5	Specify white/black inversion and printing color black	
ESC RS d	Set print density	
ESC RS r	Set printing speed	
ESC FS q	Register logo	*1
ESC FS p	Print logo	

• Presenter

Commands		Difference to F/W Specifications (When applicable)
ESC SYN 0	Execute presenter paper recovery	2 bytes ignored
ESC SYN 1	Set presenter automatic recovery function and recovery time	
ESC SYN 3	Acquire presenter paper counter	
ESC SYN 4	Initialize presenter paper counter	

• Mark Commands

Commands		Difference to F/W Specifications (When applicable)
ESC GS * 0	Print mark	3 bytes ignored
ESC GS * 1	Specify mark height and line feed	
ESC GS * 2	Specify mark color and horizontal width in each mark number	
ESC GS * W	Register mark format to non-volatile memory	
ESC GS * C	Initialize mark format from non-volatile memory	

• Auto Logo Commands

Commands		Difference to F/W Specifications (When applicable)
ESC GS / W	Register Auto Logo setting to non-volatile memory	3 bytes ignored
ESC GS / C	Initialize Auto Logo setting from non-vola- tile memory	
ESC GS / 1	Set ON/OFF for Auto Logo function	
ESC GS / 2	Set command characters	
ESC GS / 3	Set user macro 1	
ESC GS / 4	Set user macro 2	
ESC GS / 5	Set command character switching	
ESC GS / 6	Set partial cut just prior to Auto Logo printing	

• PDF417 Commands

Commands		Difference to F/W Specifications (When applicable)
ESC GS x S 0	Set bar code size	
ESC GS x S 1	Set security level (ECC)	
ESC GS x S 2	Set module x direction size	
ESC GS x S 3	Set module aspect ratio	
ESC GS x D	Set bar code data	
ESC GS x P	Print bar code	
ESC GS x I	Get bar code expansion information	3 bytes ignored

• Print Start Trigger Control Commands

Commands		Difference to F/W Specifications (When applicable)
ESC GS g 0	Print starting trigger	3 bytes ignored
ESC GS g 1	Set print start timer	3 bytes ignored

• QR Code Commands

Commands		Difference to F/W Specifications (When applicable)
ESC GS y S 0	Set model	
ESC GS y S 1	Set error correction level	
ESC GS y S 2	Set cell size	
ESC GS y D 1	Set data (auto)	
ESC GS y D 2	Set data (manual)	
ESC GS y P	Print QR code	
ESC GS y I	Get expansion information (bar code size)	4 bytes ignored

2.2. Command Details

2.2.1. Font style and Character Set

ESC RS F n

[Name] Select font

[Code]					
	ASCII	ESC	RS	F	n
	Hex.	1B	1E	46	n
	Decimal	27	30	70	n

[Defined Region] 0≦n≦1, n = 16

[Initial Value] n = 0

[Function] Selects a font

n	Font
0	Font-A (12 x 24 dots)
1	Font-B (9 x 24 dots)
16	OCR-B (16 x 24 dots)

The following functions are disabled when OCR-B font is selected.
- Code page
- Blank code page
- International characters
- Slash zero

When using OCR-B font to read characters via a scanning operation, adornment, expansion and external characters are canceled.
OCR-B font should be checked by actually trying it first before use.

[Command Emulator] 4 bytes are ignored.

ESC GS t n

[Name] Select code page
[Code] ASCII ESC GS t n
Hex. 1B 1D 74 n
Decimal 27 29 116 n

[Defined Region] 0≦n≦21、32≦n≦34、64≦n≦79、96≦n≦98、n=102、n=255

[Initial Value] Config setting
[Function] Specifies code page

n	Code Page
0	Normal*
1	CodePage437 (USA, Std. Europe)
2	Katakana
3	CodePage437 (USA, Std. Europe)
4	Codepage 858 (Multilingual)
5	Codepage 852 (Latin-2)
6	Codepage 860 (Portuguese)
7	Codepage 861 (Icelandic)
8	Codepage 863 (Canadian French)
9	Codepage 865 (Nordic)
10	Codepage 866 (Cyrillic Russian)
11	Codepage 855 (Cyrillic Bulgarian)
12	Codepage 857 (Turkey)
13	Codepage 862 (Israel (Hebrew))
14	Codepage 864 (Arabic)
15	Codepage 737 (Greek)
16	Codepage 851 (Greek)
17	Codepage 869 (Greek)
18	Codepage 928 (Greek)
19	Codepage 772 (Lithuanian)
20	Codepage 774 (Lithuanian)
21	Codepage 874 (Thai)

n	Code Page
32	Codepage 1252 (Windows Latin-1)
33	Codepage 1250 (Windows Latin-2)
34	Codepage 1251 (Windows Cyrillic)
64	Codepage 3840 (IBM-Russian)
65	Codepage 3841 (Gost)
66	Codepage 3843 (Polish)
67	Codepage 3844 (CS2)
68	Codepage 3845 (Hungarian)
69	Codepage 3846 (Turkish)
70	Codepage 3847 (Brazil-ABNT)
71	Codepage 3848 (Brazil-ABICOMP)
72	Codepage 1001 (Arabic)
73	Codepage 2001 (Lithuanian-KBL)
74	Codepage 3001 (Estonian-1)
75	Codepage 3002 (Estonian-2)
76	Codepage 3011 (Latvian-1)
77	Codepage 3012 (Latvian-2)
78	Codepage 3021 (Bulgarian)
79	Codepage 3041 (Maltese)
96	Thai Character Code 42 (Thai)
97	Thai Character Code 11 (Thai)
98	Thai Character Code 13 (Thai)
99	(Reserved)
100	(Reserved)
101	(Reserved)
102	Thai Character Code 18 (Thai)
110	(Reserved)
111	(Reserved)
255	User Setting（Blank Code Page）

ESC GS = n1 n2 da1 da2...dak db1 db2...dbk dc1 dc2...dck

[Name] Write blank code page data

[Code]

ASCII	ESC	GS	=	n1	n2	da1	da2	...	dak	db1	db2	…	dbk	dc1	dc2	…	dck
Hex.	1B	1D	3D	n1	n2	da1	da2	...	dak	db1	db2	…	dbk	dc1	dc2	…	dck
Decimal	27	29	61	n1	n2	da1	da2	...	dak	db1	db2	…	dbk	dc1	dc2	…	dck

Spec. A

[Defined Area] n1= 0
n2 = 48
1≦(n1 + n2 x 256)
0≦da≦255 (Font-A data)
k = (n1 + n2 x 256) ÷ 2

[Initial Value] - - -

[Function] A blank code page indicates a character code table where character codes from 80h to FFh are all blank.
A blank code page can be selected using the ESC GS t n command n = 255.
The printer is reset when writing with this command is completed.

Font-A Data Format Vertical 24 dots x Horizontal 12 dots]

	MSB							LSB		MSB							LSB
Da1	●	●	●	●	●	●	●	●	Da2	●	●	●	●	○	○	○	○
Da3	●	●	●	●	●	●	●	●	Da4	●	●	●	●	○	○	○	○
Da5	●	●	●	●	●	●	●	●	Da6	●	●	●	●	○	○	○	○
Da7	●	●	●	●	●	●	●	●	Da8	●	●	●	●	○	○	○	○
Da9	●	●	●	●	●	●	●	●	Da10	●	●	●	●	○	○	○	○
Da11	●	●	●	●	●	●	●	●	Da12	●	●	●	●	○	○	○	○
Da13	●	●	●	●	●	●	●	●	Da14	●	●	●	●	○	○	○	○
Da15	●	●	●	●	●	●	●	●	Da16	●	●	●	●	○	○	○	○
Da17	●	●	●	●	●	●	●	●	Da18	●	●	●	●	○	○	○	○
Da19	●	●	●	●	●	●	●	●	Da20	●	●	●	●	○	○	○	○
Da21	●	●	●	●	●	●	●	●	Da22	●	●	●	●	○	○	○	○
Da23	●	●	●	●	●	●	●	●	Da24	●	●	●	●	○	○	○	○
Da25	●	●	●	●	●	●	●	●	Da26	●	●	●	●	○	○	○	○
Da27	●	●	●	●	●	●	●	●	Da28	●	●	●	●	○	○	○	○
Da29	●	●	●	●	●	●	●	●	Da30	●	●	●	●	○	○	○	○
Da31	●	●	●	●	●	●	●	●	Da32	●	●	●	●	○	○	○	○
Da33	●	●	●	●	●	●	●	●	Da34	●	●	●	●	○	○	○	○
Da35	●	●	●	●	●	●	●	●	Da36	●	●	●	●	○	○	○	○
Da37	●	●	●	●	●	●	●	●	Da38	●	●	●	●	○	○	○	○
Da39	●	●	●	●	●	●	●	●	Da40	●	●	●	●	○	○	○	○
Da41	●	●	●	●	●	●	●	●	Da42	●	●	●	●	○	○	○	○
Da43	●	●	●	●	●	●	●	●	Da44	●	●	●	●	○	○	○	○
Da45	●	●	●	●	●	●	●	●	Da46	●	●	●	●	○	○	○	○
Da47	●	●	●	●	●	●	●	●	Da48	●	●	●	●	○	○	○	○

● = Data region/○=Zero data

[Command Emulator] Write to xml file.
After registration: Settings on the Command Emulator are initialized to the xml file contents.
(<ESC> @ operation + clear external character registration)

ESC R n

[Name] Specify international character set

[Code]

ASCII	ESC	R	n
Hex.	1B	52	n
Decimal	27	82	n

[Defined Area] 0≦n≦14
n = 64
48≦n≦57 (”0”≦n≦”9”)
65≦n≦69 (”A”≦n≦”E”)

[Initial Value] Config setting
When installed with Japanese language characters and DBCS setting: Fixed at n=8
When installed with Hangeul language characters and DBCS setting: Fixed at n=13

[Function] Specifies international characters
When installed with Japanese language characters and DBCS setting, this command is ignored.
When installed with Hangeul language characters and DBCS setting, this command is ignored.

n	International Characters
0, 48	USA
1, 49	France
2, 50	Germany
3, 51	UK
4, 52	Denmark
5, 53	Sweden
6, 54	Italy
7, 55	Spain
8, 56	Japan
9, 57	Norway
10, 65	Denmark II
11, 66	Spain II
12, 67	Latin America
13, 68	Korea
14, 69	Ireland
64	Legal

ESC / n

[Name] Specify/cancel slash zero
[Code] ASCII ESC / n
Hex. 1B 2F n
Decimal 27 47 n

[Defined Area] n = 0, 1, 48, 49
[Initial Value] Config switch setting
[Function] Specifies and cancels slash zeros.

n	International Characters
0, 48	Cancels slash zero
1, 49	Specifies slash zero

ESC SP n

[Name] Set ANK right space
[Code] ASCII ESC SP n
Hex. 1B 20 n
Decimal 27 32 n

[Defined Area] 0≦n≦15
48≦n≦57 (”0”≦n≦”9”)
65≦n≦70 (”A”≦n≦”F”)
[Initial Value] Config setting
[Function] Specify the right space amount of ANK characters in n dots.
The ANK character width is "left space amount” + "ANK font dot count” + right space amount.”

ESC M

[Name] Specify 12 dot pitch
[Code] ASCII ESC M
Hex. 1B 4D
Decimal 27 77

[Defined Area] - - -
[Initial Value] Config setting
[Function] Specify the right space amount of ANK characters in 0 dots.
The ANK character width is "left space amount” + "ANK font dot count” + right space amount.”

ESC P

[Name] Specify 15 dot pitch
[Code] ASCII ESC P
Hex. 1B 50
Decimal 27 80

[Defined Area] - - -
[Initial Value] Config setting
[Function] Specify the right space amount of ANK characters in 3 dots.
The ANK character width is "left space amount" + "ANK font dot count" + right space amount."

ESC :

[Name] Specify 16 dot pitch
[Code] ASCII ESC :
Hex. 1B 3A
Decimal 27 58

[Defined Area] - - -
[Initial Value] Config setting
[Function] Specify the right space amount of ANK characters in 4 dots.
The ANK character width is "left space amount" + "ANK font dot count" + right space amount."

ESC g

[Name] Specify 14 dot pitch
[Code] ASCII ESC g
Hex. 1B 67
Decimal 27 103

[Defined Area] - - -
[Initial Value] Config setting
[Function] Specify the right space amount of ANK characters in 2 dots.
The ANK character width is "left space amount" + "ANK font dot count" + right space amount."

This command is enabled only when the comfig setting is set for DBCS (2 byte countries).
It is ignored(2 bytes ignored) when the config setting is set for SBCS (1 byte countries).

2.2.2. Character Expansion Settings

ESC i n1 n2

[Name] Set/cancel the double wide/high

[Code]

ASCII	ESC	i	n1	n2
Hex.	1B	69	n1	n2
Decimal	27	105	n1	n2

[Defined Area] 0≦n1≦5
48≦n1≦53 (”0”≦n1≦”5”)
0≦n2≦5
48≦n2≦53 (”0”≦n2≦”5”)

[Initial Value] n1 = 0 (Double high cancelled)
n2 = 0 (Double wide cancelled)

[Function] Specifies/cancels double high/wide for ANK characters and Kanji characters.
This command is ignored if either n1 or n2 is outside of the defined area.

n1	Expanded high
0, 48	Cancels expanded high
1, 49	Specifies 2x high expansion
2, 50	Specifies 3x high expansion
3, 51	Specifies 4x high expansion
4, 52	Specifies 5x high expansion
5, 53	Specifies 6x high expansion

n2	Expanded wide
0, 48	Cancels expanded wide
1, 49	Specifies 2x wide expansion
2, 50	Specifies 3x wide expansion
3, 51	Specifies 4x wide expansion
4, 52	Specifies 5x wide expansion
5, 53	Specifies 6x wide expansion

ESC W n

[Name] Specify/cancel expanded wide
[Code] ASCII ESC W n
Hex. 1B 57 n
Decimal 27 87 n

[Defined Area] 0≦n≦5
48≦n≦53 (”0”≦n≦”5”)
[Initial Value] n = 0 (Double wide cancelled)
[Function] Specifies/cancels double wide for ANK characters and Kanji characters.

n	Expanded wide
0, 48	Cancels expanded wide
1, 49	Specifies 2x wide expansion
2, 50	Specifies 3x wide expansion
3, 51	Specifies 4x wide expansion
4, 52	Specifies 5x wide expansion
5, 53	Specifies 6x wide expansion

ESC h n

[Name] Specify/cancel expanded high
[Code] ASCII ESC h n
Hex. 1B 68 n
Decimal 27 104 n

[Defined Area] 0≦n≦5
48≦n≦53 (”0”≦n≦”5”)
[Initial Value] n = 0 (Double high cancelled)
[Function] Specifies/cancels double high for ANK characters and Kanji characters.

n	Expanded high
0, 48	Cancels expanded high
1, 49	Specifies 2x expansion
2, 50	Specifies 3x expansion
3, 51	Specifies 4x expansion
4, 52	Specifies 5x expansion
5, 53	Specifies 6x expansion

SO

[Name] Set double wide
[Code] ASCII SO
Hex. 0E
Decimal 14

[Defined Area] - - -
[Initial Value] Cancels 2x wide expansion
[Function] Specifies double wide for ANK characters and Kanji characters.
This command is equivalent to ESC W n (n = 1).

DC4

[Name] Cancel expanded wide
[Code] ASCII DC4
Hex. 14
Decimal 20

[Defined Area] - - -
[Initial Value] - - -
[Function] Cancels expanded wide if the following commands specify expanded wide.
• Double wide specifying command (SO)
• Set/cancel double wide (ESC W)
• Set/cancel double wide/high (ESC i)
This command is equivalent to ESC W n (n = 0).

ESC SO

[Name] Set double high
[Code] ASCII ESC SO
Hex. 1B 0E
Decimal 27 14

[Defined Area] - - -
[Initial Value] Double high expansion cancelled.
[Function] Specifies double high for ANK characters and Kanji characters.
This command is equivalent to ESC h n (n = 1).

ESC DC4

[Name] Cancel expanded high
[Code] ASCII ESC DC4
Hex. 1B 14
Decimal 27 20

[Defined Area] - - -
[Initial Value] - - -
[Function] Cancels expanded high if the following commands specify expanded high.
• Double high specifying command (ESC SO)
• Set/cancel the double high (ESC h)
• Set/cancel double wide/high (ESC i)
This command is equivalent to ESC h n (n = 0).

2.2.3. Print Mode

ESC E

[Name] Select emphasized printing
[Code] ASCII ESC E
Hex. 1B 45
Decimal 27 69

[Defined Area] - - -
[Initial Value] Emphasized printing selected
[Function] Specifies emphasized printing for ANK characters.
IBM block ignores emphasized printing.

ESC F

[Name] Cancel emphasized printing
[Code] ASCII ESC F
Hex. 1B 46
Decimal 27 70

[Defined Area] - - -
[Initial Value] Emphasized printing cancelled.
[Function] Cancels emphasized printing for ANK characters.

ESC – n

[Name] Select/cancels underling mode
[Code]

ASCII	ESC	-	n
Hex.	1B	2D	n
Decimal	27	45	n

[Defined Area] n = 0, 1, 48, 49
[Initial Value] n = 0 (Underline cancelled)
[Function] Specifies underlining (2 dots).
Underlines are composed of 2 dot lines.
Underlines are not applied to horizontal tabs and to specified horizontal direction positions.
Underlines are expanded if the character expansion is specified. (When double high expansion is used, underlines are composed of 4 dots.)
Underlines are enabled for white/black inversion.
This command is enabled for ANK characters and Kanji characters.
IBM block ignores underlines.

n	Underline
0, 48	Cancels underline
1, 49	Specifies underline

ESC _ n

[Name] Specify/cancel upperline
[Code]

ASCII	ESC	_	n
Hex.	1B	5F	n
Decimal	27	95	n

[Defined Area] n = 0, 1, 48, 49
[Initial Value] n = 0 (Upperline cancelled)
[Function] Specifies upperlining (2 dots).
Upperlines are composed of 2 dot lines.
Upperlines are not applied to horizontal tabs and to specified horizontal direction positions.
Upperlines are expanded if the character expansion is specified. (When double high expansion is used, upperlines are composed of 4 dots.)
Upperlines are enabled for white/black inversion.
This command is enabled for ANK characters and Kanji characters.
IBM block ignores upperlines.

n	Upperline
0, 48	Cancels upperline
1, 49	Specifies upperline

ESC 4

[Name] Select white/black inverted printing
[Code] ASCII ESC 4
Hex. 1B 34
Decimal 27 52

[Defined Area] - - -
[Initial Value] White/black inversion cancelled
[Function] Specifies white/black inversion for ANK characters and Kanji characters.
IBM block ignores white/black inversion.

ESC 5

[Name] Cancel white/black inversion
[Code] ASCII ESC 5
Hex. 1B 35
Decimal 27 53

[Defined Area] - - -
[Initial Value] White/black inversion cancelled
[Function] Cancels white/black inversion for ANK characters and Kanji characters.

SI

[Name] Select upside-down printing
[Code] ASCII SI
Hex. 0F
Decimal 15

[Defined Area] - - -
[Initial Value] Upside-down cancelled
[Function] Specifies upside-down printing
This command is enabled only when at the top of the line.
Upside down and right-side up characters cannot both exist in the same line.
This command is enabled for following.
• ANK characters
• Kanji characters
• Bit images
• Logos
• Bar codes

DC2

[Name] Cancel upside-down printing
[Code] ASCII DC2
Hex. 12
Decimal 18

[Defined Area] - - -
[Initial Value] Upside-down printing cancelled
[Function] Cancels upside-down printing
This command is enabled only when at the top of the line.

2.2.4. Line Spacing

LF

[Name] Line feed
[Code] ASCII LF
Hex. 0A
Decimal 10

[Defined Area] - - -
[Initial Value] - - -
[Function] Feeds the currently specified amount of paper.
If print data exists in the line buffer, it prints that data.
The initial value for the amount of paper is set according to the memory switch settings.

CR

[Name] Carriage return (line feed)
[Code] ASCII CR
Hex. 0D
Decimal 13

[Defined Area] - - -
[Initial Value] - - -
[Function] When the CR code is enabled, the CR code functions in the same way as the LF code.
If the CR code is disabled, it ignores 1 byte.
Enabling and disabling the CR code is done using the memory switch settings.

ESC a n

[Name] Feed paper n lines
[Code]

ASCII	ESC	a	n
Hex.	1B	61	n
Decimal	27	97	n

[Defined Area] 1≤n≤127
[Initial Value] - - -
[Function] Executes a paper feed for (the currently specified line feed amount x n). If print data exists in the line buffer, it prints that data.
The initial value for the amount of paper is set according to the memory switch settings.

ESC z n

[Name] Select line feed amount
[Code]

ASCII	ESC	z	n
Hex.	1B	7A	n
Decimal	27	122	n

[Defined Area] n = 0, 48
n = 1, 49
[Initial Value] Config setting
[Function] Specifies the line feed amount.

n	Line feed amount
0, 48	Specifies 3 mm line feed amount
1, 49	Specifies 4 mm line feed amount

ESC 0

[Name] Specify line spacing to 3 mm
[Code]

ASCII	ESC	0
Hex.	1B	30
Decimal	27	48

[Defined Area] - - -
[Initial Value] Config setting
[Function] Specifies the line feed amount to 3 mm.

ESC J n

[Name] n/4 mm line feed

[Code]				
	ASCII	ESC	J	n
	Hex.	1B	4A	n
	Decimal	27	74	n

[Defined Area] 1≦n≦255

[Initial Value] - - -

[Function] Executes a n/4mm paper feed.
If print data exists in the line buffer, it prints that data.

ESC I n

[Name] n/8mm line feed

[Code]				
	ASCII	ESC	I	n
	Hex.	1B	49	n
	Decimal	27	73	n

[Defined Area] 1≦n≦255

[Initial Value] - - -

[Function] Executes a n/8mm paper feed.
If print data exists in the line buffer, it prints that data.

2.2.5. Page Control Commands

FF

[Name] Form feed
[Code] ASCII FF
Hex. 0C
Decimal 12

[Defined Area] - - -
[Initial Value] - - -
[Function] Executes a form feed.
If the current position is at the top of the page, it form feeds to the top of the next page.
If there is data existing in the line buffer when executing a form feed, it prints that data, then executes the form feed.
However, by printing data remaining in the buffer, and moving to the top of the next page, a form feed is considered to have been executed, so form feed is not performed.

ESC C n

[Name] Set page length to n lines
[Code] ASCII ESC C n
Hex. 1B 43 n
Decimal 27 67 n

[Defined Area] 1≦n≦127
[Initial Value] (Form feed amount initial value x 42)
[Function] The position whereat this command is processed is considered the top of the page and sets the page length to (current form feed amount x n).
This command cancels the bottom margin setting when setting page length.
The page length set using this command is unaffected by changing the form feed amount later.
Moving to the top of the page is performed using the following commands.

- Form feed command (FF): Executes a form feed.
- Cutter command (ESC d n): Sets cutter position at top of page.
- Raster command (ESC * r B): Sets top of page when quitting raster mode.
- Error cancel operations: Sets position when quitting error cancellation operations at top of page.

ESC C 0 n

[Name] Set page length to n x 24 mm units

[Code]

ASCII	ESC	C	0	n
Hex.	1B	43	00	n
Decimal	27	67	0	n

[Defined Area] 1≤n≤22

[Initial Value] (Form feed amount initial value x 42)

[Function] The position whereat this command is processed is considered the top of the page and sets the page length to (n x 24 mm).

This command cancels the bottom margin setting when setting page length.

The page length set using this command is unaffected by changing the form feed amount later.

Moving to the top of the page is performed using the following commands.

- Form feed command (FF): Executes a form feed.
- Cutter command (ESC d n): Sets cutter position at top of page.
- Raster command (ESC * r B): Sets top of page when quitting raster mode.
- Error cancel operations: Sets position when quitting error cancellation operations at top of page.

VT

[Name] Feed paper to vertical tab position
[Code] ASCII VT
Hex. 0B
Decimal 11

[Defined Area] - - -
[Initial Value] - - -
[Function] Feeds paper to the next vertical tab position.
This command is ignored if there are no tabs set.
If a vertical tab is set, and the current position is the same as the vertical tab position, or if it is below that position, it feeds paper to the top of the next page.
If data exists in the line buffer when feeing paper to the vertical tab position, it executes the paper feed to the vertical tab position after printing that data. However, if moved to the vertical tab position by printing data remaining in the buffer, the move to the vertical tab position is considered to have been executed, so a move to the next vertical tab position is not performed.
There is no initial value for the vertical tab.
Invalid in page mode.

ESC B n1 n2...nk NUL

[Name] Set vertical tab position

[Code]	ASCII	ESC	B	n1	n2	...	nk	NUL
	Hex.	1B	42	n1	n2	...	nk	00
	Decimal	27	66	n1	n2	...	nk	0

[Defined Area] 1≤n≤255
0≤k≤16
[Initial Value] - - -
[Function] Sets the vertical tab to the (current form feed amount x n) position.
All other vertical tabs set before setting the vertical tab using this command are cancelled
A maximum of 16 vertical tabs can be set. However, the tab position must satisfy the condition of 1≤n1≤n2...≤nk. When receiving such illegal codes, tabs up to the illegal code are set, but those after the illegal code are discarded up to the NUL code so illegal code tab are not set.
The vertical tab set using this command is unaffected by changing the form feed amount later.
Vertical tabs set using the ESC B NUL command are cleared.
There is no initial value for the vertical tab.

ESC B NUL

[Name] Clear vertical tab position

[Code]	ASCII	ESC	B	NUL
	Hex.	1B	42	00
	Decimal	27	66	0

[Defined Area] - - -
[Initial Value] - - -
[Function] Clears the currently set vertical tab.

2.2.6. Horizontal Direction Printing Position

ESC l n

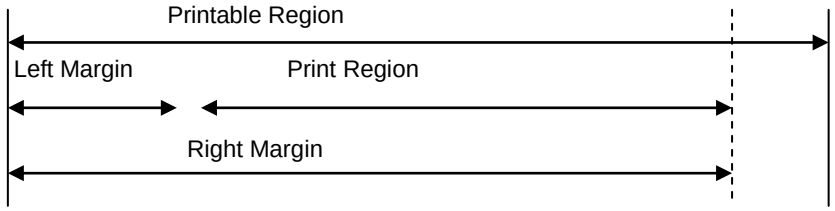
[Name] Set left margin
[Code] ASCII ESC l n
Hex. 1B 6C n
Decimal 27 108 n

[Defined Area] 0≦n≦255
[Initial Value] n = 0
[Function] Uses the left edge as a standard to set the left margin as (current ANK character pitch x n).
Character pitch includes the space between characters and expansion settings are enabled.
The left margin set using this command is unaffected by changing the character pitch.
This command is ignored if settings are for a printing region less than 36 mm.
This command is enabled only when at the top of the line.

ESC Q n

[Name] Set right margin
[Code] ASCII ESC Q n
Hex. 1B 51 n
Decimal 27 81 n

[Defined Area] 0≦n≦255
[Initial Value] - - -
[Function] Uses the left edge as a standard to set the print region as (current ANK character pitch x n).
Character pitch includes the space between characters and expansion settings are enabled.
The right margin set using this command is unaffected by changing the character pitch.
This command is ignored if settings are for a printing region less than 36 mm.
This command is enabled only when at the top of the line.



HT

[Name] Move horizontal tab

[Code]			
	ASCII	HT
	Hex.	09
	Decimal	9

[Defined Area] - - -

[Initial Value] - - -

[Function] Move print position to next horizontal tab position.

This command is ignored with under the following conditions.

• When there is no horizontal tab set.

• When the current position is the same as the furthest right horizontal tab position or to the right of it.

There is no initial value for the horizontal tab.

ESC D n1 n2...nk NUL

[Name] Set horizontal tab

[Code]								
	ASCII	ESC	D	n1	n2	...	nk	NUL
	Hex.	1B	44	n1	n2	...	nk	00
	Decimal	27	68	n1	n2	...	nk	0

[Defined Area] $1 \leq n \leq 255$

$0 \leq k \leq 16$

[Initial Value] - - -

[Function] Uses the left edge as a standard to set the horizontal tab to the position of (current ANK character pitch x n).

The horizontal tab reference point is the right edge of the paper, regardless of the left margin.

ANK character pitch includes the right space and expansion settings are enabled.

All other horizontal tabs set before setting the horizontal tab using this command are cancelled

A maximum of 16 horizontal tabs can be set.

However, the tab position must satisfy the following conditions.

If the following conditions are not met, data up to the NUL code is discarded.

Normal tabs that meet the conditions below are set and tabs after errors occur are not set.

- $1 < n1 < n2 ... < nk$
- $nk \leq$ Printable region

The horizontal tab set using this command is unaffected by changing the character pitch.

Horizontal tabs set using the ESC D NUL command are cleared.

There is no initial value for the horizontal tab.

ESC D NUL

[Name] Clear horizontal tab

[Code]

ASCII	ESC	D	NUL
Hex.	1B	44	00
Decimal	27	68	0

[Defined Area] - - -

[Initial Value] - - -

[Function] Clears the currently set horizontal tab.

ESC GS A n1 n2

[Name] Move absolute position

[Code]

ASCII	ESC	GS	A	n1	n2
Hex.	1B	1D	41	n1	n2
Decimal	27	29	65	n1	n2

[Defined Area] 0≤n1≤255
0≤n2≤255

[Initial Value] - - -

[Function] Moves the printing position from the left margin to the (n1 + n2 x 256) position.
This command is ignored if the print region is exceeded.
If print data is overlapped when moved to the left, the old print data is overwritten by new data (that is, only the portion overlapped by the new data is lost).

ESC GS R n1 n2

[Name] Move relative position

[Code]

ASCII	ESC	GS	R	n1	n2
Hex.	1B	1D	52	n1	n2
Decimal	27	29	82	n1	n2

[Defined Area] 0≤n1≤255
0≤n2≤255

[Initial Value] - - -

[Function] Moves the printing position from the current position to the (n1 + n2 x 256) position.
This command is ignored if the print region is exceeded.
When (n1 + n2 x 256) ≥ 32768, it moves {65536 – (n1 + n2 x 256)} dots in the left direction.
When (n1 + n2 x 256) < 32768, it moves (n1 + n2 x 256)} dots in the right direction.
If print data is overlapped when moved to the left, the old print data is overwritten by new data (that is, only the portion overlapped by the new data is lost).

ESC GS a n

[Name] Specify position alignment

[Code]

ASCII	ESC	GS	a	n
Hex.	1B	1D	61	n
Decimal	27	29	97	n

[Defined Area] 0≦n≦2
48≦n≦50 (”0”≦n≦”2”)

[Initial Value] n = 0

[Function] Specifies the alignment position in the printing region that has been set.

n	Position alignment
0, 48	Left alignment
1, 49	Center alignment
2, 50	Right alignment

2.2.7. Download

ESC & c1 c2 n d1...d48

[Name] Register 12 x 24 dot font download characters

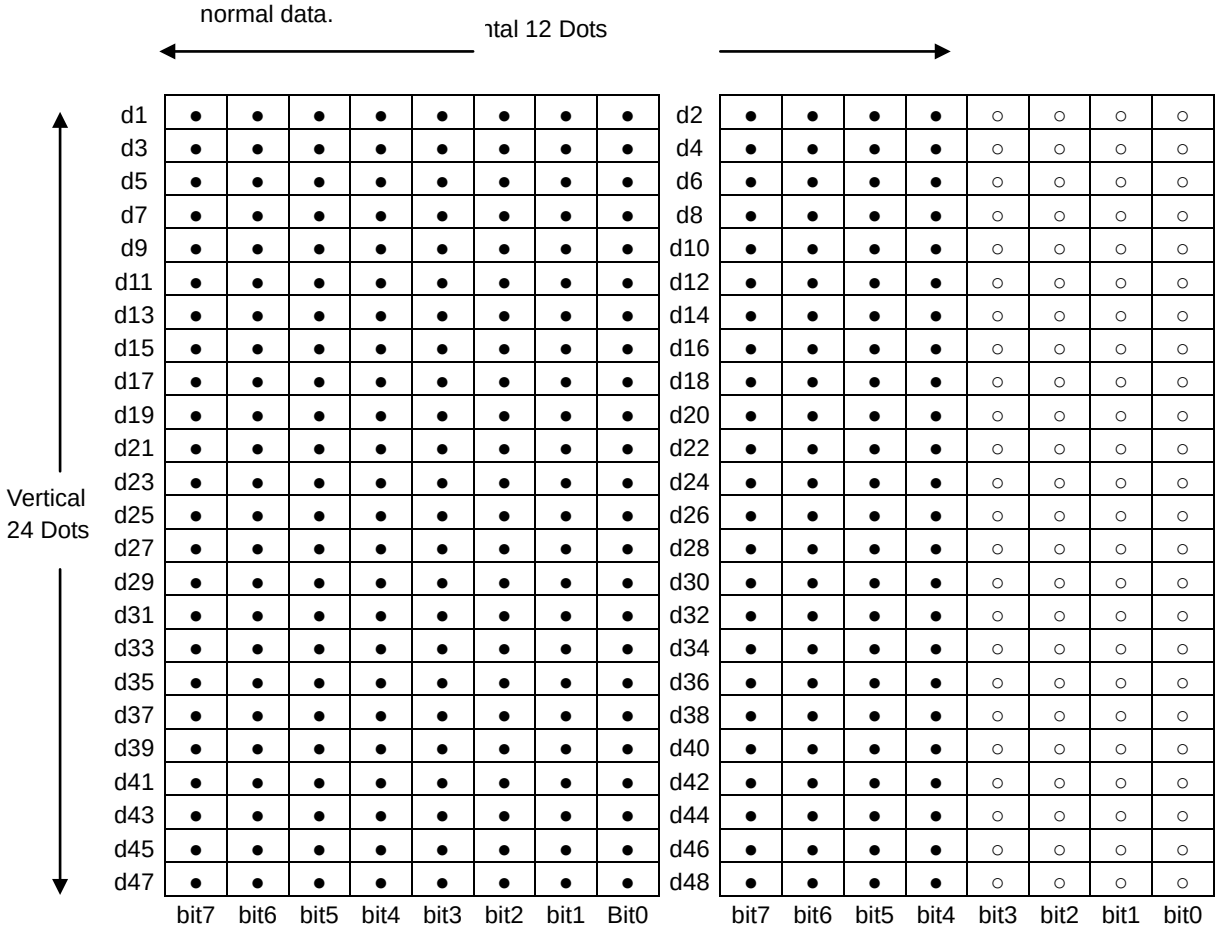
[Code]

ASCII	ESC	&	c1	c2	n	d1	...	d48
Hex.	1B	26	c1	c2	n	d1	...	d48
Decimal	27	38	c1	c2	n	d1	...	d48

[Defined Area] c1 = 1, 49
c2 = 1, 49
32≤n≤127
0≤d≤255

[Initial Value] - - -

[Function] Registers 12 x 24 dot font download characters to the nth address.
Download characters can be registered to <20>H to <7F>H.
If one has been already registered to an address, it is overwritten.
When parameters c1 and c2 and n are outside of the defined area, subsequent data is handled as normal data.



●: Font data
○: Invalid data

ESC & c1 c2 n

[Name] Delete 12 x 24 dot font download characters

[Code]

ASCII	ESC	&	c1	c2	n
Hex.	1B	26	c1	c2	n
Decimal	27	38	c1	c2	n

[Defined Area] c1 = 1, 49
c2 = 0, 48
32≤n≤127

[Initial Value] - - -

[Function] Deletes 12 x 24 dot font download characters registered to the nth address.

ESC % n

[Name] Specifies/cancels ANK download characters

[Code]

ASCII	ESC	%	n
Hex.	1B	25	n
Decimal	27	37	n

[Defined Area] n=0, 1, 48, 49

[Initial Value] ANK download characters cancelled

[Function] Specifies/cancels ANK download characters

n	Download characters
0, 48	Cancels ANK download characters
1, 49	Specifies ANK download characters

<Print example of ANK download characters>
1. ANK download character register (ESC & c1 c2 n d1…d48)
2. Specify ANK download characters (ESC % n (n = 1))
3. Prints ANK download characters

2.2.8. Bit Image Graphics

ESC K n1 n2 d1...dk

[Name] Standard density bit image

[Code]

ASCII	ESC	K	n1	n2	d1	...	dk
Hex.	1B	4B	n1	n2	d1	...	dk
Decimal	27	75	n1	n2	d1	...	dk

[Defined Area] $1 \leq \{(n1 + n2 \times 256) \times 3\} \leq$ printable region

$k = (n1 + n2 \times 256)$

$0 \leq d \leq 255$

[Initial Value] - - -

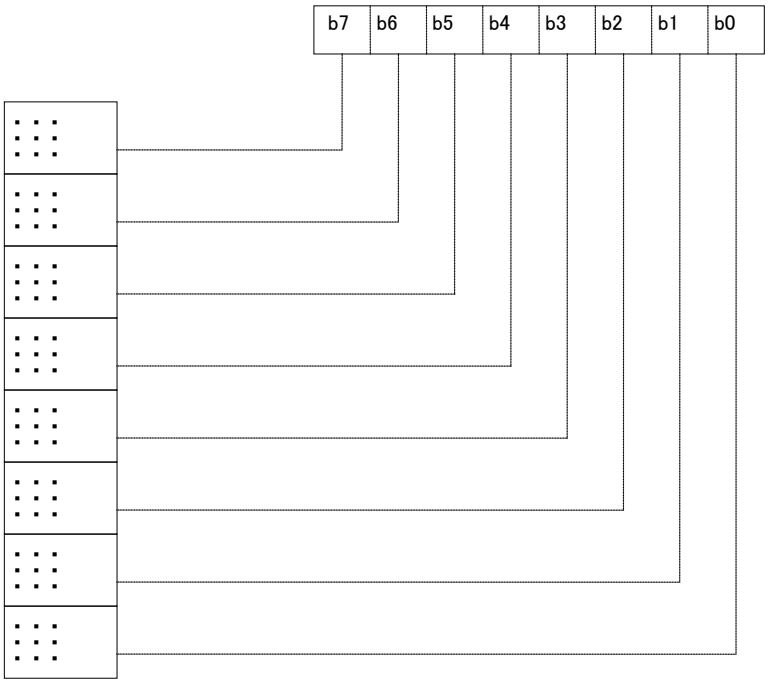
[Function] Prints bit images using 3 dots wide and 3 dots high per 1 dot of input data.

The following shows the data processing in this command.

• When {(n1 + n2 x 256) x 3} exceeds the printable region that is currently set, only the data in the printing region is printed.

At this time, all data for the print region is discarded.

• If the current position already exceeds the print region, this command discards all data.



ESC L n1 n2 d1...dk

[Name] Standard density bit image

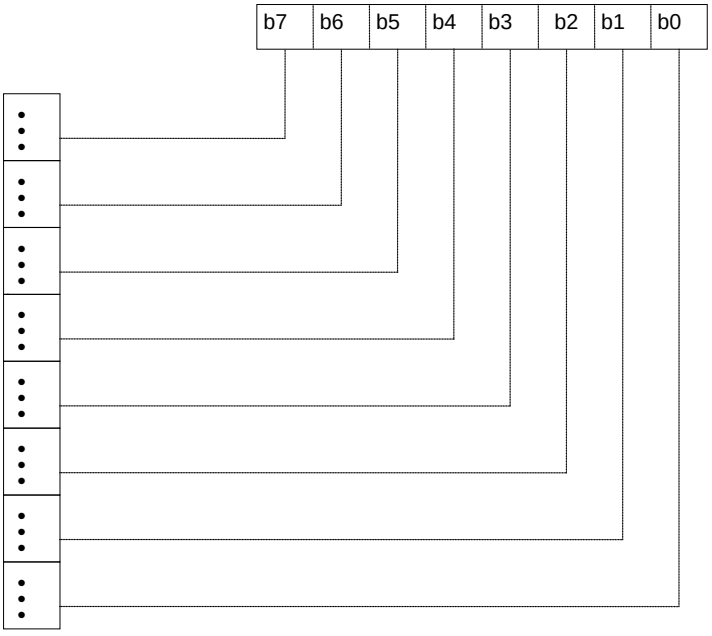
[Code]

ASCII	ESC	L	n1	n2	d1	...	dk
Hex.	1B	4C	n1	n2	d1	...	dk
Decimal	27	76	n1	n2	d1	...	dk

[Defined Area] 1 ≦ (n1 + n2 x 256) ≦ printable region
k = (n1 + n2 x 256)
0≦d≦255

[Initial Value] - - -

[Function] Prints bit images using 1 dot wide and 3 dots high per 1 dot of input data.
The following shows the data processing in this command.
• When (n1 + n2 x 256) exceeds the printable region that is currently set, only the data in the printing region is printed.
At this time, all data for the print region is discarded.
• If the current position already exceeds the print region, this command discards all data.



ESC k n1 n2 d1...dk

[Name] Fine density bit image

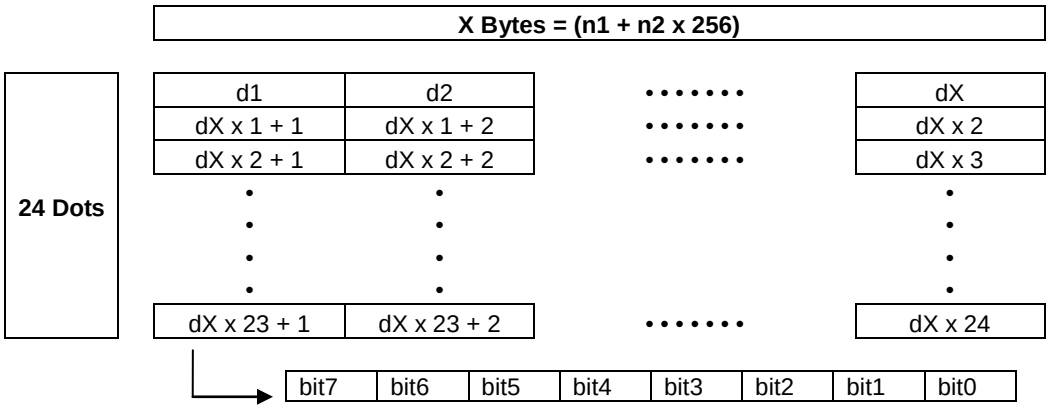
[Code]

ASCII	ESC	k	n1	n2	d1	...	dk
Hex.	1B	6B	n1	n2	d1	...	dk
Decimal	27	107	n1	n2	d1	...	dk

[Defined Area] n2 = 0
1 ≦ {(n1 + n2 x 256) x 8} ≦ printable region
k = {(n1 + n2 x 256) x 24}
0≦d≦255

[Initial Value] - - -

[Function] Prints bit images using 1 dot wide and 1 dots high per 1 dot of input data.
The following shows the data processing in this command.
• When {(n1 + n2 x 256) x 8} exceeds the printable region that is currently set, only the data in the printing region is printed.
At this time, all data for the print region is discarded.
• If the current position already exceeds the print region, this command discards all data.



ESC X n1 n2 d1...dk

[Name] Fine density bit image (Compatible with 24 bit wire dots)

[Code]

ASCII	ESC	X	n1	n2	d1	...	dk
Hex.	1B	58	n1	n2	d1	...	dk
Decimal	27	88	n1	n2	d1	...	dk

[Defined Area] $1 \leqq (n1 + n2 \times 256) \leqq$ printable region

$k = \{(n1 + n2 \times 256) \times 3\}$

$0 \leqq d \leqq 255$

[Initial Value] - - -

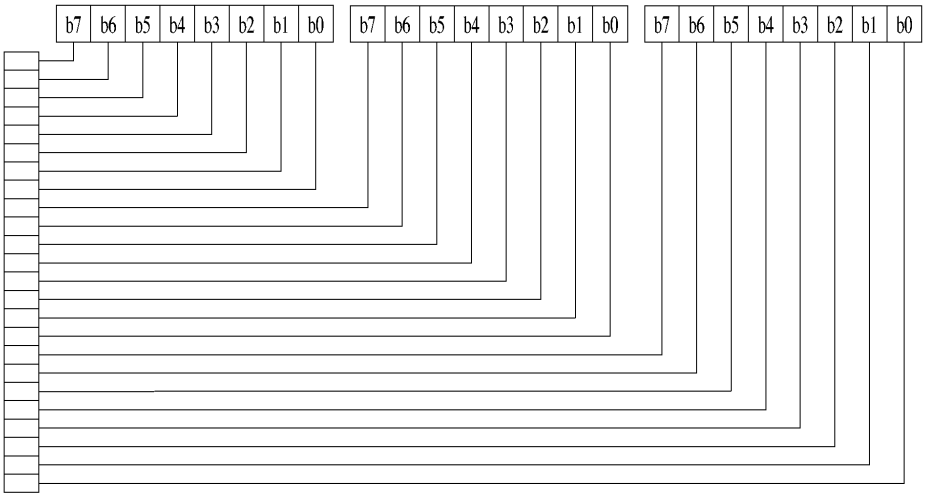
[Function] Prints input bit images with 8 dots/mm resolution for both horizontal and vertical.

The following shows the data processing in this command.

• When {(n1 + n2 x 256) x 3} exceeds the printable region that is currently set, only the data in the printing region is printed.

At this time, all data for the print region is discarded.

• If the current position already exceeds the print region, this command discards all data.



3.3.9. Logo

ESC FS q n [x11 x12 y11 y12 d1...dk]1...[xn1 xn2 yn1 yn2 d1...dk]n

[Name] Register logo

[Code]

ASCII	ESC	FS	q	n	[x11	x12	y11	y12	d1	... dk]1	...	[xn1	xn2	yn1	yn2	d1	... dk]n
Hex.	1B	1C	71	n	[x11	x12	y11	y12	d1	... dk]1	...	[xn1	xn2	yn1	yn2	d1	... dk]n
Decimal	27	28	113	n	[x11	x12	y11	y12	d1	... dk]1	...	[xn1	xn2	yn1	yn2	d1	... dk]n

[Defined Area]
1≦n≦255
0≦xn1≦255, 0≦xn2≦3
1≦(xn1 + xn2 x 256)≦1023
0≦yn1≦255, 0≦yn2≦1
1≦yn1 + yn2 x 256)≦288
0≦d≦255
k = {(xn1 + xn2 x 256) x (yn1 + yn2 x 256) x 8}

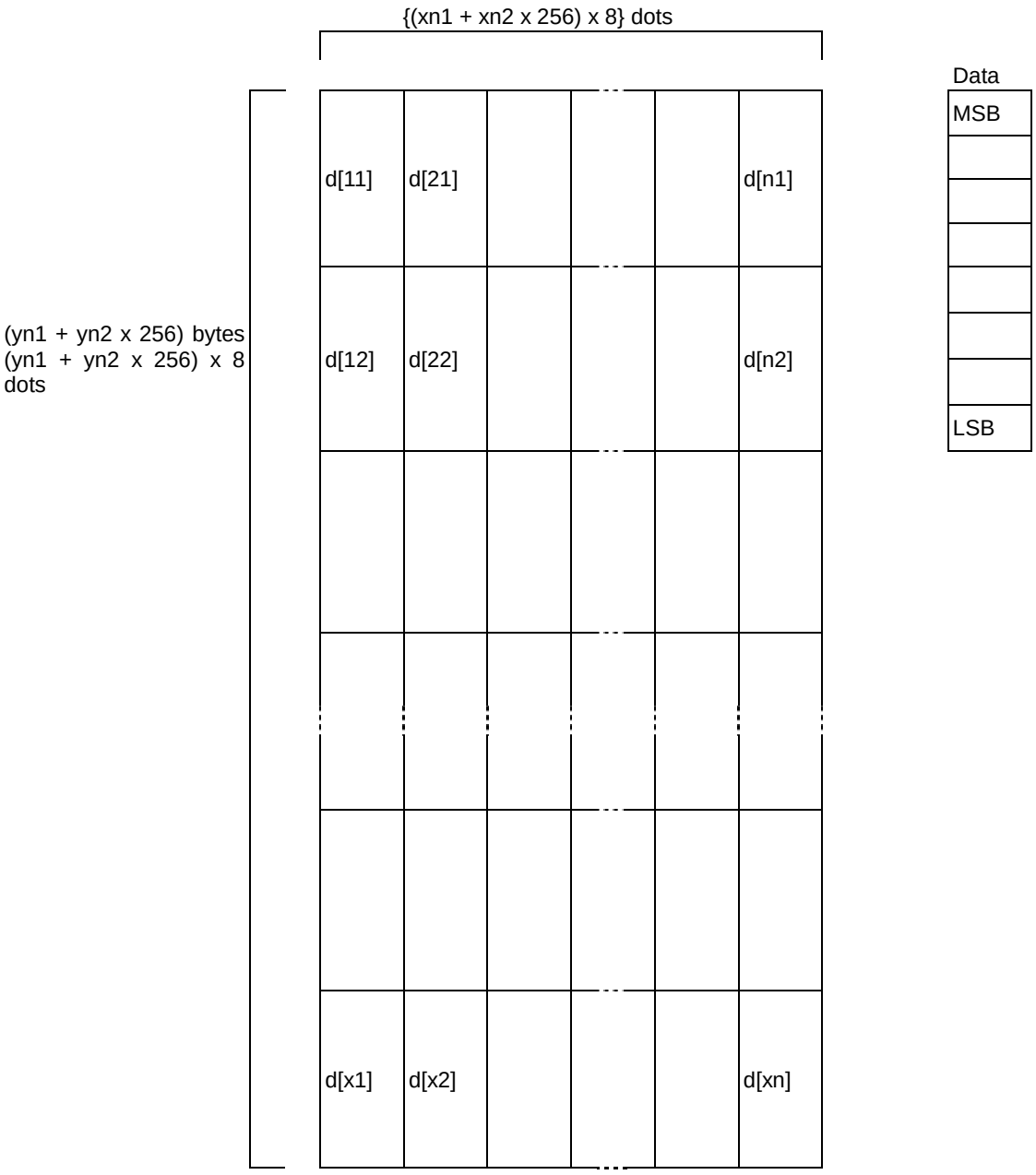
[Initial Value] - - -

[Function]
Parameter details
- n: Specifies registered logo count
- xn1, xn2: Horizontal size of registered logo {(xn1 + xn2 x 256) x 8} dots
- yn1, yn2: Vertical size of registered logo {(yn1 + yn2 x 256) x 8} dots
- d: Registered logo data
- k: Logo data count

This command should be specified at the top of the line.
If unprinted data still exists in the line buffer, the buffered data is printed out and then the command is executed.
When the first parameter is determined to be free of error, the printer starts processing this command.
When logo register processing starts, all previously defined data is deleted.
(It is not possible to reregister a portion of a plurality of defined logo data.)
Logo registration numbers are defined in rising order from 1.
If the defined area specified by the parameter is not empty, or if there is an error in the parameter specification, register processing is aborted. (The pre-registered and complete data is effective.)
The printer should be initialized if logo registration is completed or register processing is aborted.
If an error occurs while performing register processing (the time from when the first parameter is OK until the printer initialization is completed after registering a logo), error processing, mechanical operation and status processing cannot be performed.
The relationships between input data and the actual print are shown on the next page.

[Command Emulator] Write to xml file.
After registration: Settings on the Command Emulator are initialized to the xml file contents.
(<ESC> @ operation + clear external character registration)
Registration size up to 65535 x 65535 (normally 1023 x 288)

Relationships of logo and registered data
xn = xn1 + xn2 x 256, yn = yn1 + yn2 x 256



ESC FS p n m

[Name] Print logo

[Code]						
	ASCII	ESC	FS	p	n	m
	Hex.	1B	1C	70	n	m
	Decimal	27	28	112	n	m

[Defined Area] 1≦n≦255
0≦m≦3
48≦m≦51 (”0”≦m≦”3”)

[Initial Value] - - -

[Function] Prints the logo of registration number n registered using the logo registration command (ESC FS q) according to the print mode m.

m	Logo print mode
0, 48	Normal mode
1, 49	Double wide mode
2, 50	Double high mode
3, 51	Double high/wide mode

If there is unprinted data in the line buffer, this command is executed after printing that data. Therefore, it is not possible to print with other data in the same line (characters, bit images, bar codes).
Form feed obeys the vertical print size of the logo.
If the logo horizontal print size exceeds the horizontal print region, the portion exceeding the area is not printed.
Logos are printed according to the following command settings.

- Left margin (ESC I n)
- Right margin (ESC Q n)
- Position alignment (ESC GS a n)
- Absolute position movement (ESC GS A n1 n2)
- Relative position movement (ESC GS R n1 n2)
- Upside-down printing (SI)

2.2.10. Bar Code

ESC b n1 n2 n3 n4 d1...dk RS

[Name]

[Code]											
	ASCII	ESC	b	n1	n2	n3	n4	d1	...	dk	RS
	Hex.	1B	62	n1	n2	n3	n4	d1	...	dk	1E
	Decimal	27	98	n1	n2	n3	n4	d1	...	dk	30

[Defined Area] 0≦n1≦8, 48≦n1≦56 (”0□≦n1≦”8”)
1≦n2≦4, 49≦n2≦52 (”1”≦n2≦”4”)
1≦n4≦255
n3 (bar code mode), d (bar code data), k (bar code data count) definitions differ according to the type of bar code.

[Initial Value] - - -

[Function] Bar code printing is executed according to the following parameters.
If n1, n2, n3 and n4 are acquired and detected to be out of the defined area, data up to RS is discarded.

• n1 bar code type selection

n1	Bar code type
0, 48	UPC-E
1, 49	UPC-A
2, 50	JAN/EAN8
3, 51	JAN/EAN13
4, 52	Code39
5, 53	ITF
6, 54	Code128
7, 55	Code93
8, 56	NW-7

• n2 Under-bar character selection and added line feed selection

n2	Under-bar character selection and added line feed selection		
	Font	Position of under-bar character	line feed after printing
1, 49	-	None	Execute
2, 50	Font A	Under position	Execute
3, 51	-	None	not execute
4, 52	Font A	Under position	not execute

• n3 bar code mode selection

n3	Bar code type		
	UPC-E, UPC-A, JAN/EAN8 JAN/EAN13, Code128, Code93	Code39, NW-7	ITF
	Minimum module	Narrow: Wide	Narrow: Wide
1, 49	2 dots	2:6 dots	2:5 dots
2, 50	3 dots	3:9 dots	4:10 dots
3, 51	4 dots	4:12 dots	6:15 dots
4, 52	- - -	2:5 dots	2:4 dots
5, 53	- - -	3:8 dots	4:8 dots
6, 54	- - -	4:10 dots	6:12 dots
7, 55	- - -	2:4 dots	2:6 dots
8, 56	- - -	3:6 dots	3:9 dots
9, 57	- - -	4:8 dots	4:12 dots

• n4 bar code height (dot count)

Form feed at (Bar code height + underbar characters)

• k (Bar code data count), d (Bar code data)

Bar code type	Defined area of k	Defined area of d
UPC-E	11≦k≦12	48≦d≦57 (”0”≦d≦”9”)
UPC-A	11≦k≦12	48≦d≦57 (”0”≦d≦”9”)
JAN/EAN8	7≦k≦8	48≦d≦57 (”0”≦d≦”9”)
JAN/EAN13	12≦k≦13	48≦d≦57 (”0”≦d≦”9”)
Code39	1≦k	48≦d≦57 (”0”≦d≦”9”) 65≦d≦90 (”A”≦d≦”Z”) 32, 36, 37, 43, 45, 46, 47 (SP, ”$”, ”%”, ”+”, ”-“, ”.”, ”/”)
ITF	1≦k When an odd number: 0 is automatically applied to the top.	48≦d≦57 (“0”□≦d≦”9”)
Code128	1≦k	0≦d≦127
Code93	1≦k	0≦d≦127
NW-7	1≦k	48≦d≦57 (”0”≦d≦”9”) 65≦d≦68 (”A”≦d≦”D”) 36, 43, 45, 46, 47, 58 (”$”, ”+”, ”-“, ”.”, ”/”, ”:”) 97, 98, 99, 100 (”a”, ”b”, ”c”, ”d”)

Note • The bar codes that are printed do not conform to each standard, so you should confirm before actual use. Particularly, if 1dot is specified, the bar code is not guaranteed.

• UPC – E: k = 11 (or 12)
The 12th check digit is automatically applied, so it is specified and ignored.
The command is ignored for data that cannot be shortened.
Automatically converts data to shortened form.

• UPC – A: k = 11 (or 12)
The 12th check digit is automatically applied, so it is specified and ignored.

• JAN/EAN – 8: k = 7 (or 8)
The 8th check digit is automatically applied, so it is specified and ignored.

• JAN/EAN -13: k = 12 (or 13)
The 13th check digit cannot be automatically applied, so it is specified and ignored.

• CODE 39: k is freely set, and maximum value differs according to the mode.
Start/stop code (“*”) is automatically applied.

• ITF: k is freely set, and maximum value differs according to the mode.
If data is oddly numbered, a 0 is applied to the top.

• CODE 128: k is freely set, and maximum value differs according to the mode and the print character type.
The check character is automatically applied.

• CODE 93: k is freely set, and maximum value differs according to the mode and the print character type.
The check character (“□”) is automatically applied.

• NW7: k is freely set, and maximum value differs according to the mode and the print character type.
Start/stop codes included in the data (not automatically applied).

2.2.11. Cutter Control

ESC d n

[Name] Auto-cutter
[Code]

ASCII	ESC	d	n
Hex.	1B	64	n
Decimal	27	100	n

[Defined Area] 0≦d≦3
48≦d≦51 (”0”≦d≦”3”)

[Initial Value] - - -
[Function] Executes the auto-cutter.
After auto-cutter is executed, the printer considers that to be the top of the page.

n	Auto cutter
0, 48	Full cut at the current position. Print data in line buffer is printed before a full cut. This command is ignored if the printer is not equipped with an auto-cutter.
1, 49	Partial cut at the current position. Print data in line buffer is printed before a partial cut. This command is ignored if the printer is not equipped with an auto-cutter.
2, 50	Paper is fed to cutting position, then a full cut. Print data in line buffer is printed before the operation described above. This command is ignored if the printer is not equipped with an auto-cutter.
3, 51	Paper is fed to cutting position, then a partial cut. Print data in line buffer is printed before the operation described above. This command is ignored if the printer is not equipped with an auto-cutter.

(*) The auto-cutter function operates in the following ways on models that only have a full cut or a partial cut.

- Models that perform only a full cut. Executes a full cut when there are instructions calling for a partial cut.
- Models that perform only a partial cut. Executes a partial cut when there are for instructions calling for a full cut.

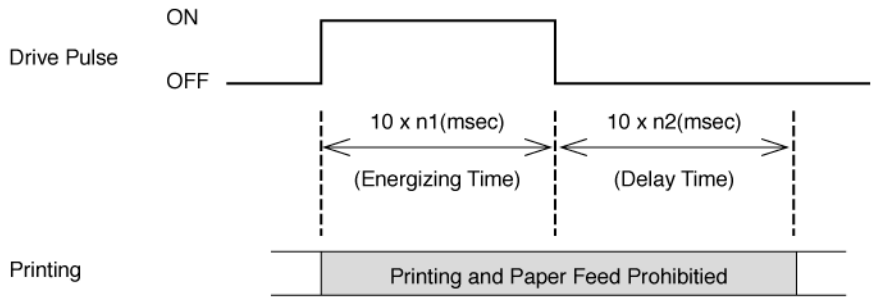
2.2.12. External Device Drive

ESC BEL n1 n2

[Name] Set external drive device 1 pulse width
[Code]

ASCII	ESC	BEL	n1	n2
Hex.	1B	07	n1	n2
Decimal	27	7	n1	n2

[Defined Area] 1≦n1≦127
1≦n2≦127
[Initial Value] n1 = 20 (Energizing time: 200 msec)
n2 = 20 (Delay time: 200 msec)
[Function] Sets the energizing and delay times for drive of the external device.
• Energizing time = 10 x n1 (ms)
• Delay time = 10 x n2 (ms)



BEL

[Name] External device 1 drive instruction
[Code]

ASCII	BEL
Hex.	07
Decimal	7

[Defined Area] - - -
[Initial Value] - - -
[Function] Executes the external device drive conditions set according to the command to set the external drive device pulse width (ESC BEL n1 n2).
As with other commands, it temporarily stores data in the data buffer, then executes in the order received.
External device 1 and external device 2 cannot be executed simultaneously.
If unprinted data still exists in the line buffer, the buffered data is printed out and then the command is executed

FS

[Name] External device 1 drive instruction
[Code] ASCII FS
Hex. 1C
Decimal 28

[Defined Area] - - -
[Initial Value] - - -
[Function] Executes the external device drive conditions set according to the command to set the external drive device pulse width (ESC BEL n1 n2).
As with other commands, it temporarily stores data in the data buffer, then executes in the order received.
External device 1 and external device 2 cannot be executed simultaneously.

SUB

[Name] External device 2 drive instruction
[Code] ASCII SUB
Hex. 1A
Decimal 26

[Defined Area] - - -
[Initial Value] - - -

[Function] Drives external device 2.
The energizing time and delay time for the external device 2 are fixed at 200 ms each.
As with other commands, it temporarily stores data in the data buffer, then executes in the order received.
External device 1 and external device 2 cannot be executed simultaneously.

EM

[Name] External device 2 drive instruction
[Code] ASCII EM
Hex. 19
Decimal 25

[Defined Area] - - -
[Initial Value] - - -
[Function] Drives external device 2.
The energizing time and delay time for the external device 2 are fixed at 200 ms each.
As with other commands, it temporarily stores data in the data buffer, then executes in the order received.
External device 1 and external device 2 cannot be executed simultaneously.

ESC GS BEL m t1 t2

[Name] Ring buzzer

[Code]

ASCII	ESC	GS	BEL	m	t1	t2
Hex.	1B	1D	07	m	t1	t2
Decimal	27	29	7	m	t1	t2

[Defined Area] 1≦m≦2, 49≦m≦50 (”1”≦m≦“2”)
1≦t1≦255
1≦t2≦255

[Initial Value] - - -

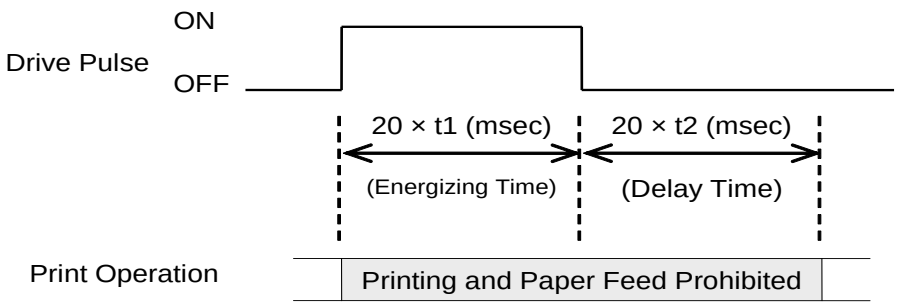
[Function] Rings the buzzer.
m specifies the drive terminal of the buzzer.

m	Buzzer Drive Terminal
1, 49	Buzzer Drive Terminal 1
2, 50	Buzzer Drive Terminal 2

t1 specifies energizing time; t2 specifies the delay time.

- Energizing time = 20 msec x t1
- Delay time = 20 msec x t2

The buzzer will not ring while printing.
Use of this command other than for ringing the buzzer is prohibited.
(There is the possibility of damage if using this command for driving the drawer on models that support external device terminals.)



2.2.13. Print Settings

ESC RS d n

[Name] Set print density

[Code]

ASCII	ESC	RS	d	n
Hex.	1B	1E	64	n
Decimal	27	30	100	n

[Defined Area] 0≦n≦ 6
48≦n≦57 (”0”≦n≦”6”)

[Initial Value] Memory switch setting

[Function] Sets print density.
This command executes after stopping the printing operation.
When in 2-color mode, only print density for red printing can be set by this command.
When in low peak current mode, print density using this command is invalid.

n	Print Density	
	Single Color Printing Mode	Two Color Printing Mode Red Print Density Double Resolution Mode (*) Installed print mode depends on the model.
0, 48	Print density 1.3	Print density 1.2
1, 49	Print density 1.2	Print density 1.2
2, 50	Print density 1.1	Print density 1.0
3, 51	Print density 1.0	Print density 1.0
4, 52	Print density 0.9	Print density 1.0
5, 53	Print density 0.8	Print density 0.8
6, 54	Print density 0.7	Print density 0.8

*1) See the appropriate printer specifications manual for details on the print modes that are available.

ESC RS r n

[Name] Set print speed

[Code]

ASCII	ESC	RS	r	n
Hex.	1B	1E	72	n
Decimal	27	30	114	n

[Defined Area] 0≦n≦3
48≦n≦51 (”0”≦n≦”3”)

[Initial Value] Memory switch setting

[Function] Sets print speed.
This command stops printing to be executed.
Because two-color print mode, low peak current mode, and double resolution mode print in one speed, the speed settings with this command are invalid.
This command setting becomes valid when returned from the two-color print mode, low peak current mode, and double resolution mode to the single color print mode.
The speed setting is disabled during reduced printing in the vertical direction. However, this command setting is enabled when reduced printing in the vertical direction is released.

n	Print Speed	
	Single Color Printing Mode	Two Color Printing Mode Low Peak Current Mode Double Resolution (*) Installed print mode depends on the model.
0, 48	High speed	Each print mode speed
1, 49	Mid-speed	Each print mode speed
2, 50	Slow speed	Each print mode speed
3, 51	Option-speed (*) Print speed depends on the model.	Each print mode speed

*1) See the appropriate printer specifications manual for details on the print modes that are available.

3.3.14. Status

ESC RS a n

[Name] Set status transmission conditions

[Code]	ASCII	ESC	RS	a	n
	Hex.	1B	1E	61	n
	Decimal	27	30	97	n

[Defined Area] 0≦n≦3, 48≦n≦51(”0”≦n≦”3”)
[Initial Value] Set by DIP switches and memory switches.
[Function] Sets the status transmission conditions.

[Command Emulator] 4 bytes are ignored.

ESC ACK SOH

[Name] Real-time printer status (ASB status)

[Code]	ASCII	ESC	ACK	SOH
	Hex.	1B	06	01
	Decimal	27	6	1

[Defined Area] - - -
[Initial Value] - - -
[Function] Sends ASB status information to the host.
This command is not used when ASB is valid.
See next page, Automatic Status for details regarding ASB status.

[Command Emulator] When using a serial port emulator, operations are possible.

	Bit	Contents	Status “0”	Status “1”
Header 1	-	Printer Status Byte Count (9Byte)	-	-
Header 2	-	Automatic status version (Ver3)	-	-
Printer status 1 Printer status	7	Not Used	Fixed at “0”	
	6	OFFLINE By Switch Input	No	Occurs
	5	Cover Status	Closed	Open
	4	Fixed at “0”	Fixed at “0”	
	3	ONLINE/OFFLINE Status	ON-LINE	OFF-LINE
	2	Conversion SW	Open	Closed
	1	<ETB> Command	Not Executed	Executed
	0	Fixed at “0”	Fixed at “0”	
Printer status 2 Error Information	7	Not Used	Fixed at “0”	
	6	Stopped by high head temperature	Not stopped	Stopped
	5	Non-recoverable Error	No Error	Error
	4	Fixed at “0”		
	3	Auto-cutter Error	No Error	Error
	2	Mechanical Error	No Error	Error
	1	Not Used		
	0	Fixed at “0”	Fixed at “0”	
Printer status 3 Error Information	7	Not Used	Fixed at “0”	
	6	Buffer overflow	No Error	Error
	5	Command Error	No Error	Error
	4	Fixed at “0”	Fixed at “0”	
	3	Black mark error	No Error	Error
	2	Presenter Paper Jam Error	No Error	Error
	1	Not Used (Fixed at “0”)		
	0	Fixed at “0”	Fixed at “0”	
Printer status 4 Sensor Information	7	Not Used	Fixed at “0”	
	6	Not Used (Fixed at “0”)		
	5	Black Mark Detection Status	White detection	Black detection
	4	Fixed at “0”	Fixed at “0”	
	3	Paper end	Paper	No paper
	2	Paper Near-end (Inner Side)	Paper	No paper
	1	Not Used (Fixed at “0”)		
	0	Fixed at “0”	Fixed at “0”	
Printer status 5 Sensor Information	1	Stack Sensor Status	No paper	Paper
Printer status 6 ETB Counter	6,5, 3,2,1	ETB Counter		
Printer status 7 Position for Presenter Paper	3,2,1	Presenter Paper Position		

ENQ

[Name] Real-time printer status (1)
[Code] ASCII ENQ
Hex. 05
Decimal 5

[Defined Area] - - -
[Initial Value] - - -
[Function] Sends 1 byte of the following the printer status
This command is not used when ASB is valid.

Bit	Contents	Status	
		"0"	"1"
7	Conversion SW	OPEN	CLOSE
6	Overrun Error	No	Yes
5	Reception Buffer Empty	Has Data	Empty
4	Fixed at "0"		
3	Paper end	Paper	No Paper
2	Other Errors	No	Yes
1	Framing Error	No	Yes
0	Parity Error	No	Yes

[Command Emulator] When using a serial port emulator, operations are possible.

EOT

[Name] Real-time printer status (2)
[Code] ASCII EOT
Hex. 04
Decimal 4

[Defined Area] - - -
[Initial Value] - - -
[Function] Sends 1 byte of the following the printer status
This command is not used when ASB is valid.

Bit	Contents	Status	
		"0"	"1"
7	Compulsion SW	OPEN	CLOSE -
6	Presenter Paper Jam Error	No	Yes
5	Paper Near-end (Outer Side)	Paper	No Paper
4	Fixed at "1"		-
3	Paper end	Paper	No Paper
2	Paper Near-end (Inner Side)	Paper	No Paper
1	BINDING MEDIA Error	No	Yes
0	Fixed at "0"		-

[Command Emulator] When using a serial port emulator, operations are possible.

ETB

[Name] Update ASB ETB status
[Code] ASCII ETB
Hex. 17
Decimal 23

[Defined Area] - - -
[Initial Value] - - -
[Function] Sets the ASB ETB status when reading this command from the reception buffer, then sends ASB.

[Command Emulator] 1 byte is ignored.

ESC RS E n

[Name] Initialize ASB ETB counter and ETB status
[Code] ASCII ESC RS E n
Hex. 1B 1E 45 n
Decimal 27 30 69 n

[Defined Area] n = 0
n = 48 (“0”)
[Initial Value] ASB ETB counter = 0
[Function] Clears the ASB ETB counter to zero, then clears the ETB status.
However, ASB status is not send when clearing the ETB counter to zero using this command. The ETB counter and ETB status are initialized by the following command, not this command.
• Cancel print data and initialize command <CAN>

[Command Emulator] 1 byte is ignored.

3.3.15. Kanji characters

ESC p

[Name] Specify JIS Kanji character mode
[Code] ASCII ESC p
Hex. 1B 70
Decimal 27 112

[Defined Area] - - -
[Initial Value] JIS Kanji character mode cancelled
[Function] Specifies JIS Kanji character mode
When in JIS Kanji character mode, character codes are all handled as 2 byte Kanji characters (First byte: upper code; second byte: lower code).
This command is ignored for models not equipped with Japanese and Kanji characters and when the specification for the location of use is specified as SBCS (single byte countries) by the memory switch. In such a case, this is handled as the ANK font 14 dot pitch specification command.

ESC q

[Name] Cancel JIS Kanji character mode
[Code] ASCII ESC q
Hex. 1B 71
Decimal 27 113

[Defined Area] - - -
[Initial Value] JIS Kanji character mode cancelled
[Function] Cancel JIS Kanji character mode

ESC $ n

[Name] Specify/cancel Shift JIS Kanji character mode

[Code]

ASCII	ESC	$	n
Hex.	1B	24	n
Decimal	27	36	n

[Defined Area] - - -

[Initial Value] Config setting

[Function] Specifies and cancels the shift JIS Kanji character mode.
When in shift JIS Kanji character mode, character codes are all handled as 2 byte Kanji characters (First byte: upper code; second byte: lower code).
This command is ignored for models not equipped with Japanese and Kanji characters and when the specification for the location of use is specified as SBCS (single byte countries) by the memory switch.

n	Shift JIS Kanji character mode
0, 48	Cancels shift JIS Kanji character mode
1, 49	Specifies shift JIS Kanji character mode

ESC s n1 n2

[Name] Set 2 byte Kanji character left/right spaces

[Code]

ASCII	ESC	s	n1	n2
Hex.	1B	73	n1	n2
Decimal	27	115	n1	n2

[Defined Area] 0≦n1≦7
48≦n1≦55 (”0”≦n1≦”7”)
0≦n2≦15
48≦n2≦57 (”0”≦n2≦”9”)
65≦n2≦70 (”A”≦n2≦”F”)

[Initial Value] Config setting

[Function] Adds n1 dots left space amount and n2 dots right space amount to Kanji characters.
The Kanji character width is "left space amount” + "Kanji font dot count” + "right space amount.”
(See the information on character specifications in the appropriate printer specifications manual for details on the Kanji font dot count.)
This command is ignored for models not equipped with Chinese fonts (for overseas) and when the specification for the location of use is specified as SBCS (single byte countries) by the memory switch.

ESC t n1 n2

[Name] Set 1 byte Kanji character left/right spaces

[Code]

ASCII	ESC	t	n1	n2
Hex.	1B	74	n1	n2
Decimal	27	116	n1	n2

[Defined Area] 0≦n1≦7
48≦n1≦55 (”0”≦n1≦”7”)
0≦n2≦15
48≦n2≦57 (”0”≦n2≦”9”)
65≦n2≦70 (”A”≦n2≦”F”)

[Initial Value] Config setting

[Function] Adds n1 dots left space amount and n2 dots right space amount to single-byte Kanji characters.
The single-byte Kanji character width is "left space amount” + "single-byte Kanji font dot count” + "right space amount.”
(See the information on character specifications in the appropriate printer specifications manual for details on the single-byte Kanji font dot count.)
This command is ignored for models not equipped with Chinese fonts (for overseas) and when the specification for the location of use is specified as SBCS (single byte countries) by the memory switch.

ESC r c1 c2 d1...dk

[Name] Register Chinese download characters

[Code]

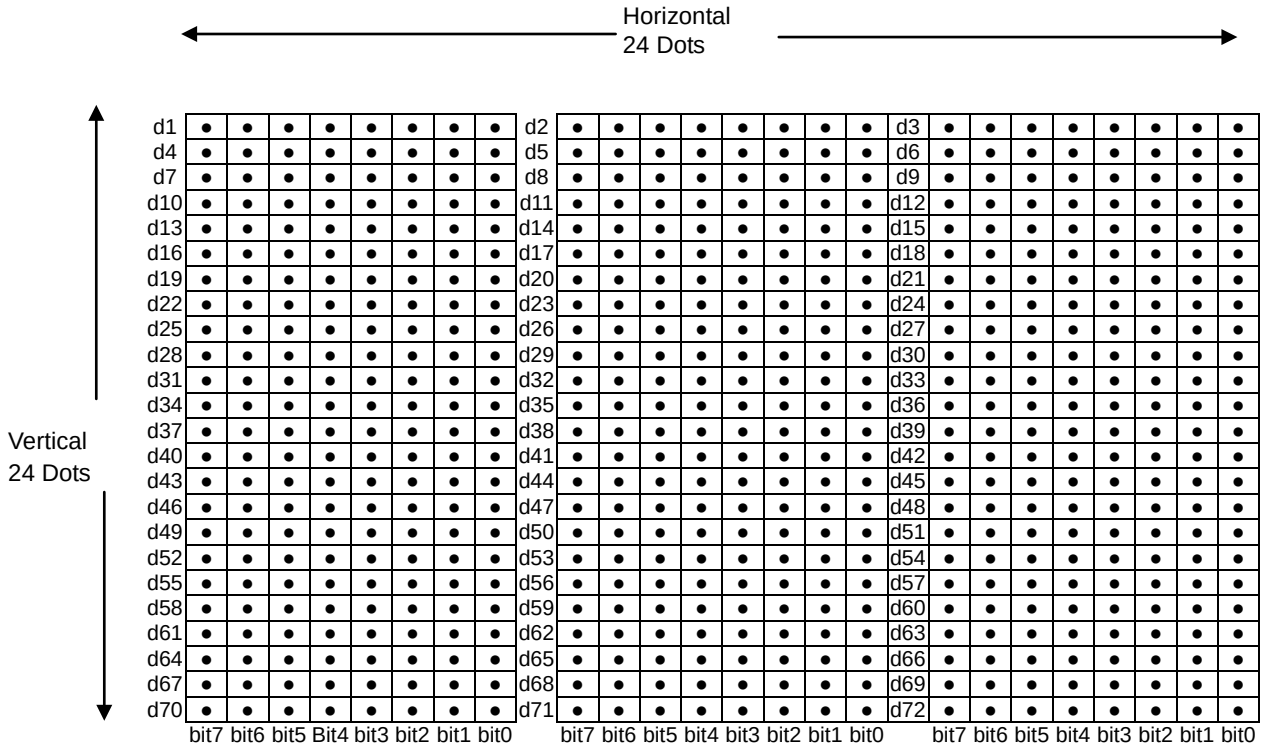
ASCII	ESC	r	c1	c2	d1	...	dk
Hex.	1B	72	c1	c2	d1	...	dk
Decimal	27	114	c1	c2	d1	...	dk

[Defined Area] 0≦d≦255
k=72
c1 and c2 differ according to specifications and code type (see table below).

[Initial Value] All spaces

[Function] Registers Chinese download characters to c1 and c2 addresses.
Those already registered to these addresses are overwritten. If c1 and c2 are outside of the defined are or the printer is model not equipped with Chinese fonts (for overseas) and when the specification for the location of use is specified as SBCS (single byte countries) by the memory switch, the printer discards up to d1 and dk.
This command exists in models that have the specifications of A and B below. (See the “Special Appendix, Command Table per Model” for details.)

Specification	c1	c2	Registration count
Japanese char./JIS type	c1=77h	30h≦c2≦4Fh	32 characters



●: Font data/○: Invalid data

2.2.16. Others

CAN

[Name] Cancel print data and initialize commands
[Code] ASCII CAN
Hex. 18
Decimal 24

[Defined Area] - - -
[Initial Value] - - -
[Function] When the reception buffer and line buffer are cleared, the set commands are initialized.
Immediately executed not when taking out from the reception buffer, but when received from the host.
DIPSW re-reading is not performed.
The following shows the specifications that are not initialized by this command.
• Set print density
• Set print speed
• Set 2 color print mode
• Print color in 2 color print mode
• External device drive condition

[Command Emulator] Not clear reception buffer.
Not real-time command.

ESC @

[Name] Command initialization
[Code] ASCII ESC @
Hex. 1B 40
Decimal 27 64

[Defined Area] - - -
[Initial Value] - - -
[Function] Initializes each command after printing data in the line buffer.
However, printers with memory switch settings are initialized to the memory switch settings.
DIPSW re-reading is not performed.

- ANK characters, Kanji character adornment, expansion
- Kanji character mode
- ANK right space
- Kanji character left/right spaces
- Character pitch
- International characters
- Code page
- Set slash zero
- Set specify/cancel external character (external register character data is retained)
- Page length
- Current position (move to top of page, top of line)
- Horizontal tab/Vertical tab
- Line feed amount
- Set upside-down, position alignment
- Left/right margins

The following shows the specifications that are not initialized by this command.

- Set print density
- Set print speed
- Set 2 color print mode
- Print color in 2 color print mode
- External device drive condition

ESC GS # m N n1 n2 n3 n4 LF NUL

[Name] Set memory switch

[Code]

ASCII	ESC	GS	#	m	N	n1	n2	n3	n4	LF	NUL
Hex.	1B	1D	23	m	N	n1	n2	n3	n4	0A	00
Decimal	27	29	35	m	N	n1	n2	n3	n4	10	0

[Defined Area] 48 ≦ n1 ≦ 57 (”0” ≦ n1 ≦ “9”), 65 ≦ n1 ≦ 70 (”A” ≦ n1 ≦ “F”), 97 ≦ n1 ≦ 102 (“a” ≦ n1 ≦ “f”)
48 ≦ n2 ≦ 57 (”0” ≦ n2 ≦ “9”), 65 ≦ n2 ≦ 70 (”A” ≦ n2 ≦ “F”), 97 ≦ n2 ≦ 102 (“a” ≦ n2 ≦ “f”)
48 ≦ n3 ≦ 57 (”0” ≦ n3 ≦ “9”), 65 ≦ n3 ≦ 70 (”A” ≦ n3 ≦ “F”), 97 ≦ n3 ≦ 102 (“a” ≦ n3 ≦ “f”)
48 ≦ n4 ≦ 57 (”0” ≦ n4 ≦ “9”), 65 ≦ n4 ≦ 70 (”A” ≦ n4 ≦ “F”), 97 ≦ n4 ≦ 102 (“a” ≦ n4 ≦ “f”)

m = 87, 84, 44, 43, 45, 64（m = “W”, “T”, “,”, “+”, “-”, “@”）
48 ≦ N ≦ 57 (”0” ≦ N ≦ “9”), 65 ≦ N ≦ (*)70 (”A” ≦ N ≦ (*)“F”), 97 ≦ N ≦ (*) 102, (“a” ≦ N ≦ (*) (*) “f”)
(*) The memory switch defined area differs according to the model.

[Initial Value] - - -

[Function] Sends command to write after defining memory switch using the definition command specified by the following classes.
Memory switch information defined by the command to write is written to the volatile memory.
When writing to the volatile memory by the command to write, the printer executes a reset.

Functions	Class	m	N	n1 n2 n3 n4
Definition data write and reset	Write	“W”	Fixed at “0”	Fixed at “0000”
Definition data write and reset and self print	Write	“T”	Fixed at “0”	Fixed at “0000”
Data definition (data specification)	Definition	“, ”	N	n1 n2 n3 n4
Data definition (specify bit and set)	Definition	“+”	N	n1 n2 n3 n4
Data definition (specify bit and clear)	Definition	“-”	N	n1 n2 n3 n4
Definition data (all data initialized)	Definition	“@”	Fixed at “0”	Fixed at “0000”
Definition data (load default settings)	Definition	“*”	Fixed at “0”	Fixed at “0000”

- m: Mode selection
- N: Memory switch number to specify
- n1 n2 n3 n4: Specify data
  - m = (“,”) Specify data
  - m = (“+”) Bit number to set
  - m = (“-“) Bit number to clear

[Command Emulator] Write to xml file. (No self-print)
Not written to printer, but printer is reset.

ESC ? LF NUL

[Name] Reset printer (execute self print)

[Code]

ASCII	ESC	?	LF	NUL
Hex.	1B	3F	0A	00
Decimal	27	63	10	0

[Defined Area] - - -

[Initial Value] - - -

[Function] Hardware resets the printer and executes on self print.
After sending this command, the next data is not sent until the printer is online (in a state wherein it can receive data).
When resetting the printer, the following processes are performed.

2.2.17. Reserved

2.2.18. Raster

ESC * r R

[Name] Initialize raster mode

[Code]					
	ASCII	ESC	*	r	R
	Hex.	1B	2A	72	52
	Decimal	27	42	114	82

[Defined Area] - - -

[Initial Value] - - -

[Function] Initializes raster mode.

[Command Emulator] 2 bytes are ignored.

ESC * r A

[Name] Enter raster mode

[Code]					
	ASCII	ESC	*	r	A
	Hex.	1B	2A	72	41
	Decimal	27	42	114	65

[Defined Area] - - -

[Initial Value] - - -

[Function] Enters raster mode.

[Command Emulator] 2 bytes are ignored.

ESC * r B

[Name] Quit raster mode

[Code]					
	ASCII	ESC	*	r	B
	Hex.	1B	2A	72	42
	Decimal	27	42	114	66

[Defined Area] - - -

[Initial Value] - - -

[Function] Quits raster mode.

[Command Emulator] 2 bytes are ignored.

ESC * r C

[Name] Clear raster data

[Code]	ASCII	ESC	*	r	C
	Hex.	1B	2A	72	43
	Decimal	27	42	114	67

[Defined Area] - - -
[Initial Value] - - -
[Function] Clears image buffer data in the raster mode.

[Command Emulator] 2 bytes are ignored.

ESC * r D n NUL

[Name] Drawer drive

[Code]	ASCII	ESC	*	r	D	n	NUL
	Hex.	1B	2A	72	44	n	00
	Decimal	27	42	114	68	n	0

[Defined Area] 0≦n≦3
[Initial Value] n = 0
[Function] Drives the drawer in the raster mode.

[Command Emulator] 2 bytes are ignored.

ESC * r E n NUL

[Name] Set raster EOT mode

[Code]	ASCII	ESC	*	r	E	n	NUL
	Hex.	1B	2A	72	45	n	00
	Decimal	27	42	114	69	n	0

[Defined Area] n = 0, 1, 2, 3, 8, 9, 12, 13, 36, 37
[Initial Value] Models handling full cut: n = 9
Models connected with a presenter: n = 37
[Function] Sets the raster EOT mode.

[Command Emulator] 2 bytes are ignored.

ESC * r F n NUL

[Name] Set raster FF mode

[Code]	ASCII	ESC	*	r	F	n	NUL
	Hex.	1B	2A	72	46	n	00
	Decimal	27	42	114	70	n	0

[Defined Area] n = 0, 1, 2, 3, 8, 9, 12, 13, 36, 37

[Initial Value] Models handling full cut: n = 9

Models connected with a presenter: n = 37

[Function] Sets raster FF mode.

[Command Emulator] 2 bytes are ignored.

ESC * r P n NUL

[Name] Set raster page length

[Code]	ASCII	ESC	*	r	P	n	NUL
	Hex.	1B	2A	72	50	n	00
	Decimal	27	42	114	80	n	0

[Defined Area] - - -

[Initial Value] Raster image buffer length

[Function] Sets raster page length.

[Command Emulator] 2 bytes are ignored.

ESC * r Q n NUL

[Name] Set raster print quality

[Code]	ASCII	ESC	*	r	Q	n	NUL
	Hex.	1B	2A	72	51	n	00
	Decimal	27	42	114	81	n	0

[Defined Area] $0 \leq n \leq 2$

[Initial Value] n = 0

[Function] Sets raster print quality.

[Command Emulator] 2 bytes are ignored.

ESC * r m l n NUL

[Name] Set raster left margin

[Code]	ASCII	ESC	*	r	m	l	n	NUL
	Hex.	1B	2A	72	6D	6C	n	00
	Decimal	27	42	114	109	108	n	0

[Defined Area] - - -
[Initial Value] n = 0
[Function] Sets raster left margin.

[Command Emulator] 2 bytes are ignored.

ESC * r m r n NUL

[Name] Set raster right margin

[Code]	ASCII	ESC	*	r	m	r	n	NUL
	Hex.	1B	2A	72	6D	72	n	00
	Decimal	27	42	114	109	114	n	0

[Defined Area] - - -
[Initial Value] n = 0
[Function] Sets raster right margin.

[Command Emulator] 2 bytes are ignored.

ESC * r T n NUL

[Name] Set raster top margin

[Code]	ASCII	ESC	*	r	T	n	NUL
	Hex.	1B	2A	72	54	n	00
	Decimal	27	42	114	84	n	0

[Defined Area] $0 \leqq n \leqq 2$
[Initial Value] ---
[Function] Sets the raster top margin.

[Command Emulator] 2 bytes are ignored.

ESC * r K n NUL

[Name] Set raster print color

[Code]	ASCII	ESC	*	r	K	n	NUL
	Hex.	1B	2A	72	4B	n	00
	Decimal	27	42	114	75	n	0

[Defined Area] 0≤n≤3
[Initial Value] n = 0
[Function] Sets raster print color.

[Command Emulator] 2 bytes are ignored.

b n1 n2 data

[Name] Send raster data (auto line feed)

[Code]	ASCII	b	n1	n2	d1	d2	...	dk
	Hex.	62	n1	n2	d1	d2	...	dk
	Decimal	98	n1	n2	d1	d2	...	dk

[Defined Area] 0≤n1≤255
0≤n2≤255
0≤d≤255
k= n1+n2 x 256
1≤k
[Initial Value] - - -
[Function] Sends raster data

[Command Emulator] Processes from top of data as ASCII data.

k n1 n2 data

[Name] Transfer raster data

[Code]	ASCII	k	n1	n2	d1	d2	...	dk
	Hex.	6B	n1	n2	d1	d2	...	dk
	Decimal	107	n1	n2	d1	d2	...	dk

[Defined Area] 0≤n1≤255
0≤n2≤255
0≤d≤255
k≤ n1+n2 x 256
1≤k
[Initial Value] - - -
[Function] Sends raster data.

[Command Emulator] Processes from top of data as ASCII data.

ESC * r Y n NUL

[Name] Move vertical direction position (Line feed for specified dots)

[Code]	ASCII	ESC	*	r	Y	n	NUL
	Hex.	1B	2A	72	59	n	00
	Decimal	27	42	114	89	n	0

[Defined Area] - - -

[Initial Value] - - -

[Function] Moves vertical direction position.

[Command Emulator] 2 bytes are ignored.

ESC FF NUL

[Name] Execute FF mode

[Code]	ASCII	ESC	FF	NUL
	Hex.	1B	0C	00
	Decimal	27	12	0

[Defined Area] - - -

[Initial Value] - - -

[Function] Executes FF mode.

[Command Emulator] 2 bytes are ignored.

ESC FF EOT

[Name] Execute EOT mode

[Code]	ASCII	ESC	FF	EOT
	Hex.	1B	0C	04
	Decimal	27	12	4

[Defined Area] - - -

[Initial Value] - - -

[Function] Executes EOT mode.

[Command Emulator] 2 bytes are ignored.

2.2.19. Black Mark Related Command Details

The following commands control top of form functions using black mark paper.
The following commands are effective only when black mark is set to be effective.

ESC d n

[Name] Auto cutter
[Code]

ASCII	ESC	d	n
Hex.	1B	64	n
Decimal	27	100	n

[Defined Area] 0≦d≦3
48≦d≦51 (”0”≦d≦”3”)
[Initial Value] - - -
[Function] Executes the auto-cutter.
After auto-cutter is executed, the printer considers that to be the top of the page.

n	Auto cutter
0, 48	Full cut at the current position. Print data in line buffer is printed before a full cut. This command is ignored if the printer is not equipped with an auto-cutter.
1, 49	Partial cut at the current position. Print data in line buffer is printed before a partial cut. This command is ignored if the printer is not equipped with an auto-cutter.
2, 50	After executing top of form, paper is fed to cutting position, then a full cut. Print data in line buffer is printed before the operation described above. This command is ignored if the printer is not equipped with an auto-cutter.
3, 51	After executing top of form, paper is fed to cutting position, then a partial cut. Print data in line buffer is printed before the operation described above. This command is ignored if the printer is not equipped with an auto-cutter.

(*) The auto-cutter function operates in the following ways on models that only have a full cut or a partial cut.
• Models that perform only a full cut: Executes a full cut when for instructions calling for a partial cut.
• Models that perform only a partial cut: Executes a partial cut when there are for instructions calling for a full cut.
(*) When connected with a presenter, executes a full cut when instructed for a partial cut.

FF

[Name] Execute top of form
[Code] ASCII FF
Hex. 0C
Decimal 12

[Defined Area] - - -
[Initial Value] - - -
[Function] Executes top of form.

ESC C n

[Name] Set page length to n lines
[Code] ASCII ESC C n
Hex. 1B 43 n
Decimal 27 67 n

[Defined Area] 1≤n≤127
[Initial Value] (Form feed amount initial value x 42)
[Function] When black mark is effective, this command is ignored.

ESC C 0 n

[Name] Set page length to n x 24 mm units
[Code] ASCII ESC C 0 n
Hex. 1B 43 0 n
Decimal 27 67 0 n

[Defined Area] 1≤n≤22
[Initial Value] (Form feed amount initial value x 42)
[Function] When black mark is effective, this command is ignored.

VT

[Name] Feed paper to vertical table position
[Code]

ASCII	VT
Hex.	0B
Decimal	11

[Defined Area] - - -
[Initial Value] - - -
[Function] When black mark is effective, this command is ignored.

ESC B n1 n2...nk NUL

[Name] Set vertical tab position
[Code]

ASCII	ESC	B	n1	n2	...	nk	NUL
Hex.	1B	42	n1	n2	...	nk	00
Decimal	27	66	n1	n2	...	nk	0

[Defined Area] 1≦n≦255
0≦k≦16
[Initial Value] - - -
[Function] When black mark is effective, this command is ignored.

ESC B NUL

[Name] Clear vertical tab position
[Code]

ASCII	ESC	B	NUL
Hex.	1B	42	00
Decimal	27	66	0

[Defined Area] - - -
[Initial Value] - - -
[Function] When black mark is effective, this command is ignored.

2.2.20. Reserved

2.2.21. 2 Color Printing Command Details

The following commands control 2 color printing functions.
The following commands are effective only when using a model handling 2 color printing.

ESC RS c n

[Name] Set print color in 2 color print mode

[Code]					
	ASCII	ESC	RS	c	n
	Hex.	1B	1E	63	n
	Decimal	27	30	99	n

[Defined Area] 0≦n≦1
48≦n≦49 (”0”≦n≦”1”)
[Initial Value] n = 0, 48 (When in 2 color print mode)
[Function] Specifies print color in 2 color print mode.
This command is ignored when not in the 2 color print mode.
Specifies black for the print color when in 2 color print mode.
This command is cleared only when the printer is reset.
The specification of this command is not cleared by ESC @ CAN.
However, print color is initialized to black by the ESC @ and CAN only when in the compatible 2 color print mode.

n	Specifies 2 color print mode color
0, 48	Black
1, 49	Red

ESC RS C n

[Name] Select/cancel 2 color print mode

[Code]

ASCII	ESC	RS	C	n
Hex.	1B	1E	43	n
Decimal	27	30	67	n

[Defined Area] 0≦n≦2
48≦n≦50 (”0”≦n≦”2”)

[Initial Value] n = 0, 48

[Function]

n	Select/cancel 2 color print mode
0, 48	Cancel 2-color printing mode When in two-color print mode, this command cancels 2-color printing mode. This command is ignored when the 2-color print mode is already cancelled. The specification of this command is not cleared by ESC @, CAN. The following processes are executed by canceling the 2-color print mode using this command. • Prints data in line buffer in 2-color print mode, if unprinted data exists in the line buffer. • Waits to stop printing when printing in 2-color print mode. • Recovers logo print setting to single color mode setting.
1, 49	Select 2-color printing mode This command selects 2-color print mode, when in single color print mode. This command is ignored already in the 2-color print mode. The specification of this command is not cleared by ESC @, CAN. The following processes are executed by selecting the 2-color print mode using this command. • Prints data in line buffer in the single color print mode, if unprinted data exists in the line buffer. • Waits to stop printing when printing in single-color print mode. • Initializes print color setting (2-color print mode setting) • Sets logo print setting to 2 color mode setting.

ESC 4

[Name] Select white/black inverted printing
[Code] ASCII ESC 4
Hex. 1B 34
Decimal 27 52

[Defined Area] - - -
[Initial Value] White/black inversion cancelled
[Function] Specifies white/black inversion for ANK characters and Kanji characters.
IBM block ignores white/black inversion.

ESC 5

[Name] Cancel white/black inversion
[Code] ASCII ESC 5
Hex. 1B 35
Decimal 27 53

[Defined Area] - - -
[Initial Value] White/black inversion cancelled
[Function] Cancels white/black inversion for ANK characters and Kanji characters.

ESC FS q n [x11 x12 y11 y12 d1...dk]1...[xn1 xn2 yn1 yn2 d1...dk]n

[Name] Register logo

[Code]																	
	ASCII	ESC	FS	q	n	[x11	x12	y11	y12	d1	… dk]1	… [xn1	xn2	yn1	yn2	d1	... dk]n
	Hex.	1B	1C	71	n	[x11	x12	y11	y12	d1	… dk]1	… [xn1	xn2	yn1	yn2	d1	... dk]n
	Decimal	27	28	113	n	[x11	x12	y11	y12	d1	… dk]1	… [xn1	xn2	yn1	yn2	d1	... dk]n

[Defined Area]
1≦n≦255
0≦xn1≦255, 0≦xn2≦3
1≦(xn1 + xn2 x 256)≦1023
0≦yn1≦255, 0≦yn2≦1
1≦yn1 + yn2 x 256)≦288
0≦d≦255
k = {(xn1 + xn2 x 256) x (yn1 + yn2 x 256) x 8}

[Initial Value]
- - -

[Function]
Parameter details

- n: Specifies registered logo count
- xn1, xn2: Horizontal size of registered logo {(xn1 + xn2 x 256) x 8} dots
- yn1, yn2: Vertical size of registered logo {(yn1 + yn2 x 256) x 8} dots
- d: Registered logo data
- k: Logo data count

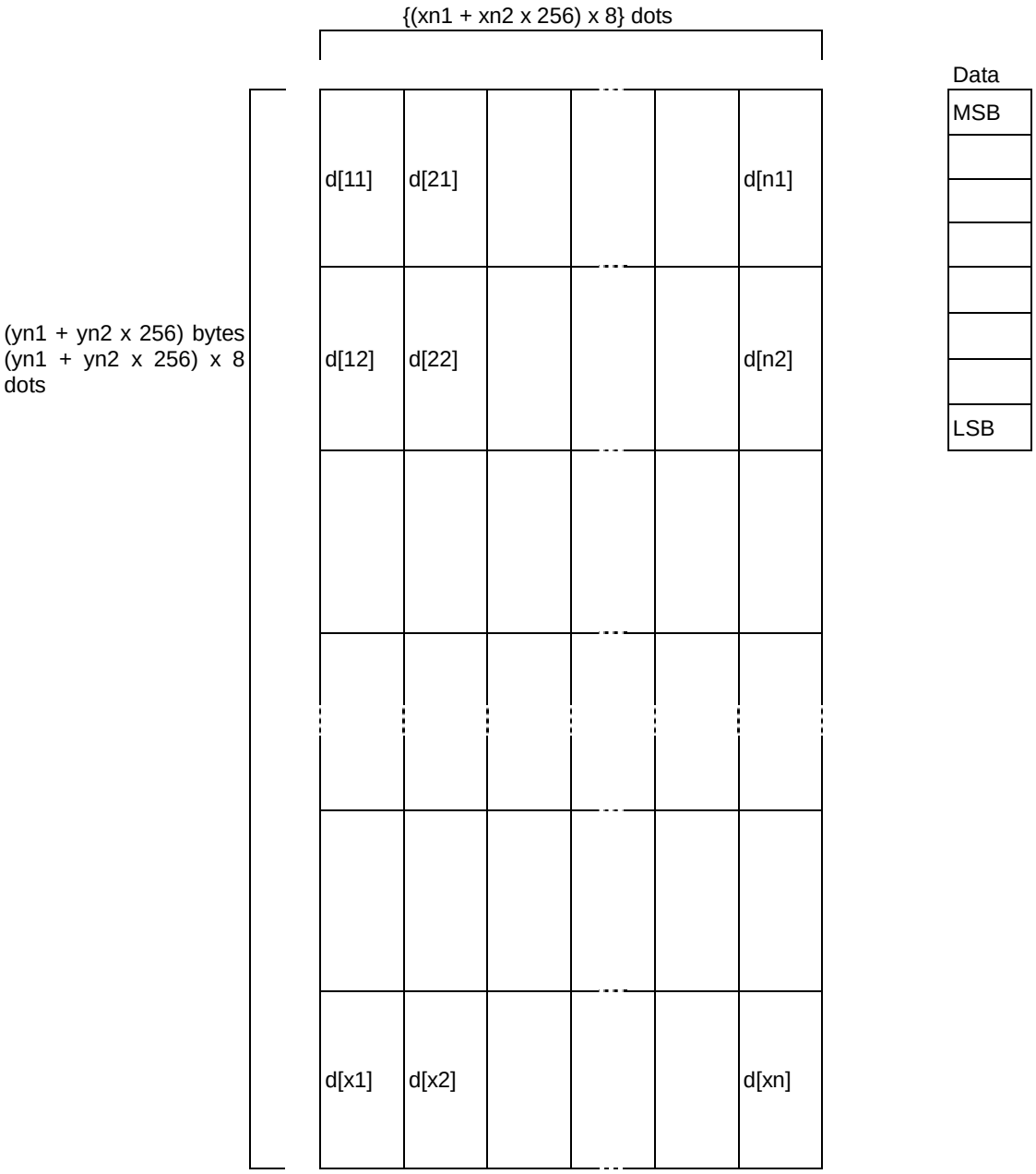
This command should be specified at the top of the line.
If unprinted data still exists in the line buffer, the buffered data is printed out and then the command is executed.
When the first parameter is determined to be free of error, the printer starts processing this command.
When logo register processing starts, all previously defined data is deleted.
(It is not possible to reregister a portion of a plurality of defined logo data.)
Logo registration numbers are defined in rising order from 1.

If the defined area specified by the parameter is not empty, or if there is an error in the parameter specification, register processing is aborted. (The pre-registered and complete data is effective.)
The printer should be initialized if logo registration is completed or register processing is aborted.
If an error occurs while performing register processing (the time from when the first parameter is OK until th printer initialization is completed after registering a logo), error processing, mechanical operation and status processing cannot be performed.
The relationships between input data and the actual print are shown on the next page.

<When registering logos for 2 color printing>
Registration is possible regardless of the 2 color printing mode being specified or cancelled.
Register logos with the same capacity as the logo register number n (odd number) and n + 1 (even number).
If the capacity differs or the logo register number is 255, this command is ignored by the logo print command in the 2 color print mode.

[Command Emulator] Write to xml file.
After registration: Settings on the Command Emulator are initialized to the xml file contents.
(<ESC> @ operation + clear external character registration)
Registration size up to 65535 x 65535 (normally 1023 x 288)

Relationships of logo and registered data
xn = xn1 + xn2 x 256 yn = yn1 + yn2 x 256



ESC FS p n m

[Name] Print logo

[Code]

ASCII	ESC	FS	p	n	m
Hex.	1B	1C	70	n	m
Decimal	27	28	112	n	m

[Defined Area] 1≦n≦255
0≦m≦3
48≦m≦51 (”0”≦m≦”3”)

[Initial Value] - - -

[Function] Prints the logo of registration number n registered using the logo registration command (ESC FS q) according to the print mode m.

m	Logo print mode
0, 48	Normal mode
1, 49	Double wide mode
2, 50	Double high mode
3, 51	Double high/wide mode

If there is unprinted data in the line buffer, this command is executed after printing that data. Therefore, it is not possible to print with other data in the same line (characters, bit images, bar codes).
Form feed obeys the vertical print size of the logo.
Adornments other than upside-down printing and expansion settings are unaffected.
The horizontal printing start position conforms to the left margin position and the horizontal print area conforms to the left and right margin settings.
If the logo horizontal print size exceeds the horizontal print region, the portion exceeding the area is not printed.

<When using the 2 color print mode>
When the logo register number n is odd:
Register number n is printed in black; register number n + 1 is printed in red and overlapped.
The command is ignored when the capacity of the register number n and the capacity of the register number n + 1 are different.
The command is ignored when the register number n = 255 is specified.
When the logo register number n is even:
Register number n is printed in black; register number n - 1 is printed in red and overlapped.
The command is ignored when the capacity of the register number n and the capacity of the register number n - 1 are different.
The command is ignored when the register number n = 255 is specified.

2.2.22. Presenter Related Command Details

The following commands control the presenter functions.
The following commands are effective only on models equipped with a presenter.

ESC SYN 0 n

[Name] Execute presenter paper recovery

[Code]					
	ASCII	ESC	SYN	0	n
	Hex.	1B	16	30	n
	Decimal	27	22	48	n

[Defined Area] n = 0, n = 48 (“0”)
[Initial Value] - - -
[Function] Executes presenter paper recovery.

[Command Emulator] 2 bytes are ignored.

ESC SYN 1 n

[Name] Set presenter paper automatic recovery function and automatic recovery time

[Code]					
	ASCII	ESC	SYN	1	n
	Hex.	1B	16	31	n
	Decimal	27	22	49	n

[Defined Area] 0≤n≤255
[Initial Value] Memory switch setting
[Function] Sets presenter paper automatic recovery function and automatic recovery time.

[Command Emulator] 2 bytes are ignored.

ESC SYN 2 n

[Name] Set presenter operation mode

[Code]					
	ASCII	ESC	SYN	2	n
	Hex.	1B	16	32	n
	Decimal	27	22	50	n

[Defined Area] 0≤n≤4
[Initial Value] Memory switch setting
[Function] Set presenter operation mode

[Command Emulator] 2 bytes are ignored.

ESC SYN 3 n

[Name] Acquire presenter paper counter

[Code]					
	ASCII	ESC	SYN	3	n
	Hex.	1B	16	33	n
	Decimal	27	22	51	n

[Defined Area] n = 0, 1
n = 48, 49 (”0”, “1”)

[Initial Value] - - -

[Function] Acquires presenter paper counter.

[Command Emulator] 2 bytes are ignored.

ESC SYN 4 n

[Name] Initialize presenter paper counter

[Code]					
	ASCII	ESC	SYN	4	n
	Hex.	1B	16	34	n
	Decimal	27	22	52	n

[Defined Area] n = 0

[Initial Value] - - -

[Function] Initializes the presenter paper counter (paper reel counter/paper recovery counter).

[Command Emulator] 2 bytes are ignored.

2.2.23. Mark Command Details

This command is specialized for printing mark sheets for lotteries. This command can print lines.

ESC GS * 0 n m1 m2 m3 ... mk

[Name] Print mark

[Code]											
	ASCII	ESC	GS	*	0	n	m1	m2	m3	…	mk
	Hex.	1B	1D	2A	30	n	m1	m2	m3	…	mk
	Decimal	27	29	42	48	n	m1	m2	m3	…	mk

[Defined Area] “001” ≦ n ≦ ”255”
“0” ≦ m ≦ ”9”
k = n

[Initial Value] - - -

[Function] Prints the mark number specified by m, based on the mark format (mark height, mark line feed amount, each mark color, and each mark horizontal width) that is preset.

[Command Emulator] 3 bytes are ignored.

ESC GS * 1 h v

Name] Specify mark height and line feed

[Code]							
	ASCII	ESC	GS	*	1	h	v
	Hex.	1B	1D	2A	31	h	v
	Decimal	27	29	42	49	h	v

[Defined Area] “001” ≦ h ≦ ”255”
“001” ≦ v ≦ ”255”
h ≦ v

[Initial Value] Non-volatile memory

[Function] Specifies mark height and line feed amount

[Command Emulator] 3 bytes are ignored.

ESC GS * 2 m c w

[Name] Specify mark color and mark horizontal width for each mark number

[Code]

ASCII	ESC	GS	*	2	m	c	w
Hex.	1B	1D	2A	32	m	c	w
Decimal	27	29	42	50	m	c	w

[Defined Area] “0” ≦ m ≦ ”9”
“0” ≦ c ≦ ”1”
“001” ≦ w ≦ ”999”

[Initial Value] Non-volatile memory

[Function] Specifies mark color and mark horizontal width for each mark number.

[Command Emulator] 3 bytes are ignored.

ESC GS * W

[Name] Register mark format to non-volatile memory

[Code]

ASCII	ESC	GS	*	W
Hex.	1B	1D	2A	57
Decimal	27	29	42	87

[Defined Area] - - -

[Initial Value] - - -

[Function] Registers the mark format (mark height, mark line feed amount, each mark color, and each mark horizontal width) to the non-volatile memory.

[Command Emulator] 3 bytes are ignored.

ESC GS * C

[Name] Initialize mark format in the non-volatile memory

[Code]

ASCII	ESC	GS	*	C
Hex.	1B	1D	2A	43
Decimal	27	29	42	67

[Defined Area] - - -

[Initial Value] - - -

[Function] Initializes the registered mark format (mark height, mark line feed amount, each mark color, and each mark horizontal width) in the non-volatile memory. After initialization, the printer is reset.

[Command Emulator] 3 bytes are ignored.

2.2.24. AUTO LOGO Function Command Details

ESC GS / W

[Name] Register Auto Logo setting to non-volatile memory

[Code]

ASCII	ESC	GS	/	W	
Hex.	1b	1d	2f	57	
Decimal	27	29	47	87	

[Defined Area] - - -

[Initial Value] - - -

[Function] Registers Auto Logo setting to non-volatile memory

[Command Emulator] 3 bytes are ignored.

ESC GS / C

[Name] Initialize Auto Logo setting to non-volatile memory

[Code]

ASCII	ESC	GS	/	C
Hex.	1b	1d	2f	43
Decimal	27	29	47	67

[Defined Area] - - -

[Initial Value] - - -

[Function] Initializes registered data in the non-volatile memory of the Auto Logo function.

[Command Emulator] 3 bytes are ignored.

ESC GS / 1 n

[Name] Auto Logo Function On/Off Setting

[Code]

ASCII	ESC	GS	/	1	n
Hex.	1b	1d	2f	31	n
Decimal	27	29	47	49	n

[Defined Area] $0 \leqq n \leqq 2$

[Initial Value] n = 0

[Function] Turns the Auto Logo function on and off.

[Command Emulator] 3 bytes are ignored.

ESC GS / 2 n

[Name] Set command character

[Code]						
ASCII	ESC	GS	/	3	n
Hex.	1b	1d	2f	32	n
Decimal	27	29	47	50	n

[Defined Area] 32 ≦ n ≦ 127, n = 0
[Initial Value] n = 0
[Function] Sets the Auto Logo function command character.

[Command Emulator] 3 bytes are ignored.

ESC GS / 3 nL nH d1 d2 ... dk

[Name] Set user macro 1

[Code]											
ASCII	ESC	GS	/	3	nL	nH	d1	d2	...	dk
Hex.	1b	1d	2f	33	nL	nH	d1	d2	...	dk
Decimal	27	29	47	51	nL	nH	d1	d2	...	dk

[Defined Area] 1 ≦ n ≦ 64
nH = 0
1 ≦ (nL + nH x 256) ≦ 64
dk = (nL + nH x 256)
0 ≦ d ≦ 255
[Initial Value] No user macro 1 setting
[Function] Sets the user macro 1 of the Auto Logo function.

[Command Emulator] 3 bytes are ignored.

ESC GS / 4 nL nH d1 d2 ... dk

[Name] Set user macro 2

[Code]											
ASCII	ESC	GS	/	4	nL	nH	d1	d2	...	dk
Hex.	1b	1d	2f	34	nL	nH	d1	d2	...	dk
Decimal	27	29	47	52	nL	nH	d1	d2	...	dk

[Defined Area] 1 ≦ nL ≦ 64
nH = 0
1 ≦ (nL + nH x 256) ≦ 64
dk = (nL + nH x 256)
0 ≦ d ≦ 255
[Initial Value] No user macro 2 setting
[Function] Sets the user macro 2 of the Auto Logo function.

[Command Emulator] 3 bytes are ignored.

ESC GS / 5 n

[Name] Set command character switching method

[Code]	ASCII	ESC	GS	/	5	n
	Hex.	1b	1d	2f	35	n
	Decimal	27	29	47	53	n

[Defined Area] 0 ≦ n ≦ 1

[Initial Value] n = 0

[Function] Sets the Auto Logo function command character switching method.

[Command Emulator] 3 bytes are ignored.

ESC GS / 6 n

[Name] Set partial cut before Auto Logo printing

[Code]	ASCII	ESC	GS	/	6	n
	Hex.	1b	1d	2f	36	n
	Decimal	27	29	47	54	n

[Defined Area] 0 ≦ n ≦ 1

[Initial Value] n = 0

[Function] Sets a partial cut before the Auto Logo printing.

[Command Emulator] 3 bytes are ignored.

2.2.25. Reserved

2.2.26. PDF417 Command

ESC GS x S 0 n p1 p2

[Name] Set PDF417 bar code size

[Code]								
ASCII	ESC	GS	x	S	0	n	p1	p2
Hex.	1B	1D	78	53	30	n	p1	p2
Decimal	27	29	120	83	48	n	p1	p2

[Defined Area] n = 0, 1

When n = 0: 1 ≦ p1 ≦ 99, 1 ≦ p2 ≦ 99

When n = 1: p1 = 0 or 3 ≦ p1 ≦ 90, p2 = 0 or 1 ≦ p2 ≦ 30

(However, this excludes p1 = p2 = 0)

[Initial Value] n = 0, p1 = 1, p2 = 2

[Function] Parameter details

n (Specify Method to Specify Bar Code Size)		p1, p2 (Size Specification)
0	USE_LIMITS (Specify ratio of bar code horizontally and vertically)	p1: p2: Proportions of Vertical (p1) and Horizontal (p2) However, p1: p2 = 1: 99 to 10 : 1 (p1/p2 = 0.01 to 10)
1	USE_FIXED (Specifies number of lines and number of columns of bar code.)	p1: Number of lines (0, 3 to 90), p2: Number of columns (0, 1 to 30) However, p1 * p2 ≦ 928 When either p1 or p2 specifies 0, it indicates that that setting value is variable.

Setting the bar code size using this command specifies the general size of the bar code. The size will automatically be corrected according to the other settings.

ESC GS x S 1 n

[Name] Set PDF417 ECC (security level)

[Code]						
ASCII	ESC	GS	x	S	1	n
Hex.	1B	1D	78	53	31	n
Decimal	27	29	120	83	49	n

[Defined Area] 0 ≦ n ≦ 8

[Initial Value] n = 1

[Function] Parameter details

• n: ECC level (0 to 8)

ESC GS x S 2 n

[Name] Set PDF417 module X direction size

[Code]

ASCII	ESC	GS	x	S	2	n
Hex.	1B	1D	78	53	32	n
Decimal	27	29	120	83	50	n

[Defined Area] 1 ≦ n ≦ 10

[Initial Value] n = 2

[Function] Parameter details

• n: Sets the module X direction size (x-dim). Units: Dots

It is recommended that 2 ≦ n when specifying using this command.
When using with n = 1, check by actual use.

ESC GS x S 3 n

[Name] Set PDF417 module aspect ratio

[Code]

ASCII	ESC	GS	x	S	3	n
Hex.	1B	1D	78	53	33	n
Decimal	27	29	120	83	51	n

[Defined Area] 1 ≦ n ≦ 10

[Initial Value] n = 3

[Function] Parameter details

• n: Sets the module aspect ratio (asp).

The module Y direction size (x-dim x asp) is set using this command.

It is recommended that 2 ≦ n when specifying using this command.
When using with n = 1, check by actual use.

ESC GS x D nL nH d1 d2 ... dk

[Name] Set PDF417 bar code data

[Code]

ASCII	ESC	GS	x	D	nL	nH	d1	d2	…	dk
Hex.	1B	1D	78	44	nL	nH	d1	d2	…	dk
Decimal	27	29	120	68	nL	nH	d1	d2	…	dk

[Defined Area] 0 ≦ nL ≦ 255, 0 ≦ nH ≦ 255
1 ≦ (nL + nH x 256) ≦ 1024
0 ≦ d ≦ 255
1 ≦ k ≦ 1024

[Initial Value] ---

[Function] Parameter details

- nL + nH x 256 : Bar code data count
- dk : Bar code data (Maximum 1024 data)

When [nL + nH x 256] is outside of the definition, data of [nL + nH x 256] bytes is discarded.

ESC GS x P

[Name] Print PDF417 bar code

[Code]

ASCII	ESC	GS	x	P
Hex.	1B	1D	78	50
Decimal	27	29	120	80

[Defined Area] ---

[Initial Value] ---

[Function] Prints the bar code data.
If there is unprinted data in the line buffer, this command is executed after printing that data in the line buffer. Therefore, it is not possible to print with other data in the same line (characters, bit images, bar codes).
Also, this command is ignored if the following errors occur.

- When an error is generated when generating a bar code, due to the combination of the bar code setting commands
- When the bar code data that is generated exceeds the printable size of PDF417
- When the print data exceeds the currently set print region

When a bar code is printed, always verify it by actual use.

ESC GS x I

[Name] Get PDF417 bar code expansion information

[Code]

ASCII	ESC	GS	x	I
Hex.	1B	1D	78	49
Decimal	27	29	120	73

[Defined Area] ---

[Initial Value] ---

[Function] When printing a bar code with the current settings and at the print starting position using this command, error information is sent from the printer.

[Command Emulator] 3 bytes are ignored.

2.2.27. Reserved

2.2.28. Reserved

2.2.29. Reserved

2.2.30. Details of the Print Starting Trigger Control Command

This command is for models equipped with an expansion control function for page control of line unit commands, by controlling the image buffer by page.

ESC GS g 0 m n

[Name] Print starting trigger

[Code]							
	ASCII	ESC	GS	g	0	m	n
	Hex.	1B	1D	67	30	m	n
	Decimal	27	29	103	48	m	n

[Defined Area] m = 0, n = 0
[Initial Value] ---
[Function] Starts printing when there is unprinted data in the image buffer.

[Command Emulator] 3 bytes are ignored.

ESC GS g 1 m n

[Name] Print starting timer

[Code]							
	ASCII	ESC	GS	g	1	m	n
	Hex.	1B	1D	67	31	m	n
	Decimal	27	29	103	49	m	n

[Defined Area] m = 0, 0 ≤ n ≤ 255
[Initial Value] Depends on the model
[Function] Sets the print starting timer specified at n x 10 msec.

[Command Emulator] 3 bytes are ignored.

2.2.31. QR Code Command

* Note that QR code is a registered trademark of DENSO WEB.

ESC GS y S 0 n

[Name] Set QR code model

[Code]

ASCII	ESC	GS	y	S	0	n
Hex.	1B	1D	79	53	30	n
Decimal	27	29	121	83	48	n

[Defined Area] 1 ≦ n ≦ 2

[Initial Value] n = 2

[Function] Sets the model.

• Parameter details

n	Set Model
1	Model 1
2	Model 2

ESC GS y S 1 n

[Name] Set QR code mistake correction level

[Code]

ASCII	ESC	GS	y	S	1	n
Hex.	1B	1D	79	53	31	n
Decimal	27	29	121	83	49	n

[Defined Area] 0 ≦ n ≦ 3

[Initial Value] n = 0

[Function] Sets the mistake correction level.

• Parameter details

n	Mistake Correction Level	Mistake Correction Rate (%)
0	L	7
1	M	15
2	Q	25
3	H	30

ESC GS y S 2 n

[Name] Set QR code cell size

[Code]

ASCII	ESC	GS	y	S	2	n
Hex.	1B	1D	79	53	32	n
Decimal	27	29	121	83	50	n

[Defined Area] 1 ≦ n ≦ 8

[Initial Value] n = 3

[Function] Sets the cell size.

- Parameter details
  - n: Cell size (Units: Dots)
- It is recommended that the specification using this command be 3 ≦ n.

If n = 1 or 2, check by actually using.

ESC GS y D 1 m nL nH d1 d2 ... dk

[Name] Set QR code cell size (Auto Setting)

[Code]

ASCII	ESC	GS	y	D	1	m	nL	nH	d1	d2	…	dk
Hex.	1B	1D	79	44	31	m	nL	nH	d1	d2	…	dk
Decimal	27	29	121	68	49	m	nL	nH	d1	d2	…	dk

[Defined Area] m = 0

0 ≦ nL ≦ 255, 0 ≦ nH ≦ 255

1 ≦ nL + nH x 256 ≦ 7089 (k = nL + nH x 256)

0 ≦ d ≦ 255

[Initial Value] ---

[Function] Automatically expands the data type of the bar code and sets the data.

- Parameter details
- nL + nH x 256: Byte count of bar code data
- dk: Bar code data (Max. 7089 bytes)
- When using this command, the printer receives data for the number of bytes (k) specified by nL and nH. The data automatically expands to be set as the bar code data.
- Indicates the number bytes of data specified by the nL and nH.

Bar code data is cleared at this time.

- The data storage region of this command is shared with the manual setting command so data is updated each time either command is executed.

ESC GS y D 2 a m1 n1L n1H d11 d12 • • • d1k m2 n2L n2H d21 d22 • • • d2k ml • • • dlk

[Name] Set QR code cell size (Manual setting)

[Code]

ASCII	ESC	GS	y	D	2	a	m1	n1L	n1H	d11	d12	... d1K
Hex.	1B	1D	79	44	32	a	m1	n1L	n1H	d11	d12	... d1K
Decimal	27	29	121	68	50	a	m1	n1L	n1H	d11	d12	... d1K

ASCII	m2	n2L	n2H	D21	d22	... d2K	ml	...	dkl
Hex.	m2	n2L	n2H	D21	d22	... d2K	ml	...	dkl
Decimal	m2	n2L	n2H	D11	d22	... d2K	ml	...	dkl

[Defined Area]
1 ≦ a ≦ 255
1 ≦ m ≦ 4
0 ≦ nL ≦ 255, 0 ≦ nH ≦ 255
1 ≦ nL + nH x 256 ≦ 7089 (k = nL + nH x 256)
0 ≦ d ≦ 255
1 ≦ l ≦ 255

[Initial Value] ---

[Function] Specifies the bar code data type and sets the data.
• Parameter details
• a: Block count
• m: Input data type
• nL + nH x 256: Bar code data byte count
• dk: Bar code data (Max. 7089 bytes)

m	Data Type	Data Definition Region (d)
1	Numbers	“0” to “9”
2	English Characters	“”, “$”, “%” “*”, “+”, “-“ “.” “/”, “:” “0” to “9”, “A” to “Z”, “a” to “z”
3	Binary	0x00 to 0xFF
4	Kanji (Shift JIS)	0x8140 to 0x9FFC, 0xE040 to 0xEBBF However, the lower 8 bits are 0x40 to 0x7E, and 0x80 to 0xFC

• The printer receives the data type specified by m, and the data of the number of bytes (k) specified by nL and nH, based on the block count specified by a.
• 1 block specified by a indicates m1, n1L, n1H, d11 • • • d1k (data type + data count + bar code data), and by continuously sending these a multiple of times, one bar code data can mix data types.
• It is possible to set a maximum of 255 blocks with one command transmission.
• nL and nH specify the number of bytes of the data, so when using Kanji, calculate that 1 character has 2 bytes.
• If this command is outside of the definition region, immediately stop the command analysis process.
When doing so, the bar code data is cleared.
• This command data storage region is shared with the automatic setting command, so data is updated each time either command is executed.
• When data type is set to alphanumeric (m=2) and data of alphabet characters "a" to "z" is sent, they are converted into uppercase alphabet characters "A" to "Z" and their barcode data is generated.

ESC GS y P

[Name] Print QR code

[Code]

ASCII	ESC	GS	y	P
Hex.	1B	1D	79	50
Decimal	27	29	121	80

[Defined Area] ---

[Initial Value] ---

[Function] Prints bar code data.
When receiving this command, if there is unprinted data in the image buffer, the printer will print the bar code after printing the unprinted print data.
A margin of more than 4 cells is required around the QR code. The user should ensure that space.
Always check printed bar codes in actual use.

ESC GS y I

[Name] Get QR code expansion information

[Code]

ASCII	ESC	GS	y	I
Hex.	1B	1D	79	49
Decimal	27	29	121	73

[Defined Area] ---

[Initial Value] ---

[Function] The error information on generated image sizes and errors in bar code expansion using the current settings is sent from the printer.. Therefore, it is possible to check whether printing is possible prior to actual printing.

[Command Emulator] 3 bytes are ignored.

URL: http://www.starmicronics.com/support/