Line Thermal Printer

STAR Line Mode Command Specifications

Rev 1.17

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Special Products Division

Table of Contents

This specifications document describes the command specifications for the STAR LINE MODE on line thermal printers. Information contained herein applies to models with the following conditions.

- Line thermal printers
- Interfaces:
    - Parallel
    - RS-232C
    - USB
    - Ethernet
    - Wireless LAN
    - Powered USB
    - Bluetooth

< Applicable Models:>
TSP700
TSP600
TSP800
TUP900
TSP1000
TSP828L
TSP700II
TSP650
TUP500
TSP800II
FVP10
TSP650II

1. INTERFACE CONFIGURATION

1.1. RS-232 Serial Interface

1.1.1. Specifications (Conforming to RS-232)

Rating: RS-232C
Synch method: Start-Stop synchronization method
Handshake: DTR mode
Baud rates: 4800, 9600, 19200, 38400 bps (Set by DIP switches)
Bit length: 7, 8 bits (Set by DIP switches)
Parity: Yes/No (Set by DIP switches)
Parity bit: Odd/even (Set by DIP switches)
Stop bit: 1 bit (Fixed)
Signal polarity: Mark = logic 1 (-3 to -15 V)
Space = logic 0 (+3 to +15 V)

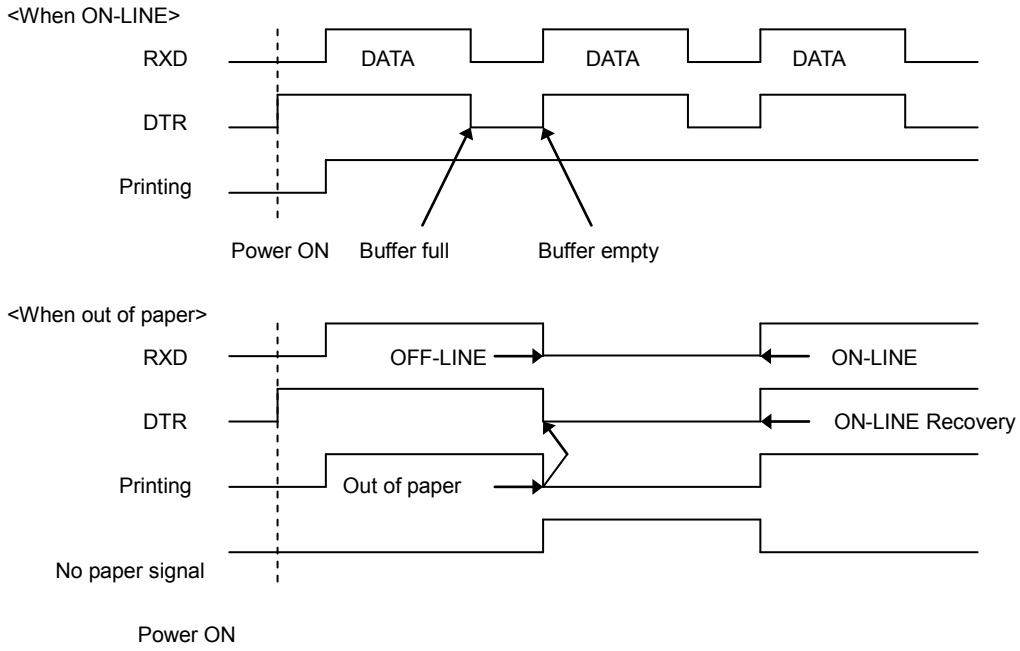
1.1.2. Signal array and explanations according to interface connector pin

<Signal Array and Functions>

Pin No.	Signal Name	Signal Direction	Remarks
1	FG	-	Frame ground
2	TXD	OUT	Transmission data
3	RXD	IN	Reception data
4	RTS	OUT	Same as DTR
5	N.C	-	Not used
6	DSR	IN	Not used (Can also be used as an external reset signal by the DIP SW setting. The printer is reset by mark status over a pulse width of 1 msec.)
7	SG	-	Signal ground
8-19	N.C	-	Not used
20	DTR	OUT	Data terminal ready signal (SPACE: printer is ready to receive.) 1) When in DTR mode: When printer is ready to receive data: SPACE 2) When in XON/XOFF mode: Always SPACE except in the following conditions. 1. Until communication is possible after a reset. 2. When test printing
21-24	N.C		Signal ground
25	/INIT	IN	Signal ground (Can also be used as an external reset signal by the DIP SW setting. The printer is reset by mark status over a pulse width of 1 msec.)

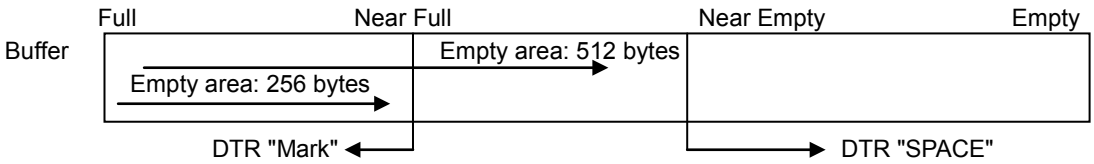
1.1.3. Communication Protocol

1) General description of operations in the DTR mode
This mode abides by the DIP switch settings. (Ex-factory settings)
This mode performs communication while handshaking with the DTR signals. In the operations to receive printer data, this mode controls the DTR signals by confirming the BUSY signal. A SPACE indicates that the printer is ready to receive data; conversely, a “mark” indicates that the printer cannot receive data.



If there is no printer error after turning ON the power, the DTR signal line is set to a SPACE. When the host computer confirms that the DTR signal line is a SPACE, it sends the data text to the RXD signal line. The printer sets the DTR signal line to a “Mark” after the empty area of the data buffer reaches a maximum of 256 bytes. When the host computer confirms that the DTR signal line is a Mark, it stops the transmission of data text to the printer buffer, but at this point as well, the printer is still capable of receiving data, up to the amount of empty space in the data buffer. If the host computer ignores the DTR signal and transmits data, all data exceeding the amount of space in the data buffer is simply discarded. The printer sets the DTR signal line to SPACE again when the amount of empty space in the data buffer increased because of the printing and the data in the buffer is a maximum of 256 bytes. As the empty area in the data buffer increases because of printing, the printer sets the DTR signal line to “SPACE.”

2) Buffer full/Buffer full cancel in the DTR mode

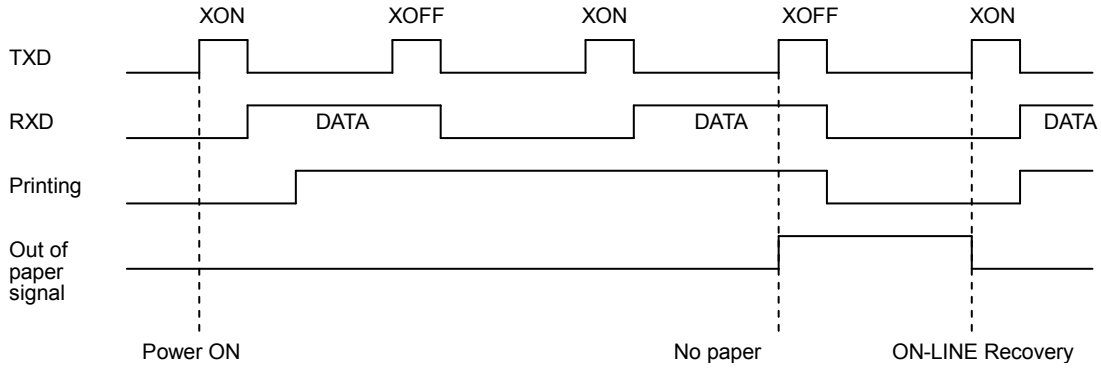


3) General description of operations in the XON/XOFF mode

This mode is set when DIPSW #1 to #6 are turned OFF. This mode notifies the host of the XON (DC1) data when the printer can receive data and the XOFF (DC3) data when the printer cannot receive data, using the TXD signals.

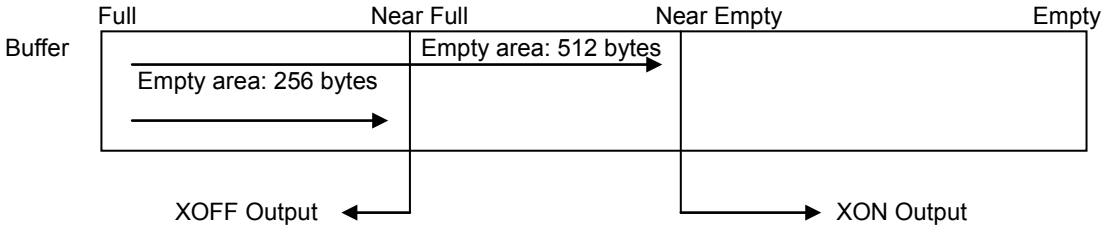
If memory switch B-4 is set to 0 (factory default), this functions so that XON outputs only 1 byte when the printer shifts from OFFLINE (printer busy) to ONLINE (printer ready) and; XOFF outputs 1 byte when the printer shifts from ONLINE (printer ready) to OFFLINE (printer busy) .

If memory switch B-4 is set to 1 (the conventional STAR compatible protocol), this function outputs the XON signal every 3 seconds. This function outputs a single byte of XOFF signal when the printer status changes from ONLINE (printer ready) to OFFLINE (printer busy). Then, it outputs the XOFF signal each time data is received in Offline mode.



If there is no error after turning the power ON, XON (control code name: DC1; Hexadecimal name: 11H) is output by the TXD signal line. After the host computer receives the XON, it sends the data text to the RXD signal line. XOFF (DC 3; 13H) is output when the empty space in the data buffer is a maximum of 256 bytes. Also, if memory switch B-4 is set to 1, the XOFF signal is output every time one byte of data is received. The host computer stops sending data text when it receives the XOFF, however, the printer is capable of receiving data at that time for the amount of empty space in the data buffer. Data exceeding the amount of empty space is discarded. As the empty space in the data buffer increases through printing, XON is output when the data in the buffer is a maximum of 256 bytes. When the empty area of the data buffer increases because of printing, the printer outputs XON.

4) Buffer full/Buffer full cancel in the XON/XOFF mode



Printer Setting Conditions	Explanation of Operations
If memory switch B-4 is 0	If the size of the empty area becomes 256 bytes or less, only one byte of XOFF signal is output. If the size of the empty area becomes 512 bytes or less, only one byte of XON signal is output
If memory switch B-4 is 1	If the size of the empty area becomes 256 bytes or less, only one byte of XOFF signal is output. If the size of the empty

1.2. Parallel Interfaces (Amphenol 36 pins)

1.2.1. Specifications (Conforming to IEEE1284)

Rating: Conforms to IEEE 1284
Mode: Compatibility Mode/Nibble Mode/Byte Mode
Data transfer speed: 1000 to 6000 CPS
Synch method: According to externally supplied strobe pulse
Handshake: According to ACK and BUSY signals
Logic level: Compatible to TTL

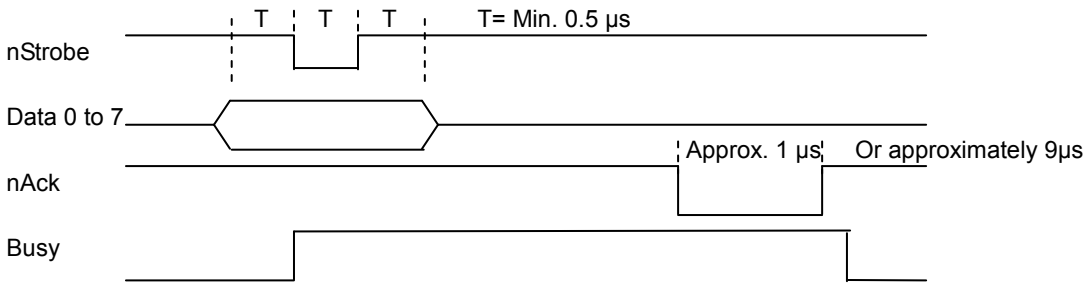
1.2.2. Signal array and explanations according to interface connector pin

<Signal Array and Functions>

Pin No.	Compatibility Mode Signal Name	Nibble Mode Signal Name	Byte Mode Signal Name
1	nStrobe	HostClk	HostClk
2 to 9	Data0 to 7	Data0 to 7	Data0 to 7
10	nAck	PtrClk	PtrClk
11	Busy	PtrBusy/Data3,7	PtrBusy
12	PError	AckDataReq/Data2,6	AckDataReq
13	Select	Xflag/Data1,5	Xflag
14	N/C	HostBusy	HostBusy
15	N/C	-	-
16	Signal GND	Signal GND	Signal GND
17	Frame GND	Frame GND	Frame GND
18	+5V	+5V	+5V
19 to 30	Twisted Pair Return	Twisted Pair Return	Twisted Pair Return
31	nInit	nInit	nInit
32	nFault	nDataAvail/Data0,4	nDataAvail
33	External GND	-	-
34	N/C	-	-
35	N/C	-	-
36	nSelectIn	1284Active	1284Active

1.2.3. Signal Output Timing

1) Compatibility mode



2) Nibble Mode/Byte Mode
Conforms to IEEE 1284 standard

1.2.4. Status Specification

See Appendix 2 for details.

1.3. USB Interface

Specifications:	Conforms to USB 2.0 Full Speed. Supports printer class and vendor class (Refer to each printer specifications manual for selections.)
Connector:	Type B

1.4. Ethernet Interface

Specifications:	Conforms to IEEE 802.3.
Cable:	10BASE-T/10BASE-TX
Connector:	RJ45

1.5. Wireless LAN Interface

Specifications:	Conforms to IEEE 802.11b.

1.6. Powered USB Interface

Specifications	See the IFBD-BPU03 Specifications Manual
Cable	See the IFBD-BPU03 Specifications Manual
Connector	See the IFBD-BPU03 Specifications Manual

2. COMMAND FUNCTION LIST

• Standard Commands

Class	Commands	Name
Font style And character set	ESC RS F	Select font
	ESC GS t	Specify code page
	ESC GS =	Write blank code page data
	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	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 magnified double character height
	ESC DC4	Cancel printing magnified character height
Print modes	ESC E	Select emphasized printing
	ESC F	Cancel emphasized printing
	ESC -	Select/cancels underling mode
	ESC _	Select/cancels upperline mode
	ESC 4	Select white/black inverted printing
	ESC 5	Cancel white/black inverted printing
	SI	Select upside-down printing
	DC2	Cancel upside-down printing
	ESC GS b	Specify/cancel smoothing
Line spacing	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 spacing to 3 mm
	ESC J	n/4 mm line feed
	ESC I	n/8 mm line feed

Class	Commands	Name
Page control commands	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 tab position
	ESC B	Set vertical tab position
	ESC N	Set bottom margin to n lines
	ESC O	Cancel bottom margin
Horizontal direction position	ESC l	Set left margin
	ESC Q	Set right margin
	HT	Move print position to horizontal tab position
	ESC D	Set/cancel horizontal tab position
	ESC GS A	Move absolute position
	ESC GS R	Move relative position
	ESC GS a	Specify position alignment
Download	ESC &	Register/delete 12 x 24 dot font download characters
	ESC %	Set/cancel download characters
Bit image graphics	ESC K	Standard density bit image
	ESC L	High density bit image
	ESC k	Fine bit image
	ESC X	Fine bit image
Logos	ESC FS q	Register logo data
	ESC FS p	Print logo data
	ESC RS L	Print registered logo in batch/ Batch control of registered logos
Bar code	ESC b	Print bar code
Cutter control	ESC d	Paper cutter instruction
External device Drive	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
	ESC GS EM DC1	External buzzer drive pulse condition settings
	ESC GS EM DC2	External buzzer drive execution
Print settings	ESC RS d	Set print density
	ESC RS r	Set printing speed
Status	ESC RS a	Set status transmission conditions
	ESC ACK SOH	Real-time printer status (ASB Status)
	ENQ	Real-time printer status (1)
	EOT	Real-time printer status (2)
	ESC ACK CAN	Real-time printer reset
	ETB	Update ETB status
	ESC RS E	Clear ETB counter, ETB status
	ESC GS ETX	Send print end counter and initialize
		Print data cancel function
		Data time out setting

Class	Commands	Name
Chinese characters	ESC p	Set to JIS Kanji character mode
	ESC q	Cancel JIS Kanji character mode
	ESC $	Set/cancel JIS Kanji character mode
	ESC s	Set two byte Kanji characters left/right spaces
	ESC t	Set 1 byte Kanji characters left/right spaces
	ESC r	Register Chinese download characters
Others	CAN	Cancel print data and initialize commands
	ESC @	Command initialization
	ESC GS #	Set memory switch
	ESC ?	Reset printer

(*) Kanji character commands

- Kanji character control commands are ignored on printers not installed with Kanji character fonts (those intended for overseas).
- All Kanji character control commands are ignored if the specification for the location of use is specified as SBCS (single byte countries) by the memory switch.

• Raster related commands

Class	Commands	Name
Raster commands	ESC * r R	Initialize raster mode
	ESC * r A	Enter raster mode
	ESC * r B	Quit raster mode
	ESC * r C	Clear raster data
	ESC * r D	Drive drawer
	ESC * r E	Set EOT mode
	ESC * r F	Set FF mode
	ESC * r P	Set page length
	ESC * r Q	Set print quality
	ESC * r m l	Set left margin
	ESC * r m r	Set right margin
	ESC * r T	Set top margin
	ESC * r K	Set print color
	b n1 n2 d1...dk	Transfer raster data (auto line feed)
	k n1 n2 d1...dk	Transfer raster data
	ESC * r Y	Position movement in vertical direction (Line break at specified dot)
	ESC FF NUL	Execute form feed mode
	ESC FF EOT	Execute EOT mode
	ESC * r N	Discard data for specified byte count
	ESC * r V	Execute external buzzer drive
	ESC * r S	Playback NV audio
	ESC * r s 0	Set NV audio playback number
	ESC * r s 1	Set NV audio playback count
	ESC * r s 2	Set NV audio playback delay time
	ESC * r s 3	Set NV audio playback interval

• Black mark related commands

Class	Commands	Name
Black mark Related Commands	ESC d	Paper cut instruction
	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 tab position
	ESC B	Set vertical tab position
	ESC N	Set n line bottom margin
	ESC O	Cancel bottom margin

• 2 color printing related commands

Class	Commands	Name
2 color printing Related Commands	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	Cancel white/black inversion and specify printing color black
	ESC FS q	Register logo
	ESC FS p	Print logo

•Presenter related commands

Class	Commands	Name
Presenter related commands	ESC SYN 0	Execute presenter paper recovery
	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
	ESC GS SUB DC1	Specify snout operation mode
	ESC GS SUB DC2	Specify snout LED ON/OFF time
	ESC GS SUB DC3	Snout LED output

•Mark commands

Class	Commands	Name
Mark commands	ESC GS * 0	Print mark
	ESC GS * 1	Specify mark height and line feed amount
	ESC GS * 2	Specify mark color and horizontal width in each mark number
	ESC GS * W	Register mark format in non-volatile memory
	ESC GS * C	Initialize mark format in non-volatile memory

•Auto Logo commands

Class	Commands	Name
Auto Logo commands	ESC GS / W	Register Auto Logo setting in non-volatile memory
	ESC GS / C	Initialize Auto Logo setting in non-volatile memory
	ESC GS / 1	ON/OFF setting of Auto Logo function
	ESC GS / 2	Command character setting
	ESC GS / 3	User macro 1 setting
	ESC GS / 4	User macro 2 setting
	ESC GS / 5	Command character rewriting method setting
	ESC GS / 6	Setting of partial cut just prior to Auto Logo printing

•PDF417 commands

Class	Commands	Name
PDF417 commands	ESC GS x S0	Set PDF417 bar code size
	ESC GS x S1	Set PDF417 ECC (security level)
	ESC GS x S2	Set PDF417 module X direction size
	ESC GS x S3	Set PDF417 module aspect ratio
	ESC GS x D	Set PDF417 bar code data
	ESC GS x P	Print PDF417 bar code
	ESC GS x I	Get PDF 417 bar code expansion information

•Print Starting Trigger Control commands

Class	Commands	Name
Print starting trigger	ESC GS g0	Print starting trigger
	ESC GS g1	Print starting timer setting

•QR Code commands

Class	Commands	Name
QR code	ESC GS y S0	Set QR code model
	ESC GS y S1	Set QR code mistake correction level
	ESC GS y S2	Set QR code cell size
	ESC GS y D1	Set QR code data
	ESC GS y D2	Set QR code data (Manual)
	ESC GS y P	Print QR code
	ESC GS y I	Get QR code expansion information

• 2D GS1 Code

Class	Commands	Name
2D GS1 Code	ESC GS (k(cn=51,fn=67)	Set 2D module siz
	ESC GS (k(cn=51,fn=71)	Set The maximum width of the 2D GS1DataBar Expanded Stacked
	ESC GS (k(cn=51,fn=80)	Store data in 2D symbol saving region
	ESC GS (k(cn=51,fn=81)	Print 2D symbol data of symbol saving region
GS1 Compound symbol	ESC GS (k(cn=52,fn=67)	Compound symbol: Set module size
	ESC GS (k(cn=52,fn=71)	Compound symbol: Set The maximum width of the 2D GS1DataBar Expanded Stacked
	ESC GS (k(cn=52,fn=72)	Compound symbol: Set HRI Font
	ESC GS (k(cn=52,fn=80)	Compound symbol: Store data in symbol saving region
	ESC GS (k(cn=52,fn=81)	Compound symbol: Print symbol data of symbol saving region

•Page function commands

Class	Commands	Name
Page function	ESC GS h 0	180 degree turnover
	ESC GS h 1	Watermark

• Reduced Printing Function Commands

Class	Commands	Name
Reduced Printing Function	ESC GS c h v	Reduced Printing

• Page Mode Commands

Class	Commands	Name
Page Mode	ESC GS P 0	Selects page mode
	ESC GS P 1	Cancels page mode
	ESC GS P 2	Select printing direction
	ESC GS P 3	Set print region in page mode
	ESC GS P 4	Specify character vertical direction absolute position
	ESC GS P 5	Specify character vertical direction relative position
	ESC GS P 6	Prints
	ESC GS P 7	Cancel printing and page mode
	ESC GS P 8	Cancel print data

• Text Search Commands

Class	Commands	Name
Text Search	ESC GS) B (fn = 48)	Enable and disables text search
	ESC GS) B (fn = 49)	Set the number of times to run the text search macro
	ESC GS) B (fn = 50)	Set to print the string that matches in the text search
	ESC GS) B (fn = 64)	Define the text search string
	ESC GS) B (fn = 65)	Define the text search macro
	ESC GS) B (fn = 66)	Set text search timing
	ESC GS) B (fn = 80)	Register text search settings and definitions in the non-volatile memory
	ESC GS) B (fn = 81)	Initialize text search settings and definitions
	ESC GS) B (fn = 96)	Print the text search settings and definitions
	ESC GS) B (fn = 97)	Run the text search macro

• Audio Commands

Class	Commands	Name
Audio	ESC GS s O	Playback NV audio
	ESC GS s P	Stop NV audio
	ESC GS s R	Playback received audio
	ESC GS s I	Register automatic audio setting information
	ESC GS s U	Register user area NV audio data
	ESC GS s T	Batch playback of NV audio

• Raster Graphics Command

Class	Commands	Name
Raster Graphics	ESC GS (L	Specify raster graphics data
	ESC GS 8 L	Specify raster graphics data

• Printer information transmission commands

Class	Commands	Name
Printer information	ESC GS) I	Transmit the type of multibyte fonts

• Individual Logo Related Commands

Class	Commands	Name
Individual Logo	ESC GS) L (fn = 48)	Transmit registered individual NV graphics CRC
	ESC GS) L (fn = 49)	Transmit capacity used by registered individual NV graphics
	ESC GS) L (fn = 50)	Transmit all registered NV graphics key codes

3. COMMAND DETAILS

3.1. Explanation of Terms

• Reception buffer
The buffer for storing data (reception data) received from the host, as it is called the reception buffer.
Reception data is temporarily stored in the reception buffer, then processed sequentially.

• Line buffer
The buffer for storing image data for printing is called the line buffer.

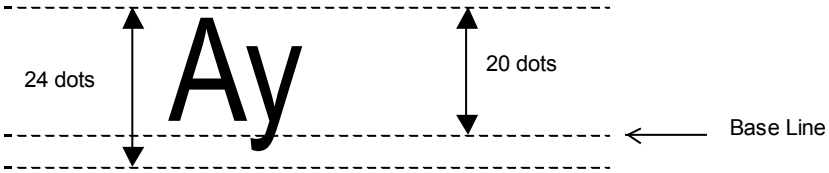
• Line buffer full
The state in which the buffer has no more space available is called line buffer full. When the buffer is full in standard mode, data in the line buffer is printed and a line feed is performed when new print data is processed. This is the same as a Line Feed. When the line buffer is full in the page mode, the printer move the print position to the head of the next line then starts with the new print data.

• Top of line
The top of line is a state that satisfies the following conditions.
- There is currently no print data in the line buffer.
- The position is not specified with the horizontal direction position command.

• Printable region
This is the maximum printable area with the printer's specifications.

• Print region
This is the printing area specified by a command. (Print region ≤ printable region)

• ANK character base line



• ASB Function
Sends the automatic status to the host each time the printer's status changes.

• NSB Function
When the printer uses a parallel I/F or USB I/F, sends the automatic status each time the reverse transfer mode is entered. When the printer uses Ethernet I/F or wireless I/F, sends the automatic status when the printer is connected to the print port (TCP#9100). The ASB and NSB status formats are the same.

3.2. Exception Processing

1) Undefined codes

Codes from <00>H to <1F>H are targeted. When codes not defined as commands in this region are received, they are discarded.

(Ex.) If processing the data string of <30>H<31>H<03>H<32>H<0A>H<33>H, the printer will discard <03>H as an undefined code.

2) Undefined commands

When data continuing the codes of ESC, FS, GS, DLE are codes not defined as commands, ESC, FS,GS and subsequent codes are discarded.

(Ex.) If processing the data string of <30>H<1B>H<22>H<31>H<32>H, the printer will read and discard <1B>H<22>H as an undefined command.

3) Settings outside of the defined area

Processing values outside of the defined area in commands accompanying arguments, those commands are ignored and the preset values are unchanged. The processing of commands is terminated at the point values outside of the defined region are processed in arguments having a plurality of commands. Data after that is processed as normal data.

(Ex.) If processing the data string of <1B>H<52>H<15>H, the printer will discard the data string of <1B>H<52>H<15>H because although <1B>H<52>H is defined as a commands (ESC R), the argument <15>H is outside of the definition. Therefore, the international character set that is already set experiences no change.

3.3. Standard Command Details

3.3.1. 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.

ESC GS t n

[Name] Select code page

[Code]

	ESC	GS	t	n
ASCII				
Hex.	1B	1D	74	n
Decimal	27	29	116	n

[Defined Region]

Specifications A	Specifications B	Specifications C	Specifications D
For SBCS 0 n ≦ 21 32 ≦ n ≦ 34 64 ≦ n ≦ 79	For SBCS 0 ≦ n ≦ 21 32 ≦ n ≦ 34 64 ≦ n ≦ 79 96 ≦ n ≦ 102	For SBCS 0 n ≦ 21 32 ≦ n ≦ 34 64 ≦ n ≦ 79	For SBCS 0 ≦ n ≦ 21 32 ≦ n ≦ 34 64 ≦ n ≦ 79 96 ≦ n ≦ 102
For DBCS Command disabled	For DBCS Command disabled	For DBCS n=0,128	For DBCS n=0,128

[Initial Value] Memory switch setting

In specifications A and B, the katakana page for Japanese character mode is fi xed for DBCS settings.

[Function] Specifies code page

n	Code Page	Specifications A		Specifications B		Specifications C		Specifications D	
		SBCS	DBCS	SBCS	DBCS	SBCS	DBCS	SBCS	DBCS
0	Normal*	○	-	○	-	○	○*1	○	○*1
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)	○	-	○	-	○	-	○	-
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)	○	-	○	-	○	-	○	-

n	Code Page	Specifications A		Specifications B		Specifications C		Specifications D	
		SBCS	DBCS	SBCS	DBCS	SBCS	DBCS	SBCS	DBCS
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	Thai Character Code 14 (Thai)	-	-	○	-	-	-	○	-
100	Thai Character Code 16 (Thai)	-	-	○	-	-	-	○	-
101	Thai Character Code 17 (Thai)	-	-	○	-	-	-	○	-
102	Thai Character Code 18 (Thai)	-	-	○	-	-	-	○	-
128	UTF-8	-	-	-	-	-	○*2	-	○*2
255	User Setting（Blank Code Page）	○	-	○	-	○	-	○	-

*1: Select UTF-8 code disabled (Specify kanji code in JIS or ShiftJIS/GB/BIG5/KS code)

*2: Select UTF-8 code enabled (Specify kanji code in UTF-8)

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

[Name] Write blank code page data

[Code]

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

Spec. A

[Defined Area] n1= 0
n2 = 48
1≦(n1 + n2 x 256)
0≦da≦255 (Font-A data)
db = 0 (STAR mode is not installed with Font-B.)
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

Spec. B.

[Defined Area] n1 = 0
n2 = 48
1 ≤ (n1 + n2 x 256)
0 ≤ da ≤ 255 (Font-A data)
0 ≤ db ≤ 255 (Font-B 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 following is the data written to the blank code page.
Font-A: 1 character = 48 bytes 6144 bytes = 48 bytes x 128 characters
Font-B: 1 character = 48 bytes 6144 bytes = 48 bytes x 128 characters
Send Font-A and Font-B data continuously.
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

[Font-B Data Format Vertical 24 dots x Horizontal 9 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

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] Memory switch 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] Memory 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] Memory switch 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.”
(See the information on character specifications in the appropriate printer specifications manual for details on the ANK font dot count.)

Character spacing can be specified also with the following commands.
• Specify 12 dot pitch (ESC M)
• Specify 14 dot pitch (ESC g)
• Specify 15 dot pitch (ESC P)
• Specify 16 dot pitch (ESC :)

Standard mode and page mode can be set independently of each other.

ESC M

[Name] Specify 12 dot pitch

[Code]

ASCII	ESC	M
Hex.	1B	4D
Decimal	27	77

[Defined Area] - - -

[Initial Value] Memory switch 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."
(See the information on character specifications in the appropriate printer specifications manual for details on the ANK font dot count.)

Standard mode and page mode can be set independently of each other.

ESC P

[Name] Specify 15 dot pitch

[Code]

ASCII	ESC	P
Hex.	1B	50
Decimal	27	80

[Defined Area] - - -

[Initial Value] Memory switch 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."
(See the information on character specifications in the appropriate printer specifications manual for details on the ANK font dot count.)

Standard mode and page mode can be set independently of each other.

ESC :

[Name] Specify 16 dot pitch

[Code]

ASCII	ESC	:
Hex.	1B	3A
Decimal	27	58

[Defined Area] - - -

[Initial Value] Memory switch 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."
(See the information on character specifications in the appropriate printer specifications manual for details on the ANK font dot count.)

Standard mode and page mode can be set independently of each other.

ESC g

[Name] Specify 14 dot pitch

[Code]

ASCII	ESC	g
Hex.	1B	67
Decimal	27	103

[Defined Area] - - -

[Initial Value] Memory switch 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."
(See the information on character specifications in the appropriate printer specifications manual for details on the ANK font dot count.)

Standard mode and page mode can be set independently of each other.

Specification A
This command is enabled only when the memory switch setting is set for DBCS (2 byte countries). It is ignored when the memory switch setting is set for SBCS (1 byte countries).
Specification B
This command is enabled for both when the memory switch setting is set for either DBCS (2 byte countries) or SBCS (1 byte countries).

3.3.2. 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).

3.3.3. 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] Specification A

Specifies emphasized printing for ANK characters.
IBM block ignores emphasized printing.

Specification B

Specifies emphasized printing for ANK characters and Kanji 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]

Specification A
Cancels emphasized printing for ANK characters.

Specification B
Cancels emphasized printing for ANK and Kanji 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.

ESC G S b n

[Name] Specify/cancel smoothing

[Code]	ASCII	ESC	GS	b	n
	Hex.	1B	1D	62	n
	Decimal	27	29	98	n

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

[Initial Value] n = 0

[Function] Specifies or cancels smoothing.
• Targets for smoothing are: embedded characters, download characters and external characters
• Even if smoothing is specified, it will not be performed if the character is set for magnification in either the vertical or horizontal directions.

n	smoothing
0 , 48	Cancel smoothing
1 , 49	Specify smoothing

3.3.4. 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] $1 \leqq n \leqq 127$
[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] Memory switch setting

[Function] Specifies the line feed amount.

Standard mode and page mode can be set independently of each other.

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] Memory switch setting

[Function] Specifies the line feed amount to 3 mm.

Standard mode and page mode can be set independently of each other.

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.
Using this command will intermittently feed paper, therefore, it is normally recommended that this command not be used.

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.
Using this command will intermittently feed paper, therefore, it is normally recommended that this command not be used.

3.3.5. 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.
Invalid in page mode.

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] $1 \leq n \leq 127$
[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] $1 \leq n \leq 255$
$0 \leq k \leq 16$

[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 $1 \leq n1 \leq n2 \ldots \leq nk$. 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.

3.3.6. 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.

Specification A
Setting this command partway will take affect from the next line.
Specification B
This command is enabled only when at the top of the line.

ESC Q n

[Name] Set right margin

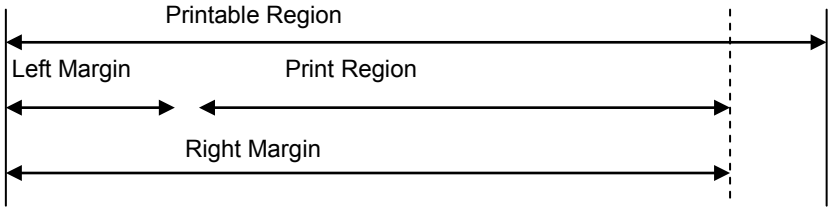
[Code]				
	ASCII	ESC	Q	n
	Hex.	1B	51	n
	Decimal	27	81	n

[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.

Specification A
Setting this command partway will take affect from the next line.
Specification B
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≤n≤255
0≤k≤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 ≤ 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.

Standard mode and page mode can be set independently of each other.

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.

Standard mode and page mode can be set independently of each other.

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

3.3.7. Download

ESC & c1 c2 n d1...d48

[Name] Register 12 x 24 dot font download characters

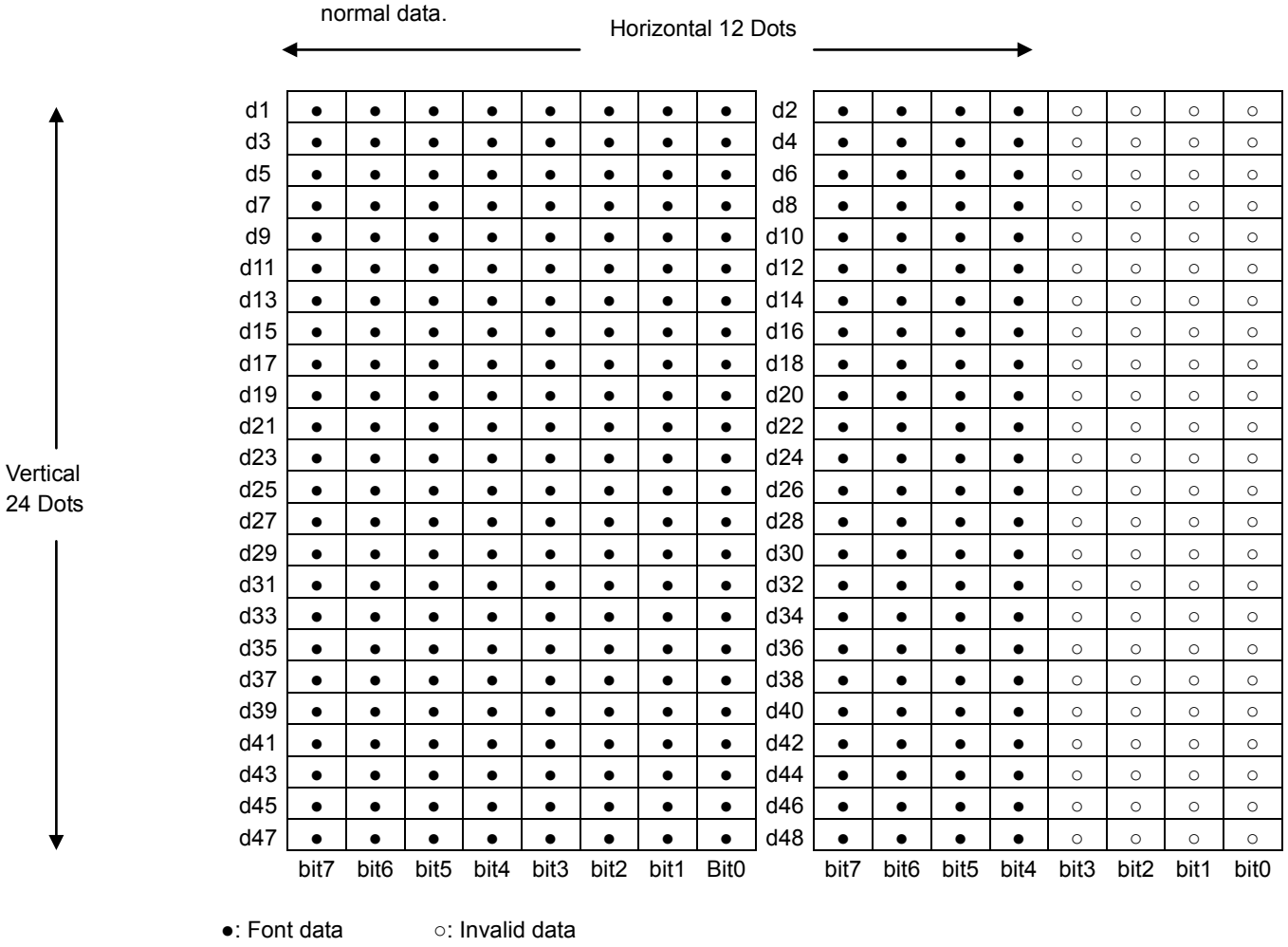
[Code]

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

3.3.8. 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.

Specification A

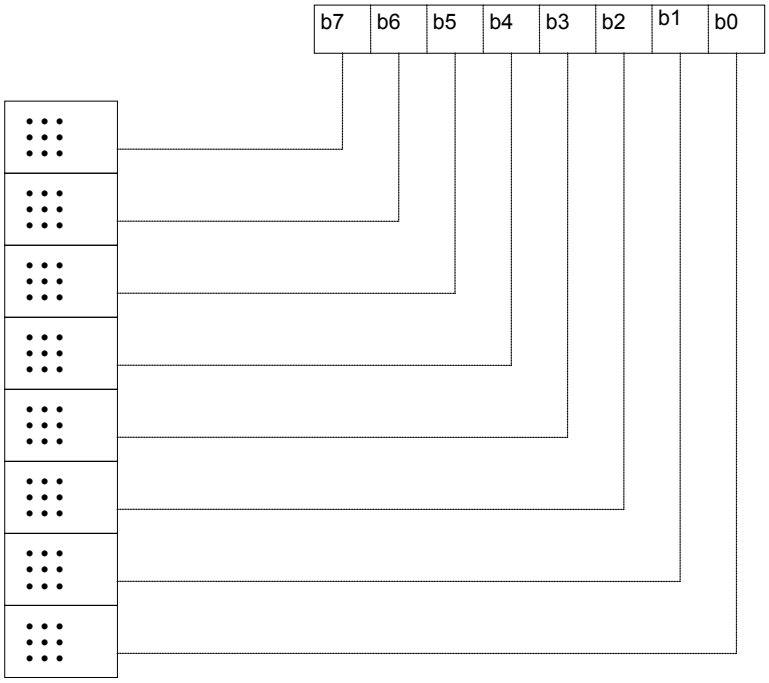
• When {(n1 + n2 x 256) x 3} exceeds the printable region, data after d1 is handled as normal data.

Specification B

• 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.

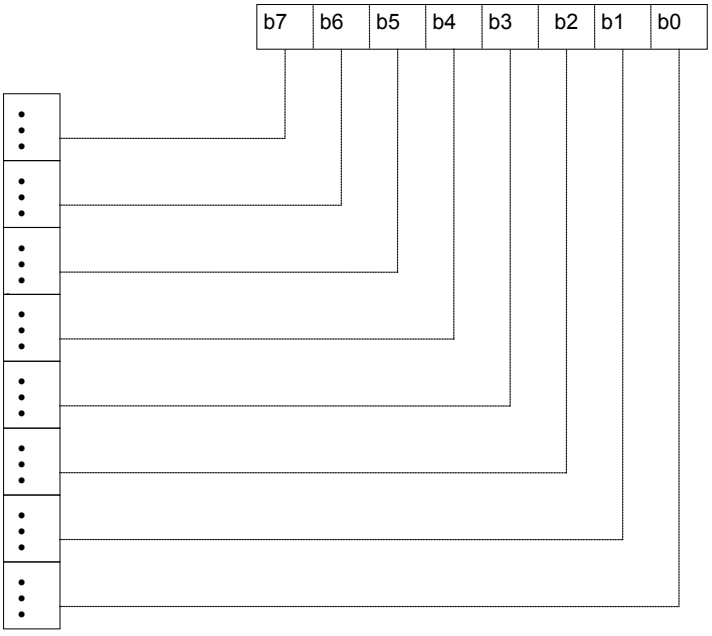
Specification A

• When (n1 + n2 x 256) exceeds the printable region, data after d1 is handled as normal data.

Specification B

• 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

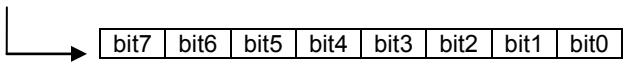
[Initial Value] - - -

[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.

Specification A
• When {(n1 + n2 x 256) x 8} exceeds the printable region, data after d1 is handled as normal data.

Specification B
• 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.

	X Bytes = (n1 + n2 x 256)			
24 Dots				
	d1	d2	• • • • • • •	dX
	dX x 1 + 1	dX x 1 + 2	• • • • • • •	dX x 2
	dX x 2 + 1	dX x 2 + 2	• • • • • • •	dX x 3
	•	•		•
	•	•		•
	•	•		•
	•	•		•
	dX x 23 + 1	dX x 23 + 2	• • • • • • •	dX x 24



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 ≦ (n1 + n2 x 256) ≦ printable region
k = {(n1 + n2 x 256) x 3}
0≦d≦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.

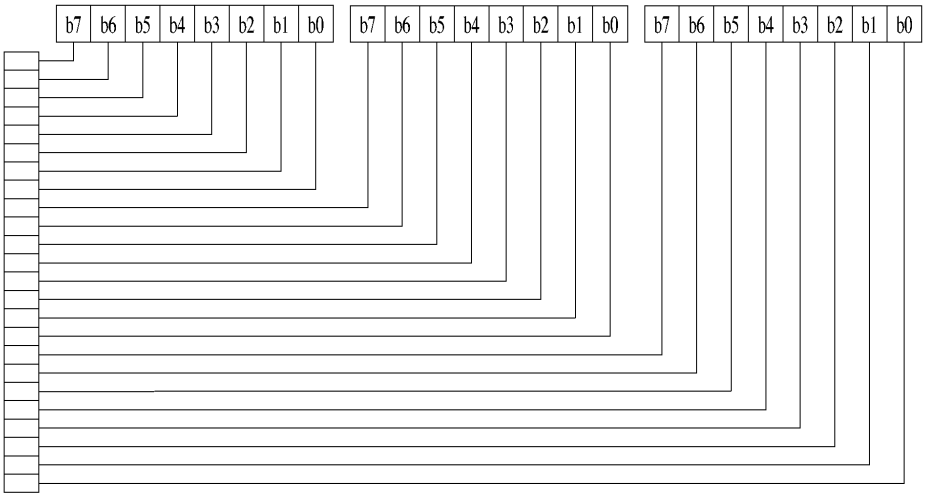
Specification A

• When {(n1 + n2 x 256) x 3} exceeds the printable region, data after d1 is handled as normal data.

Specification B

• 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

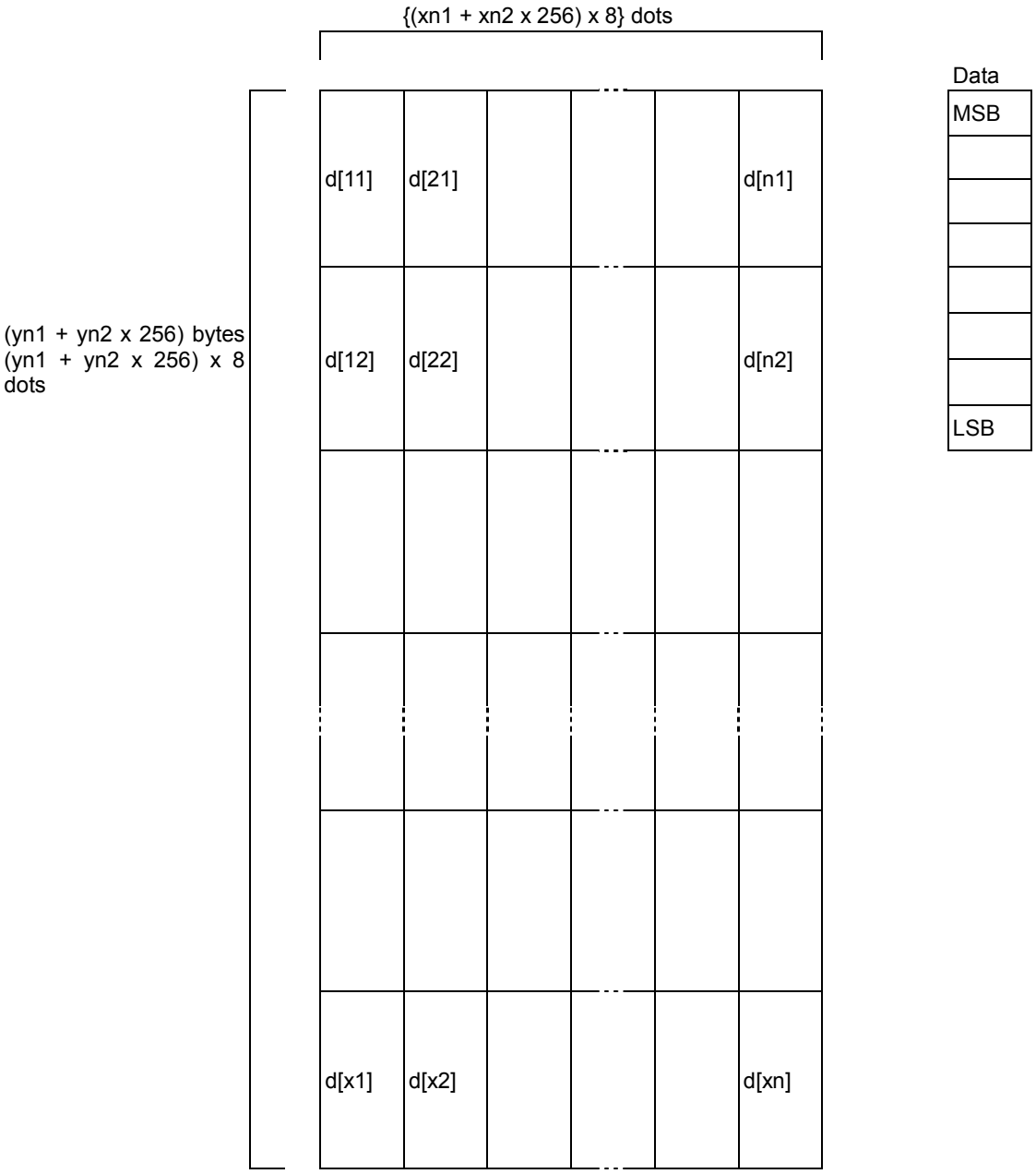
[Defined Area]
1≤n≤255
0≤xn1≤255, 0≤xn2≤3
1≤(xn1 + xn2 x 256)≤1023
0≤yn1≤255, 0≤yn2≤1
1≤yn1 + yn2 x 256)≤288
0≤d≤255
k = {(xn1 + xn2 x 256) x (yn1 + yn2 x 256) x 8}

[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.

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 l 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)
Invalid in page mode.

ESC RS L m

[Name] Spec. A Print logo in batch
Spec. B Batch control of registered logos

[Code]

ASCII	ESC	RS	L	m
Hex.	1B	1E	4C	m
Decimal	27	30	76	m

[Defined Area] Spec. A 0 ≦ m ≦ 3 48 ≦ m ≦ 51 (“0” ≦ m ≦ “3”)
Spec. B 0 ≦ m ≦ 3 48 ≦ m ≦ 51 (“0” ≦ m ≦ “3”),m=255

[Initial Value] - - -

[Function] Spec. A Prints all registered logos according to a print mode specified by m. Executes a printer reset after printing.
Spec. B Controls logos as specified by the parameter m.
After execution, this resets the printer.
Invalid in page mode.

Spec. A

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

Spec. B

m	Logo Control Mode
0, 48	Normal mode Batch printing
1, 49	Double wide mode Batch printing
2, 50	Double high mode Batch printing
3, 51	Double high/wide mode Batch printing
255	Batch delete logos

3.3.10. 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] Specification A,B

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.

Specification C

0≤n1≤13, 48≤n1≤57 (”0” ≤n≤”9”), 65≤n1≤68 (”A” ≤n≤”D”)

1≤n2≤14, 48≤n2≤57 (”0” ≤n≤”9”), 65≤n2≤69 (”A” ≤n≤”E”)

1≤n4≤255

n2 (Under-bar character selection), 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.

Specification A,B

• 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)

Specification A

When the height of the bar code is more than the form feed amount, the form feed amount is automatically doubled.

Specification B

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”)

Specification C

• 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
9, 57	GS1-128
10, 65	GS1 DataBar Omnidirectional
11, 66	GS1 DataBar Truncated
12, 67	GS1 DataBar Limited
13, 68	GS1 DataBar Expanded

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

n2	Under-bar character type					
	UPC-E, UPC-A, JAN/EAN8, JAN/EAN13, Code128, Code93, Code39, NW-7, ITF			GS1-128, GS1 DataBar		
	Font	Position of under-bar character	line feed after printing	Font	Position of under-bar character	line feed after printing
1, 49	- - -	None	Execute	- - -	None	Execute
2, 50	Font A	Under position	Execute	Font A	Under position	Execute
3, 51	- - -	-	not execute	- - -	None	not execute
4, 52	Font A	Under position	not execute	Font A	Under position	not execute
5, 53	- - -	- - -	- - -	Font A	Upper	Execute
6, 54	- - -	- - -	- - -	Font A	Upper	not execute
7, 55	- - -	- - -	- - -	Font A	Upper,Under	Execute
8, 56	- - -	- - -	- - -	Font A	Upper,Under	not execute
9, 57	- - -	- - -	- - -	Font B	Under	Execute
10, 65	- - -	- - -	- - -	Font B	Under	not execute
11, 66	- - -	- - -	- - -	Font B	Upper	Execute
12, 67	- - -	- - -	- - -	Font B	Upper	not execute
13, 68	- - -	- - -	- - -	Font B	Upper,Under	Execute
14, 69	- - -	- - -	- - -	Font B	Upper,Under	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	GS1-128, GS1 DataBar
	Minimum module	Narrow: Wide	Narrow: Wide	Minimum module
1, 49	2 dots	2:6 dots	2:5 dots	1 dots
2, 50	3 dots	3:9 dots	4:10 dots	2 dots
3, 51	4 dots	4:12 dots	6:15 dots	3 dots
4, 52	- - -	2:5 dots	2:4 dots	4 dots
5, 53	- - -	3:8 dots	4:8 dots	5 dots
6, 54	- - -	4:10 dots	6:12 dots	6 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	- - -

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.

• 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”)
GS1-128	2 ≦ k ≦ 255	0 ≦ d ≦ 127
GS1 DataBar Omnidirectional	k = 13	48 ≦ d ≦ 57
GS1 DataBar Truncated	k = 13	48 ≦ d ≦ 57
GS1 DataBar Limited	k = 13	48 ≦ d ≦ 57 [However, 48 ≦ d1 ≦ 49]
GS1 DataBar Expanded	2 ≦ k ≦ 255	32 ≦ d ≦ 34, 37 ≦ d ≦ 63, 65 ≦ d ≦ 90, d = 95, 97 ≦ d ≦ 122, d = 123 [However, d1 = 40, 48 ≦ d2 ≦ 57, 48 ≦ d3 ≦ 57, or 48 ≦ d1 ≦ 57, 48 ≦ d2 ≦ 57]

Specification A,B,C

• 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).

SpecificationC

• GS1DataBar Omnidirectional,Truncated,Limited : k = 13
The 14th check digit is automatically applied
• GS1DataBar Expanded :k is freely set, and maximum value differs according to the mode and the print character type.
•GS1-128: k is freely set, and maximum value differs according to the mode and the print character type.

3.3.11. 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.

(*) When connected with a presenter, executes a full cut when instructed for a partial cut.

3.3.12. External Device Drive

ESC BEL n1 n2

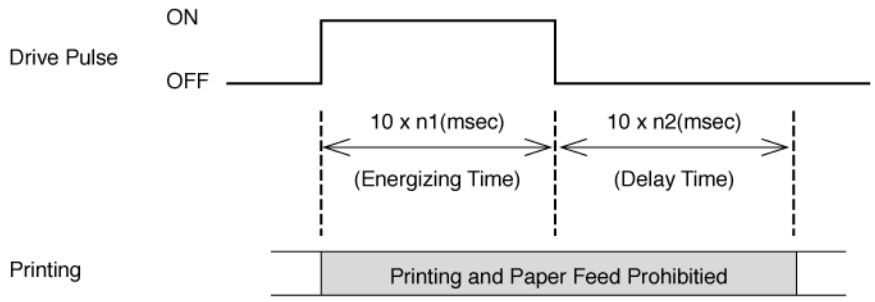
[Name] Set external drive device 1 pulse width

[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

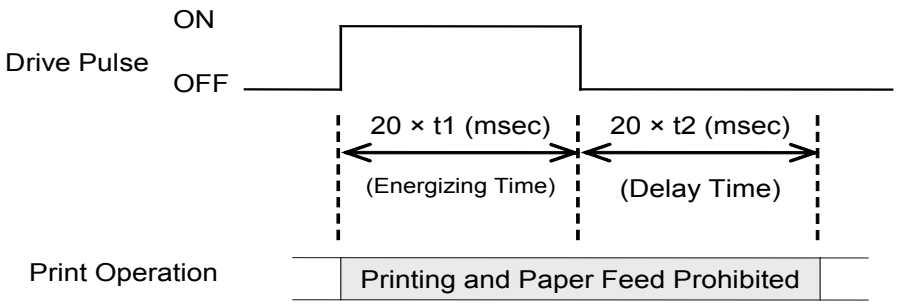
[Defined Area] 1≦m≦2, 49≦m≦50 (”1”≦m≦“2”)
1≦t1≦255
1≦t2≦255

[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.)



ESC GS EM DC1 m n1 n2

[Name] External buzzer drive pulse condition settings

[Code]

ASCII	ESC	GS	EM	DC1	m	n1	n2
Hex.	1B	1D	19	11	m	n1	n2
Decimal	27	29	25	17	m	n1	n2

[Defined Area] 1 ≦ m ≦ 2 49 ≦ m ≦ 50
0 ≦ n1 ≦ 255
0 ≦ n2 ≦ 255

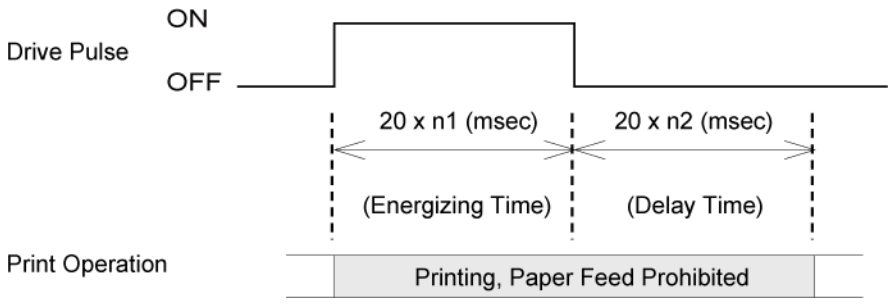
[Initial Value] n1=0 n2=0

[Function] Sets external buzzer derive pulse condition.
m specifies the buzzer drive terminal to perform the condition settings.

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

n1 specifies the energizing time; n2 specifies the delay time.

- Energizing time: =20msec x n1
- Delay time: =20msec x n2



Drives for external buzzers set using this command is performed by <ESC> <GS> <EM> <DC2> m n1 n2.
The setting value is not initialized by <ESC> “@” and <CAN>.

ESC GS EM DC2 m n1 n2

[Name] External buzzer drive execution

[Code]

	ESC	GS	EM	DC2	m	n1	n2
ASCII							
Hex.	1B	1D	19	12	m	n1	n2
Decimal	27	29	25	18	m	n1	n2

[Defined Area] 1 ≦ m ≦ 2 49 ≦ m ≦ 50
1 ≦ n1 ≦ 20
n2=0

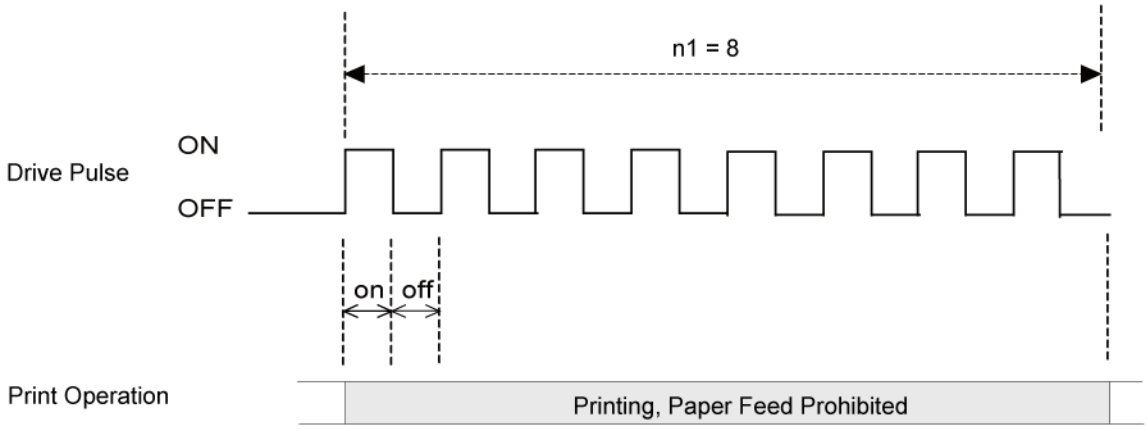
[Initial Value] ---

[Function] Repeatedly drives the buzzer according to the ON/OFF conditions set by the external buzzer drive pulse conditions command <ESC> <GS> <EM> <DC1> m t1 t2.
m specifies the buzzer drive terminal to drive.

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

Specifies the number of repetitions of the buzzer drive with (n2 x 256 + n1).
The buzzer will not ring while printing.
This command is prohibited for uses other than to ring the buzzer.
(If this command is used to drive the cash drawer on models that have an external device terminal, the system will be damaged. Absolutely never use it for other purposes.)
The buzzer can be stopped by pressing the paper feed switch or opening the cover when it is ringing.

Example:



(Note) If the off time is set to 0 (zero), it is possible to ring the buzzer continuously for the amount of n1. For example, if on = 5 seconds, off = 0, and n1 = 20 times, the buzzer will ring for 100 seconds.

3.3.13. 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.

Spec. A.

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

Spec. B.

n	Print Density	
	Single Color Printing Mode	2-color Printing Mode Red Print Density Double Resolution Mode *1
0, 48	Print density + 3	Print density + 1
1, 49	Print density + 2	Print density + 1
2, 50	Print density + 1	Standard print density (Standard)
3, 51	Standard print density (Standard)	Standard print density (Standard)
4, 52	Print density - 1	Standard print density (Standard)
5, 53	Print density - 2	Print density -1
6, 54	Print density - 3	Print density - 1

*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.
Invalid in page mode.

Spec. A

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

Spec. B

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	Standard	Each print mode speed
1, 49	Mid-speed	Each print mode speed
2, 50	Slow speed	Each print mode speed
3, 51	High speed	Each print mode speed

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] For Specifications A and B
0≦n≦3, 48≦n≦51(”0”≦n≦”3”)
For Specification C
0≦n≦3, 48≦n≦51(”0”≦n≦”3”)
n=16,n=255

[Initial Value] Set by DIP switches and memory switches.

[Function] Sets the status transmission conditions.
See Appendix 2 for details regarding ASB status.
Settings of this command are unaffected by the ESC @ command.
See each printer's product specifications manual for details on the DIP SW and memory switch settings.
When the printer uses a wireless LAN I/F, this command is ignored.

Specification A

n	Status transmission conditions
0, 48	ASB invalid • NSB Invalid
1, 49	ASB valid • NSB Invalid
2, 50	ASB Invalid • NSB Valid
3, 51	ASB Valid • NSB Valid

Specification B
The command functions can be selected using the memory switch.
Therefore, the command specifications vary depending on the memory switch setting as follows.

n	Command function selection by memory switches	
	Status transmission condition settings	Status transmission
0, 48	ASB invalid • NSB Invalid	Status transmission
1, 49	ASB valid • NSB Invalid	
2, 50	ASB Invalid • NSB Valid	
3, 51	ASB Valid • NSB Valid	

Specification C.
The command functions can be selected using the memory switch.
Therefore, the command specifications vary depending on the memory switch setting as follows.

n	Command function selection by memory switches	
	Status transmission conditions	Status transmission
0, 48	ASB Invalid • NSB Invalid	Status transmission
1, 49	ASB Valid • NSB Invalid	
2, 50	ASB Invalid • NSB Valid	
3, 51	ASB Valid • NSB Valid	
16	Returns the ASB and NSB settings to the initial state previously set by the DIP SW or MSW.	
255	Sends the ASB status information.	

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 Appendix 2, Automatic Status for details regarding ASB status.

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.
See Appendix 2, ENQ Command Status for details regarding status.
Spec. B-1: Transmit printer status within 2msec.
Spec. B-2: Transmit printer status within 10msec.

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.
See Appendix 2, EOT Command Status for details regarding status.
Spec. B-1: Transmit printer status within 2msec.
Spec. B-2: Transmit printer status within 10msec

ESC ACK CAN

[Name] Execute real-time printer reset

[Code]				
	ASCII	ESC	ACK	CAN
	Hexadecimal	1B	06	18
	Decimal	27	6	24

[Defined Area] ---

[Initial Value] ---

[Function] Execute real-time printer reset.

ETB

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

[Defined Area] - - -
[Initial Value] - - -
[Function] Spec. Aifications
Sets the ASB ETB status when reading this command from the reception buffer, then sends ASB.
See Appendix 2, ASB Status for details.

Spec. Bifications
Sets the ASB ETB status when reading this command from the reception buffer. Then, after updating the ASB ETB counter, sends the ASB status.
See Appendix 2, ASB Status for details.
The following outlines the details of processes in this command.
(1) Reads ETB command from reception buffer.
(2) Waits for printing of the print data before the ETB command to end.
(3) Increments the ASB ETB counter by 1 after checking that printing has ended, then sets the ASB ETB status.
(4) Sends ASB (only when ASB is enabled).

• Precautions when using Ethernet
When multi-session is valid the ASB (ETB counter) sent by <ETB> is sent to all hosts that are connected.
For that reason, sending ETB from multiple sessions, can cause mis-recognition of the ETB counter.
Therefore, we recommend the <ESC><GS><ETX> commands to confirm the print end counter.
See the Command List by Model.

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>

ESC GS ETX s n1 n2

[Name] Send print-end counter, initialize

[Code]							
	ASCII	ESC	GS	ETX	s	n1	n2
	Hexadecimal	1B	1D	03	s	n1	n2
	Decimal	27	30	3	s	n1	n2

[Defined Area] Spec. A: 0 ≦ s ≦ 2
Spec. B: 0 ≦ s ≦ 4
Spec. C: 0 ≦ s ≦ 5

[Function] This command is run when reading from the reception buffer. Processes the print end counter according to the s parameter.

s	Name	Function
0	Print end counter reference	Sends the current print end counter to the host. (Does not wait for print end. Does not count up.)
1	Print end counter update	Runs the following operations. (1) Prints data in line buffer, if data exists. (2) Waits until printing ends (motor stops). (3) Updates the print end counter (increments by 1). (4) Sends print end counter to host.
2	Print end counter clear	Returns the print end counter to its default value (zero clear). (Does not wait for print end. Does not send the print end counter to the host.
3	Start document n1, n2 = 0	(1) Sets data intake mode (2) Initialize
4	End document n1, n2 = 0	(1) Prints data in line buffer, if data exists. (2) Waits until printing ends (motor stops). (3) Cancels data intake mode
5	Data timeout setting	n1=0 : Initializes to the content of MSW. (n2=0) n1=1 : Data timeout setting n2=0: Timeout disabled Others: n2 = Data timeout time (units: seconds 1 to 255 seconds) n1=2 : Sends the current timeout setting to the host. (n2=0)

The data formats sent to the host when s = 0 or s =1 are shown below.

<Returned Data Formats>

[Code]									
	ASCII	ESC	GS	ETX	s	n1	n2	[Print end counter]	NUL
	Hexadecimal	1B	1D	03	s	n1	n2	[Print end counter]	00
	Decimal	27	30	3	s	n1	n2	[Print end counter]	0

* Echoes back the specified contents from the host as is until ESC GS ETX s n1 n2, and then sends the print end counter value and NUL.

When [Print end counter] is 1 byte in length, the initial value is 0x00.
When s = 1, increments by 1 each time the command is processed. After 0xFF, returns to 0x00.
There is one [Print end counter] in the printer that is unrelated to the n1, n2 values.
(There is no counter for the n1, n2 values.)

(Reference Information) Differences between the ETB command and this command

Item	ESC GS ETX s n1 n2	ETB
Affect on ASB (ETB Status)	None	Yes
ASB occurrence	None	Yes
Affect of ASB valid/invalid setting	None	Yes
Affect of the ESC RS E n command	None	Yes
Status transmission destination in Ethernet (When multi-sessions is valid)	Send only when in the print session (host) that is connected	Send ASB to all sessions (hosts) that are connected

* This print end counter and the ETB counter sent by the ETB command are separate. They have no affect on each other.

(Cautions on Ethernet interfacing)
When using the Ethernet interface, be sure to use the same communication socket for transmission of this command by the host device and for reception of print end counter data (between #9100 port connection and disconnection). After the command has been transmitted, if the socket is disconnected before the print end counter data is received (#9100 port is disconnected), the print end counter data is returned to the next connected socket (#9100 port).

The following shows a communication example of this command.

Communication Example 1

Host Transmission Data		Printer return data	
ESC GS ETX **0x00** 0x00 0x00	→		(Reference
	←	ESC GS ETX **0x00** 0x00 0x00 0x00 0x00	Counter)
Print Data + ESC GS ETX **0x01** 0x00 0x00	→		(Reference
	←	ESC GS ETX **0x01** 0x00 0x00 0x01 0x00	Update)
Print Data + ESC GS ETX **0x01** 0x00 0x00	→		(Reference
	←	ESC GS ETX **0x01** 0x00 0x00 0x02 0x00	Update)

Communication Example 2

Host Transmission Data		Printer return data	
ESC GS ETX **0x02** 0x02 0x00			(Clear
ESC GS ETX **0x00** 0x02 0x00	→		Counter)
	←	ESC GS ETX **0x00** 0x02 0x00 0x00 0x00	(Reference Counter)
Print Data + ESC GS ETX **0x01** 0x02 0x11	→		(Reference
	←	ESC GS ETX **0x01** 0x02 0x11 0x01 0x00	Update)
Print Data + ESC GS ETX **0x01** 0x02 0x12	→		(Reference
	←	ESC GS ETX **0x01** 0x02 0x12 0x02 0x00	Update)
Print Data + ESC GS ETX **0x01** 0x02 0x13	→		(Reference
	←	ESC GS ETX **0x01** 0x02 0x13 0x03 0x00	Update)
Print Data + ESC GS ETX **0x01** 0x02 0x14	→		(Reference
	←	ESC GS ETX **0x01** 0x02 0x14 0x04 0x00	Update)

<Example using n1, n2>

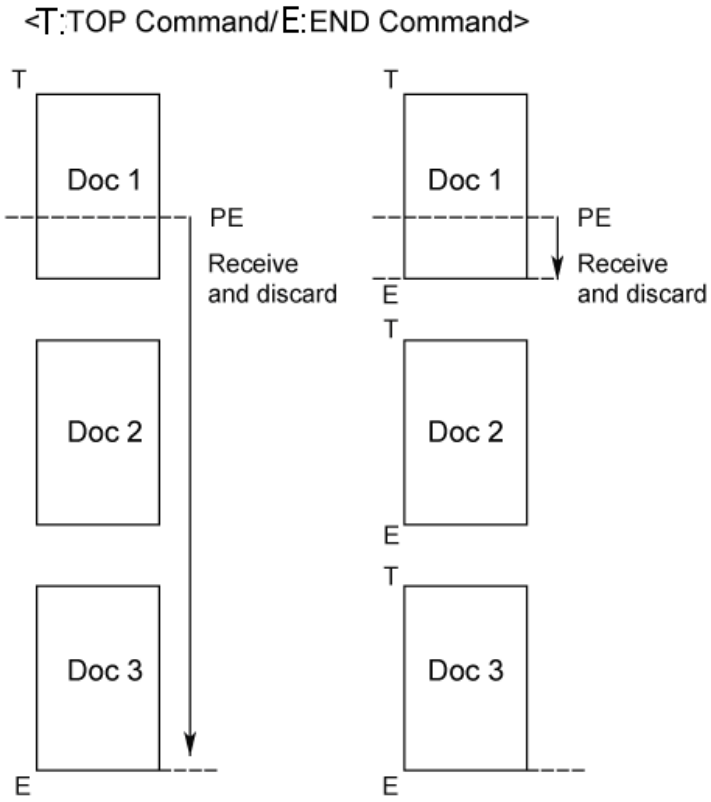
- For Ethernet: Specify as n1 = host ID, n2 = document number, and check the compatibility of source information and returned information for the host ID and document ID along with getting the returned print end counter.
- For cases other than Ethernet: Specify n1+n2 x 256 as the document ID and check the compatibility with the document ID in the same way.
- When it is not possible to check compatibility of the source and returned data, fix at n1 = 0, n2 = 0.

When s = 3, and s = 4 (Document start command + document end command), printer operates as though in data cancel mode.
If there is an error after receiving the document start command, reception data is received and discarded until the document end command is received when the printer is recovered from the error. If the document end command cannot be recognized, all reception data is destroyed. Timeouts are 10 seconds. Automatically cancels the data intake mode.

Restrictions
1) Sleep mode decrease
2) Erroneous printing occurs if the same data as the End command is contained in the raster data or bit image data.
3) Invalid when in Page mode

When s = 3, initialize the following settings using the initializing process.

- 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
- Set upside-down, position alignment
- Left/right margins



The interface disconnection detection function through data reception timeout is controlled when s=5 is specified.

When this function is enabled, the interface is determined to have been disconnected when no data is received for a specified period of time at the data read section of the printer.
When a disconnection is detected during a command execution, the command parsing is stopped.
When data cancel is enabled, the print start function using the timer (ESC GS g 1) is disabled, and data is canceled.

n1=0 and n2=0: Initializes the interface disconnection detection function through data reception timeout. (Returns to the MSW settings. The initial value for the timeout time is 3 seconds.)
n1=1 : Set enable/disable and the timeout time for data reception timeouts.
When n2 is 0, the disconnection detection function is disabled due to data reception timeouts.
When n2 is anything except for 0, the data reception timeout is set. (Units: seconds, 1 to 255 seconds)
n1=2 and n2=0: Sends the current setting to the host.
The data format returned to the host is as shown below.

<Returned Data Formats>
Code ASCII ESC GS ETX s n1 n2 [timeout setting] NUL
Hex. 1B 1D 03 s n1 n2 [timeout setting] 00
Decimal 27 29 3 s n1 n2 [timeout setting] 0

* Echoes back the specified contents from the host as is until ESC GS ETX s n1 n2, and then sends the print end counter value and NUL.

This function is invalid at the time of program rewriting.

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.

This command is ignored when UTF-8 is specified (command: ESC GS t 128) for DBCS.

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

This command is ignored when UTF-8 is specified (command: ESC GS t 128) for DBCS.

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] Memory switch 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.

This command is ignored when UTF-8 is specified (command: ESC GS t 128) for DBCS.

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] Memory switch 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.

Standard mode and page mode can be set independently of each other.

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] Memory switch 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.

Standard mode and page mode can be set independently of each other.

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.)

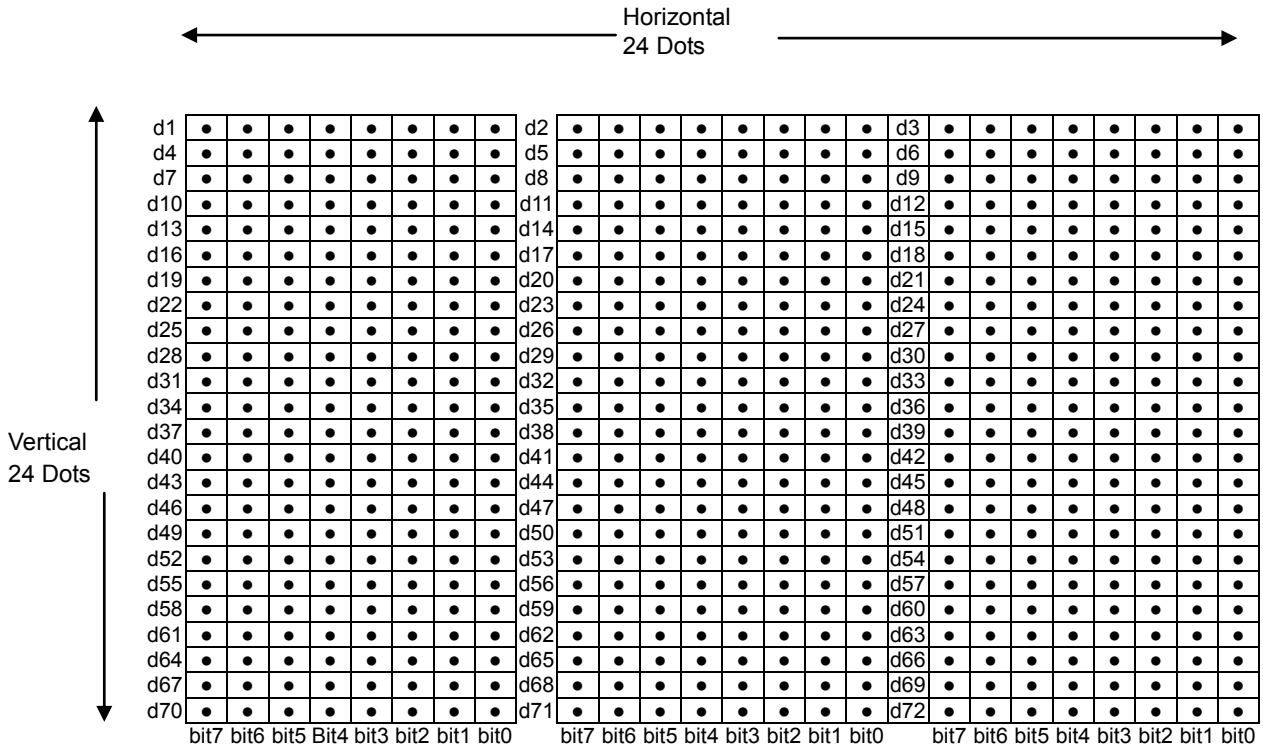
Specification A

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

Specification B

Specification	c1	c2	Registration count
Japanese char./JIS type	c1=77h	21h≦c2≦7Eh	94 characters
Japanese char./Shift JIS type	c1=ECh	40h≦c2≦7Eh 80h≦c2≦9Eh	94 characters
Kanji characters	c1=FEh	A1h≦c2≦FEh	94 characters
Taiwan char./JIS type	c1=FEh	A1h≦c2≦FEh	94 characters
Hangeul char./JIS type	c1=FEh	A1h≦c2≦FEh	94 characters

(*) The registration region is the same for Japanese characters in JIS or shift JIS.



●: Font data/○: Invalid data

3.3.16. 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

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”)

Spec. A
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”)
Spec. B
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”)
N = 85 (N = “U”) User defined area
Spec. C
m = 87, 84, 44, 43, 45, 64, 42 (m = “W”, “T”, “,”, “+”, “-”, “@”, “*”)
48 ≦ N ≦ 57 (”0” ≦ N ≦ “9”), 65 ≦ N ≦ (*)70 (”A” ≦ N ≦ (*)“F”), 97 ≦ N ≦ (*) 102, (“a” ≦ N ≦ (*) (*) “f”)
N = 85 (N = “U”) User defined area
(*) 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.
This command exists in models that have the specifications of A, B and C indicated in the above defined areas.
On models that have specification C, you can load the default settings by specifying m = 42 (*).
Models having specifications B can register any 16 bit data by specifying N = 85 (”U”). (See the “Special Appendix, Command Table per Model” for details per model.)
Consider the life of the non-volatile memory and avoid excessive use of this command.

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

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.

I/F	Mode	Process
Parallel	- - -	BUSY output
RS-232C	DTR mode	DTR mark output
	Xon/Xoff mode	Xoff output

3.4. Raster Graphics Command Details

Raster graphics are command types and incidental specifications that enable high speed and high quality printing of graphics.
The following shows the characteristics and specifications for raster graphics.

- Defines the raster mode command as the STAR line mode extension set.
  Basically no restrictions set in use of conventional STAR line mode.
  STAR Page Mode cannot be used.
- Handles high speed data transmission
  When using IEEE 1284, data transmission rate of 80 to 100 KB /sec ensured.
- Handles IEEE 1284, USB and Ethernet I/F (RS-232C not applicable)
- Handles both fixed length/variable length mode
- Print speed selectable
- Post printing cut operation selectable
- All settings possible by Raster commands.
  Most settings are possible without DIPSW/memory switch settings.
- Supports printer driver handling raster mode

The following shows the raster command details.
Note that if not specifically noted, the following commands are effective only in raster mode and the commands are ignored (4 bytes ignored) when other than the raster mode. The raster image buffer in the command details described below indicate the raster dedicated image buffer, the length thereof (vertical direction dot count) differing between models.

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.

This command is also effective when not in the raster mode.

However, initialization of the raster mode with this command is executed when entering the raster mode.

The following settings are initialized using this command.

- Raster page length setting (ESC * r P n NUL)
- Raster print quality setting (ESC * Q n NUL)
- Raster print color setting (ESC * r K n NUL)
- Raster left margin setting (ESC * r m l n NUL)
- Raster right margin setting (ESC * r m r n NUL)
- Raster EOT mode setting (ESC FF EOT)
- Raster FF mode setting (ESC FF NUL)
- Raster image buffer clear

Note that when entering the raster mode, it executes the same process as initialization of the raster mode using this command.

However, because initialization is not performed when entering the raster mode only for the following settings, when initializing the following it sends this initialization command.

- Raster data print color setting (ESC * r K n NUL)

Invalid in page mode.

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.

This command is ignored when in the raster mode.

The following shows the details regard processing of this command.

(1) Reception of this command.

(2) When using parallel I/F, IEEE 1284 reverse mode is prohibited.

(3) All data remaining in the reception buffer and image buffer is printed equivalent to the FF command.

(4) Initialize raster mode

(5) Enter raster mode

When in the raster mode, the raster mode is initialized.

The following shows the contents of the initialization.

- Raster page length setting (ESC * r P n NUL)
- Raster print quality setting (ESC * Q n NUL)
- Raster left margin setting (ESC * r m l n NUL)
- Raster right margin setting (ESC * r m r n NUL)
- Raster EOT mode setting (ESC FF EOT)
- Raster FF mode setting (ESC FF NUT)
- Raster image buffer clear

(*) Only raster data print color setting is not initialized when entering the raster mode.

Invalid in page mode.

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.
When quitting the raster mode, if there is raster data remaining in the image buffer of the raster mode, it quits the raster mode after executing the raster EOT mode.
Note that with this command, IEEE 1284 reverse mode is allowed in parallel I/F and it sets the top of page with the line mode.
Invalid in page mode.

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.
Invalid in page mode.

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.

Drawer drive conditions conform to setting command (<ESC> <BEL> n1 n2) of the line mode.

n is a decimal description (max. 255 digits) using ASCII characters.

n	Drive circuits
0	None
1	External device drive 1 drive
2	External device drive 2 drive
3	External device drive 1 drive and external device drive 2 drive

Invalid in page mode.

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.

The EOT mode operates to execute using the raster document quit command (ESC FF EOT).

n is a decimal description (max. 255 digits) using ASCII characters.

Invalid in page mode.

Specification A <EOT mode setting format>

n	FormFeed	Cut Feed	Cutter	Presenter
0	Set To Default	Set To Default	Set To Default	Set To Default
1	○	--	--	--
2	○	○	--	--
3	○	TearBar	--	--
8	○	--	Full Cut	--
9	○	○	Full Cut	--
12	○	--	Partial Cut	--
13	○	○	Partial Cut	--
36	○	--	Full Cut	Eject
37	○	○	Full Cut	Eject

Specification B <EOT mode setting format>

n	FormFeed	Cut Feed	Cutter	Presenter
0	Set To Default	Set To Default	Set To Default	Set To Default
1	○ (*1)	--	--	--
2	○ (*1)	○	--	--
3	○ (*1)	TearBar	--	--
8	○ (*1)	--	Full Cut	--
9	○ (*1)	○	Full Cut	--
12	○ (*1)	--	Partial Cut	--
13	○ (*1)	○	Partial Cut	--
36	○ (*1)	--	Full Cut	Eject
37	○ (*1)	○	Full Cut	Eject

*1) Form Feed

When the printer is a model handling BM and is set for BM to be effective, the set raster mode page length is ignored and BM detecting is performed.

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.

The FF mode operates to execute using the raster document quit command (ESC FF NUL).

n is a decimal description (max. 255 digits) using ASCII characters.

Invalid in page mode.

Specification A <FF mode setting format>

n	FormFeed	Cut Feed	Cutter	Presenter
0	Set To Default	Set To Default	Set To Default	Set To Default
1	○	--	--	--
2	○	○	--	--
3	○	TearBar	--	--
8	○	--	Full Cut	--
9	○	○	Full Cut	--
12	○	--	Partial Cut	--
13	○	○	Partial Cut	--
36	○	--	Full Cut	Eject
37	○	○	Full Cut	Eject

Specification B <FF mode setting format>

n	FormFeed	Cut Feed	Cutter	Presenter
0	Set To Default	Set To Default	Set To Default	Set To Default
1	○ (*1)	--	--	--
2	○ (*1)	○	--	--
3	○ (*1)	TearBar	--	--
8	○ (*1)	--	Full Cut	--
9	○ (*1)	○	Full Cut	--
12	○ (*1)	--	Partial Cut	--
13	○ (*1)	○	Partial Cut	--
36	○ (*1)	--	Full Cut	Eject
37	○ (*1)	○	Full Cut	Eject

*1) Form Feed

When the printer is a model handling BM and is set for BM to be effective, the set raster mode page length is ignored and BM detecting is performed.

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.
n is a decimal description (max. 255 digits) using ASCII characters.
Invalid in page mode.

n	
0	Continuous print mode (no page length setting)
1≤n	Specify page length

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≦n≦2

[Initial Value] n = 0

[Function] Sets raster print quality.
n is a decimal description (max. 255 digits) using ASCII characters.
Invalid in page 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 quality
0	Specify high speed printing
1	Normal print quality
2	High print quality

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.
This command sets the left margin to (n x 8).
When the left margin exceeds the printable area, or if the left margin specification eliminates the print area (printable region to right margin) to the left margin specified value, this command is ignored.
n is a decimal description (max. 255 digits) using ASCII characters.
Invalid in page mode.

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.
This command sets the right margin to (n x 8).
When the right margin exceeds the printable area, or if the right margin specification eliminates the print area (printable region to left margin) to the right margin specified value, this command is ignored.
n is a decimal description (max. 255 digits) using ASCII characters.
Invalid in page mode.

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≦n≦2

[Initial Value] ---

[Function] Sets the raster top margin.

n is a decimal description (max. 255 digits) using ASCII characters.

n	Top margin
0	Set To Default
1	Set top margin using reverse paper feed.
2	Set standard top margin.

(*) This differs according to the model handling this command.

The line mode top margin setting continues after entering the raster mode.

Also, the top margin setting of the raster mode continues after ending the raster mode, and returning to the line mode.

Invalid in page mode.

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.

This command is effective only when specifying the 2 color mode using the line mode.

This command is ignored when not in the 2 color print mode.

n is a decimal description (max. 255 digits) using ASCII characters.

Invalid in page mode.

n	Print color
0	Black
1	Cyan
2	Magenta
3	Yellow

(*) This command is effective only when using a model handling 2 color printing. This command is ignored on non-compatible models.

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 (auto line feed).
Raster data is sent in (n1 + n2 x 256) byte counts as binary data.
Raster data exceeding the print area currently set is discarded.
The image buffer expanded position is automatically line fed one dot row and moved to the left margin on the next line after expanded the image buffer data 1 dot row using this command.
Also, data expansion is duplicated on the data in the current image buffer (OR process).
The following shows expanded image buffer for the set raster print color.
n is a decimal description (max. 255 digits) using ASCII characters.
Invalid in page mode.

Print color	Expanded image buffer
Black	Image buffer for black
Cyan	Image buffer for color
Magenta	Image buffer for color
Yellow	Image buffer for color

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.
Raster data is sent in (n1 + n2 x 256) byte counts as binary data.
Raster data exceeding the print area currently set is discarded.
The image buffer expanded position returns to the head of the current dot row without an automatic line fed after expanding the image buffer data 1 dot row using this command.
Also, data expansion is duplicated on the data in the current image buffer (OR process).
The following shows expanded image buffer for the set raster print color.
n is a decimal description (max. 255 digits) using ASCII characters.
Invalid in page mode.

Print color	Expanded image buffer
Black	Image buffer for black
Cyan	Image buffer for black
Magenta	Image buffer for black
Yellow	Image buffer for black

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.
Moves position n dots with this command.
When the current page length setting is in continuous print mode, and the n dots exceed the remaining dot count of the raster image buffer length, this moves up to the remaining dot count and ignores the overflow.
If the page length is set, it moves to the current page length and ignores the overflow.
Note that when there is overflow, this expands the next raster data after printing the raster image buffer data with the next raster data transfer and move vertical direction position command.
n is a decimal description (max. 255 digits) using ASCII characters.
Invalid in page mode.

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.
Executes operation specified by the FF mode setting command (ESC * r F n NUL).
Invalid in page mode.

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.
Executes operation specified by the EOT mode setting command (ESC * r E n NUL).
Invalid in page mode.

ESC * r N n NUL

[Name] Discard data for specified byte count

[Code]							
	ASCII	ESC	*	r	N	n	NUL
	Hex.	1B	2A	72	4E	n	0
	Decimal	27	42	114	78	n	0

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

[Initial Value] - - -

[Function] Discards data for the specified byte count.
Discards data received after a byte count specified by n.
n is expressed in decimal (maximum 4 digits) using ASCII characters.
This command is effective only in raster mode.
Invalid in page mode.

ESC * r V m n NUL

[Name] Execute external buzzer drive

[Code]

ASCII	ESC	*	r	V	m	n	NUL
Hex.	1B	2A	72	56	m	n	0
Decimal	27	42	114	86	4m	n	0

[Defined Area] m=49,50
1≤n≤20

[Initial Value] - - -

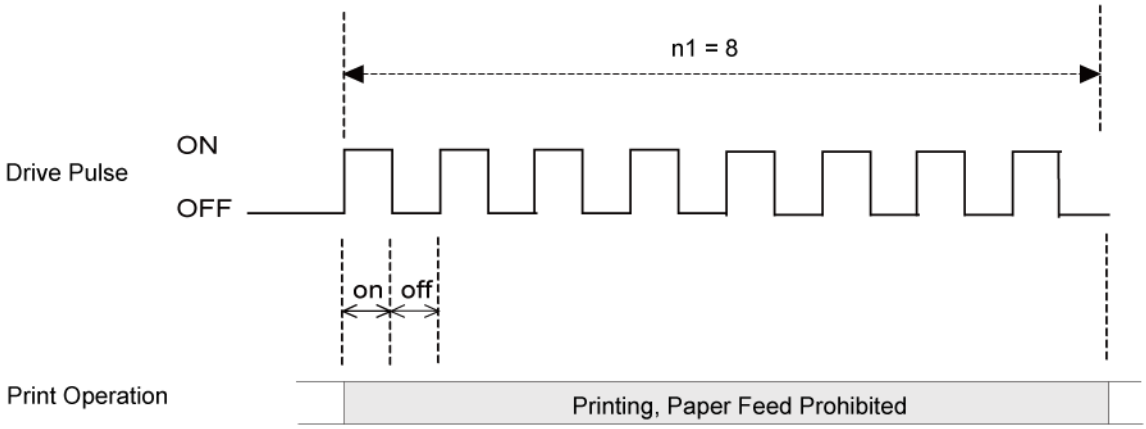
[Function] Repeatedly drives the buzzer according to the ON/OFF conditions set by the external buzzer drive pulse conditions command <ESC> <GS> <EM> <DC1> m n1 n2.

m specifies the buzzer drive terminal to drive.

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

Specifies the number of repetitions of the buzzer drive with n.
The buzzer will not ring while printing.
This command is prohibited for uses other than to ring the buzzer.
(If this command is used to drive the cash drawer on models that have an external device terminal, the system will be damaged. Absolutely never use it for other purposes.)
The buzzer can be stopped by pressing the paper feed switch or opening the cover when it is ringing.
Conditions must not be set in advance with the external buzzer drive pulse condition command <ESC> <GS> <EM> <DC1> m n1 n2 prior to entering the raster mode.
n is expressed in decimal (maximum 255 digits) using ASCII characters.
Invalid in page mode.

Example:



(Note) If the off time is set to 0 (zero), it is possible to ring the buzzer continuously for the amount of n1. For example, if on = 5 seconds, off = 0, and n1 = 20 times, the buzzer will ring for 100 seconds.

ESC * r S

[Name] Raster mode NV audio playback

[Code]

ASCII	ESC	*	r	S
Hexadecimal	1B	2A	72	53
Decimal	27	42	114	83

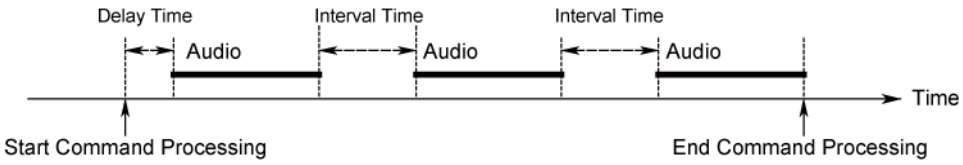
[Defined Area] ---

[Initial Value] ---

[Function] Plays back the specified NV audio.
You must set the operating conditions using the audio playback setting command before sending this command.

(1) ESC * r s 0 a n NUL Number
(2) ESC * r s 1 n NUL Number of times
(3) ESC * r s 2 n NUL Delay time
(4) ESC * r s 3 n NUL Interval time
(5) ESC * r S Playback
((1) to (4) can be in any order.)

Delay time is the time from processing this command to the start of audio playback.
Interval time is the time from the end of audio to the start of the next audio.



If audio is already being played back, run after waiting for the end of the audio.
If the printer is printing, run after printing is ended.
If the audio data of the specified audio number has not been registered, there will be no playback.
Audio will stop by inputting the FEED switch while this command is running.
Invalid in page mode.

ESC * r s 0 a n NUL

[Name] Set raster mode NV audio playback number

[Code]

ASCII	ESC	*	r	s	0	a	n	NUL
Hexadecimal	1B	2A	72	73	30	a	n	00
Decimal	27	42	114	115	48	a	n	0

[Defined Area] a = 48, 49
'1' ≦ n ≦ '255'

[Initial Value] No audio playback number setting.

[Function] Set the audio playback number to play in the raster mode audio playback command (ESC * r S).
a specifies the area where the audio data to playback is stored.

a	Audio data storage area
49	User area

n is a decimal description (max. 5 digits) using ASCII characters.
No setting when the parameter is not defined.
Invalid in Page Mode.

ESC * r s 1 n NUL

[Name] Set raster mode NV audio playback count

[Code]

ASCII	ESC	*	r	s	1	n	NUL
Hexadecimal	1B	2A	72	73	31	n	00
Decimal	27	42	114	115	49	n	0

[Defined Area] '1' ≦ n ≦ '65535'

[Initial Value] No audio playback count setting.

[Function] Set the audio playback count to n times in the raster mode audio playback command (ESC * r S).
n is a decimal description (max. 5 digits) using ASCII characters.
No setting when the parameter is not defined.
Invalid in page mode.

ESC * r s 2 n NUL

[Name] Set raster mode NV audio playback delay time

[Code]

ASCII	ESC	*	r	s	2	n	NUL
Hexadecimal	1B	2A	72	73	32	n	00
Decimal	27	42	114	115	50	n	0

[Defined Area] '0' ≦ n ≦ '65535'

[Initial Value] n = '0'

[Function] Set the audio playback delay time to n second in the raster mode audio playback command (ESC * r S).
Delay time is the time from starting processing of the raster mode audio playback command (ESC * r S) to the start of audio playback.
n is a decimal description (max. 5 digits) using ASCII characters.
No setting when the parameter is not defined.
Invalid in page mode.

ESC * r s 3 n NUL

[Name] Set raster mode NV audio playback interval time

[Code]

ASCII	ESC	*	r	s	3	n	NUL
Hexadecimal	1B	2A	72	73	33	n	00
Decimal	27	42	114	115	51	n	0

[Defined Area] '0' ≦ n ≦ '65535'

[Initial Value] n = '0'

[Function] Set the audio playback interval time to n second in the raster mode audio playback command (ESC * r S).
Interval time is the time from the end of audio to the start of the next audio.
n is a decimal description (max. 5 digits) using ASCII characters.
No setting when the parameter is not defined.
Invalid in page mode.

3.5. 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] $1 \leq n \leq 255$

$0 \leq k \leq 16$

[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.

3.6. USB Related Command Details

The following commands control USB I/F functions.
There are no corresponding commands.

3.7. 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] Specification A
0≦n≦2
48≦n≦50 (”0”≦n≦”2”)
Specification B
0≦n≦1
48≦n≦49 (”0”≦n≦”1”)
Specification C
0≦n≦2
48≦n≦50 (”0”≦n≦”2”)
n = 16, n = 32

[Initial Value] n = 0, 48

[Function] Specification A

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.

Invalid in page mode.

Specification B

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.

Specification C

n	Specify print mode
0, 48	Single color print mode
1, 49	2-color print mode
16	Low power consumption mode
32	Double resolution mode

• If set to the low power consumption mode using the DIP switches, this command is ignored.
• This command is not cleared by ESC @, CAN.
• When there is unprinted data in the line buffer, print the line buffer data.
• This command is processed after ending the current print job.
• This command is ignored when reduced printing in the vertical direction is 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] $1 \leq n \leq 255$

$0 \leq xn1 \leq 255$, $0 \leq xn2 \leq 3$

$1 \leq (xn1 + xn2 \times 256) \leq 1023$

$0 \leq yn1 \leq 255$, $0 \leq yn2 \leq 1$

$1 \leq yn1 + yn2 \times 256) \leq 288$

$0 \leq d \leq 255$

$k = \{(xn1 + xn2 \times 256) \times (yn1 + yn2 \times 256) \times 8\}$

[Initial Value] - - -

[Function] Parameter details

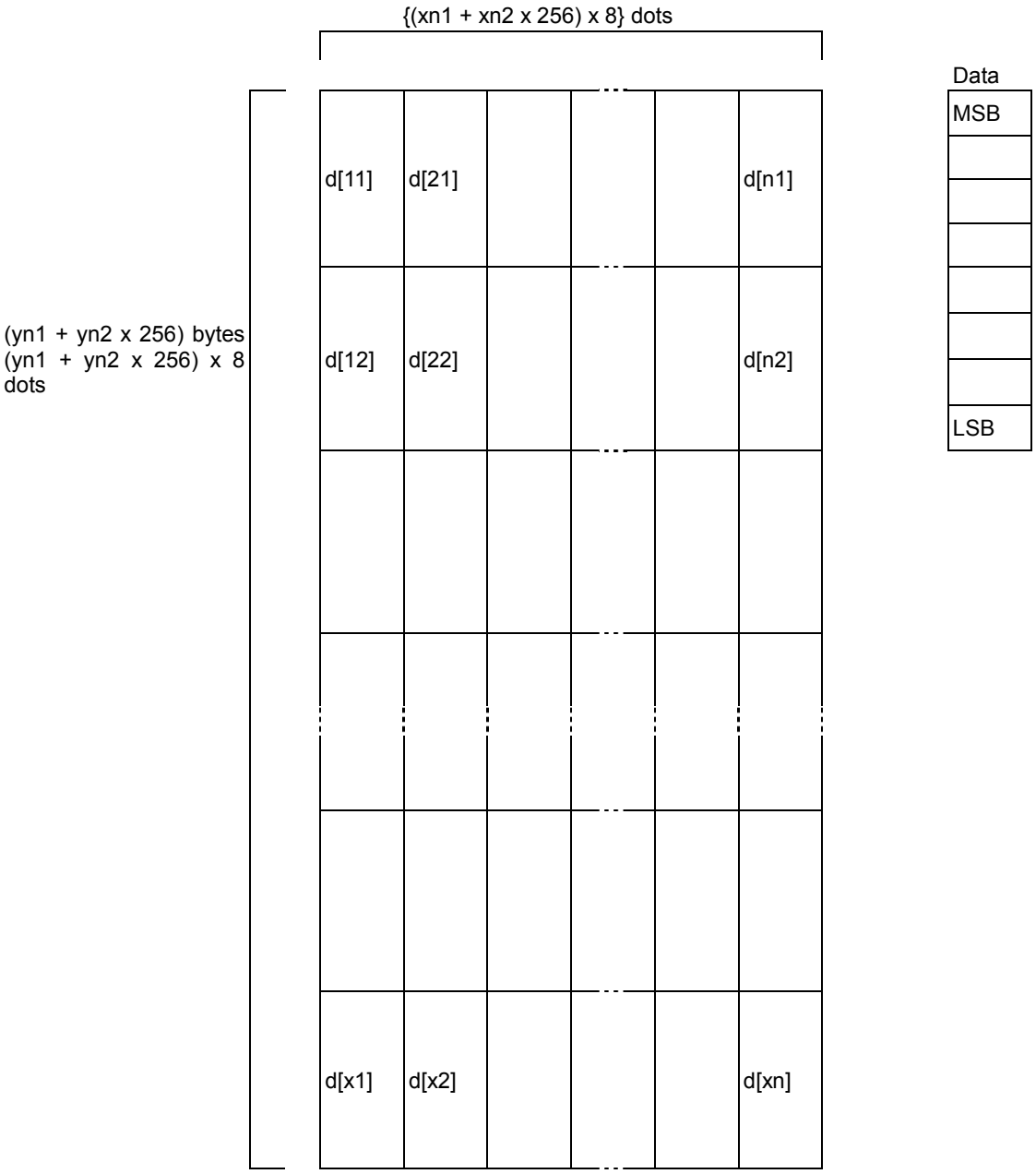
- n: Specifies registered logo count
- xn1, xn2: Horizontal size of registered logo {(xn1 + xn2 x 256) x 8} dots
- yn1, yn2: Vertical size of registered logo {(yn1 + yn2 x 256) x 8} dots
- d: Registered logo data
- k: Logo data count

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.

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.

3.8. 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.
This command is ignored when a presenter is not connected.
Also, this command is executed when paper is supplied by the presenter, exists in the presenter and the paper has been cut. This command is ignored with under all other conditions. (Ignored when paper is being recovered.)

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.
This command is ignored when a presenter is not connected.
Settings using this command are effective from the next sheet when the printer processes this command and paper has already been supplied to the presenter.

N	Functions
n = 0	Paper automatic recovery function invalid.
1≦n≦255	Paper automatic recovery function valid. Automatic recovery time: n x 0.5 sec (0.5 sec to 127.5 sec)

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

This command is ignored when a presenter is not connected.

Settings using this command are effective from the next sheet when the printer processes this command and paper has already been supplied to the presenter.

N	Setting
0	Stored in device (loop effective) → Wait for discharge paper → Recovered in device
1	Stored in device (loop effective) → Wait for discharge paper → Discharged
2	Stored in device invalid (loop invalid) → Wait for discharge paper → Recovered in device
3	Stored in device invalid (loop invalid) → Wait for discharge paper → Discharged
4	Stored in device invalid (loop invalid) → Discharged

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.

This command is ignored when a presenter is not connected.

Counter can count to 0xFFFFFFFF sheets.

Counter is cleared to zero when the following conditions are met.

• At a printer reset

• At the <CAN> command

• At the <ESC> <SYN> 4 n command

The paper counter using this command sends the counter value at the time this command is processed.

The counter is counted up when paper is completely recovered or when pulled out.

The counter counts from when the power is turned ON, excluding the following.

• When paper is discharged because of an error

• When printing using self-print

• When paper in the presenter is discharged when the power is turned ON

N	Counter
n = 0, 48	Acquires paper reel counter
n = 1, 49	Acquires paper recovery counter

<Counter transmission format from printer: When using the paper reel counter>

Printer transmission: ESC SYN 3 n c1 c2 c3 c4

Reel counter: c4 + (c3 x 256) + (c2 x 256 x 256) + (c1 x 256 x 256 x256)

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).
Initialization of the paper counter using this command is executed when this command is processed.

ESC GS SUB DC1 m t1 t2

[Name] Specify snout operation mode

[Code]								
	ASCII	ESC	GS	SUB	DC1	m	t1	t2
	Hexadecimal	1B	1D	1A	11	m	t1	t2
	Decimal	27	29	26	17	m	t1	t2

[Defined Area] 0 ≦ m ≦ 3, 48 ≦ m ≦ 51 (“0” ≦ m ≦ “3”)
t1 = 0, t2 =0

[Initial Value] MSW Setting

[Function] Specify the snout operation mode using the m parameter.

m	Snout Operating Mode
0, 48	Snout LED output OFF
1, 49	Snout LED output ON (while printing, or during presenter operation)
2, 50	Snout LED output ON (during an error)
3, 51	Snout LED output ON (while printing, or during presenter operation or an error)

This command is valid when a presenter is connected.
When the snout is not connected, this command is prohibited from use.

ESC GS SUB DC2 m t1 t2

[Name] Specify Snout LED ON/OFF

[Code]								
	ASCII	ESC	GS	SUB	DC2	m	t1	t2
	Hexadecimal	1B	1D	1A	12	m	t1	t2
	Decimal	27	29	26	18	m	t1	t2

[Defined Area] 1 ≦ m ≦ 2, 49 ≦ m ≦ 50, (“1” ≦ m ≦ “2”)
0 ≦ t1 ≦ 255, 0 ≦ t2 ≦ 255

[Initial Value] t1 = 2, t2 = 2

[Function] Specify Snout LED ON/OFF times.
m specifies the snout operation mode.

m	Snout Operating Mode
1, 49	This command specifies the LED ON/OFF times while the presenter is operating. (LED lights in orange while the printer is printing.)
2, 50	This command specifies the LED ON/OFF times for recoverable and non-recoverable errors.

t1 specifies the snout LED ON time.
When 1 ≦ t1 ≦ 255: ON time = t1 x 50 msec
When t1 = 0: When ON time is default value (t1=2)
T2 specifies the snout LED OFF time.
When 1 ≦ t2 ≦ 255: OFF time = t2 x 50 msec
When t2 = 0: When OFF time is default value (t2=2)
This command is valid when a presenter is connected.
When the snout is not connected, this command is prohibited from use.

ESC GS SUB DC3 m t1 t2

[Name] Snout LED output

[Code]								
	ASCII	ESC	GS	SUB	DC3	m	t1	t2
	Hexadecimal	1B	1D	1A	13	m	t1	t2
	Decimal	27	29	26	19	m	t1	t2

[Defined Area] 1 ≦ m ≦ 2, 49 ≦ m ≦ 50, (“1” ≦ m ≦ “2”)
0 ≦ t1 ≦ 255, 0 ≦ t2 ≦ 255

[Initial Value] ---

[Function] Outputs Snout LED.
m specifies the snout LED output terminal.

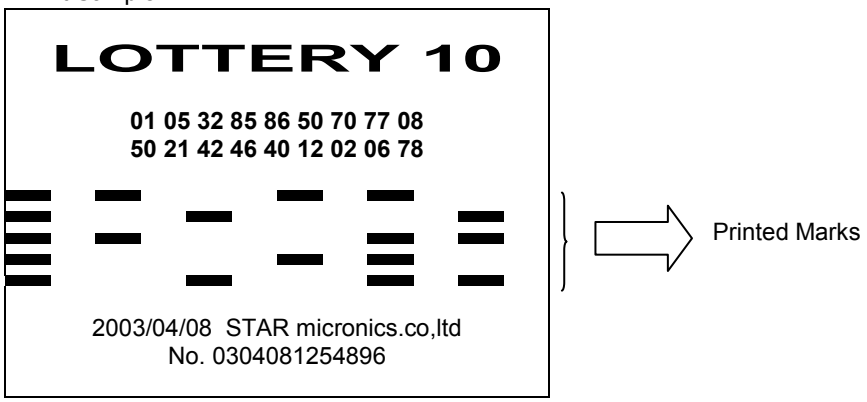
m	LED output terminal
1, 49	External output terminal 1
2, 50	External output terminal 2

t1 specifies the ON time for snout LED output.
When 1 ≦ t1 ≦ 255: ON time = t1 x 50 msec
When t1 = 0: When ON time is default value (t1=2)
t2 specifies the OFF time for snout LED output.
When 0 ≦ t2 ≦ 255: OFF time = t2 x 50 msec
When t2 = 0: When OFF time is default value (t2=2)
This command is valid when a presenter is connected.
When the snout is not connected, this command is prohibited from use.
This command has priority if received while outputting the snout LED in the operation mode specified by the <ESC><GS><EM><DC1> m t1 t2 command.

3.9. Mark Command Details

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

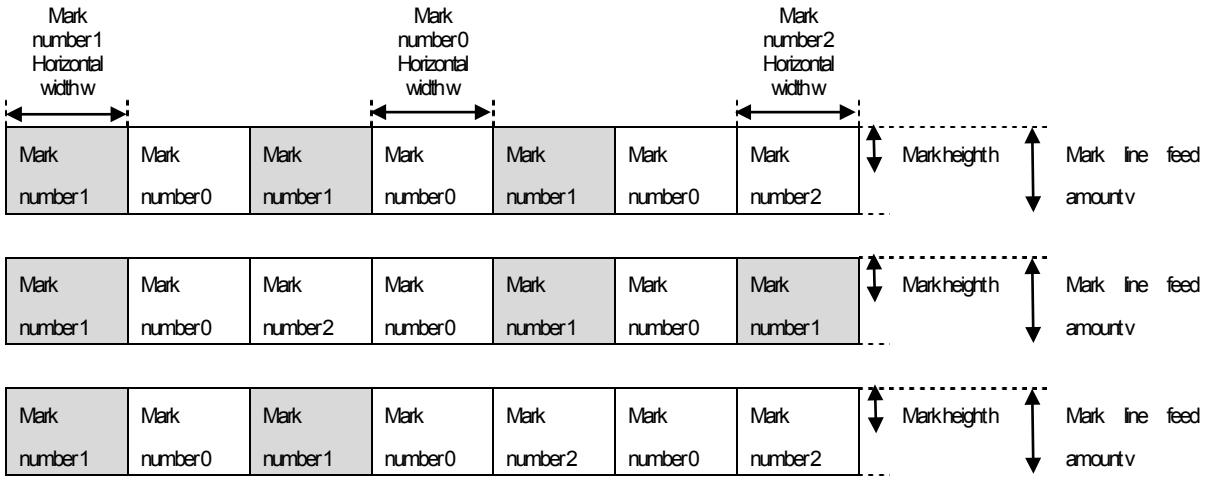
<Print Sample>



<Example of Command Transmission>

• Mark Format

Mark Height h = 10 dots, mark line feed amount v = 20 dots
Mark number 0: Mark Color c = White, Mark horizontal width w = 16 dots
Mark number 1: Mark Color c = Black, Mark horizontal width w = 40 dots
Mark number 2: Mark Color c = White, Mark horizontal width w = 40 dots



• Example Transmission

1. Mark height, Line feed amount setting
   <ESC> <GS> *1 h v (h = “010”, v = “020”)
2. Color of each mark number, Horizontal width setting
   <ESC> <GS> *2 m c w (Mark number 0 setting: m = “0”, c = “0”, w = “016”)
   <ESC> <GS> *2 m c w (Mark number 0 setting: m = “1”, c = “1”, w = “040”)
   <ESC> <GS> *2 m c w (Mark number 0 setting: m = “2”, c = “0”, w = “040”)
3. Register the mark format specified by 1 and 2 in advance in the non-volatile memory (it is possible to print marks that are not registered in the non-volatile memory.)
   <ESC> <GS> * W

4. Printing Marks

<ESC><GS> * 0 n m1 m2 m3 m4 m5 m6 m7
(n="007", m1="1", m2="0", m3="1", m4="0", m5="1", m6="0", m7="2")
<ESC><GS> * 0 n m1 m2 m3 m4 m5 m6 m7
(n="007", m1="1", m2="0", m3="2", m4="0", m5="1", m6="0", m7="1")
<ESC><GS> * 0 n m1 m2 m3 m4 m5 m6 m7
(n="007", m1="1", m2="0", m3="1", m4="0", m5="2", m6="0", m7="2")

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.
n indicates the number of marks to print; If the number of marks is 10 (m1 to m10), n = “010.”
m specifies the mark number to print.
n and m are ASCII character strings that are represented by decimals; They are composed of character codes “0” to “9.”
This command is ignored if there is print data in the image buffer. Therefore, other characters cannot be included (characters, bit images, bar codes, etc.).
If there is no mark specified in the remaining print region, the number of bytes specified by n are discarded.
Also, if the value of n is out of the defined range, subsequent data are processed as normal data.
This command is affected by position alignment, left margin, moved position, positions such as horizontal tab and upside down printing.
Invalid in page mode.

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
h is the mark height (number of dots); v is the line feed amount for the mark (number of dots)
h and v are ASCII character strings that are represented by decimals; They are composed of character codes “0” to “9.”
If a small line feed amount is specified, missing print can occur, so more than v = 16 dots is recommended.
Invalid in page mode.

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.
m specifies the mark number.
c specifies the mark color.
w specifies the mark horizontal width (number of dots).
If w exceeds the currently set print region, this command is ignored.
m, c and w are ASCII character strings that are represented by decimals; They are composed of character codes “0” to “9.”
Invalid in page mode.

c	Mark Color
“0” (48)	White
“1” (49)	Black

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.
After registering to the non-volatile memory, the printer is reset.
Consider the life of the non-volatile memory and avoid excessive use of this command.
Invalid in page mode.

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.
Consider the life of the non-volatile memory and avoid excessive use of this command.

Initial Value of the Mark Format

- Mark Height:: “016” 16 dots
- Mark line feed amount:: “032” 32 dots
- Mark color: “0” (White → All mark numbers)
- Mark horizontal width: “080” 80 dots → All mark numbers)

Invalid in page mode.

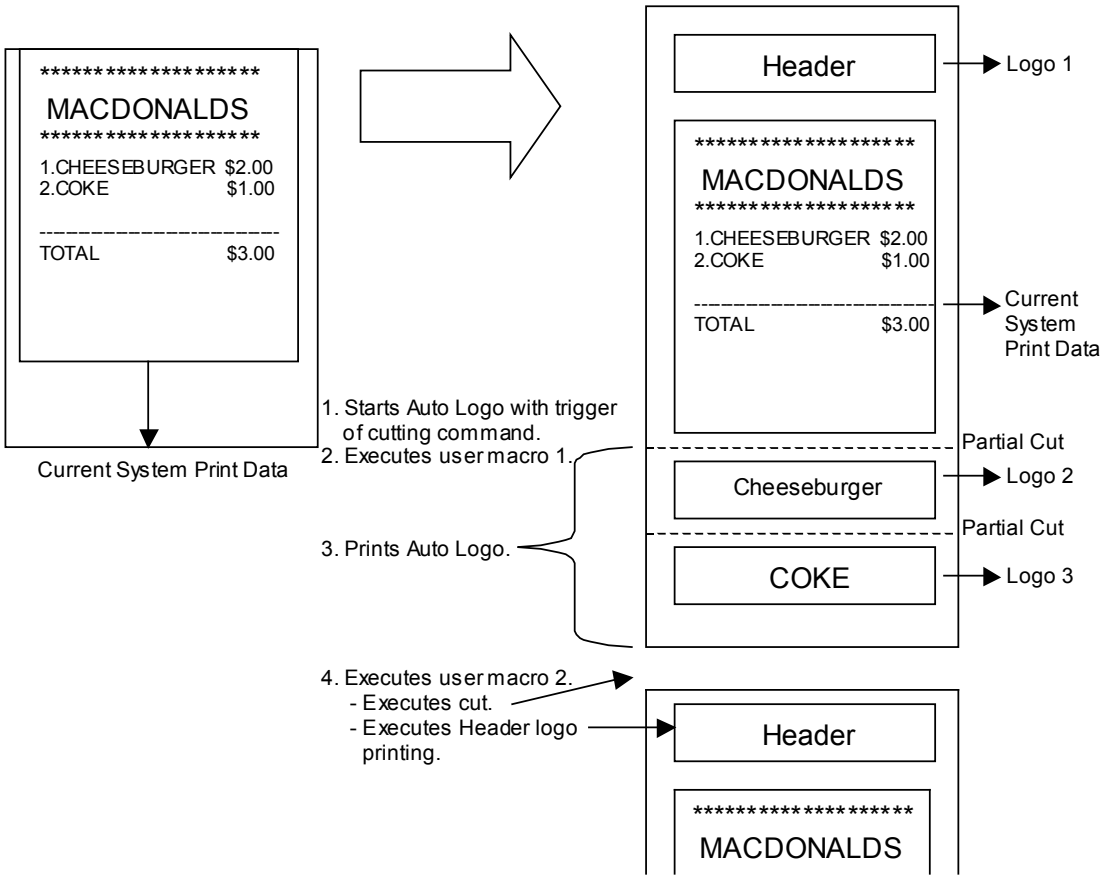
3.10. AUTO LOGO Function Command Details

This command functions to print logos, like the one below, by only changing the product name, when only product names can be changed in systems that are already in use. Also, this function has two operating modes.

1) Standard Auto Logo Function
The Auto Logo function is preset and executes the following operations using the print cut command under the current system as a trigger.

1. Starts up the Auto Logo function using the current system cut command as a trigger
2. Prints if there is print data in the image buffer
3. Executes user macro 1
4. Prints the Auto Logo
5. Executes user macro 2

Logo 2 is printed by #4 Auto Logo printing according to the command character "/" that was preset in the current print data and embedding the logo number "2" to print. Specifically, if the product is registered with "CHEESE BURGER/2" the logo 2 coupon ticket is automatically printed for the purchaser of a cheese burger. Also, Logo 1 for the header is used for company logos. By registering to the user macro 2 of #5, cut command + Logo 1 print command, the company logo of logo1 will be printed. User macro 1 of #3 is used when it is necessary to position the Auto Logo in the center. When doing so, register the left alignment command using the user macro 2 of #5 and return to its original setting.

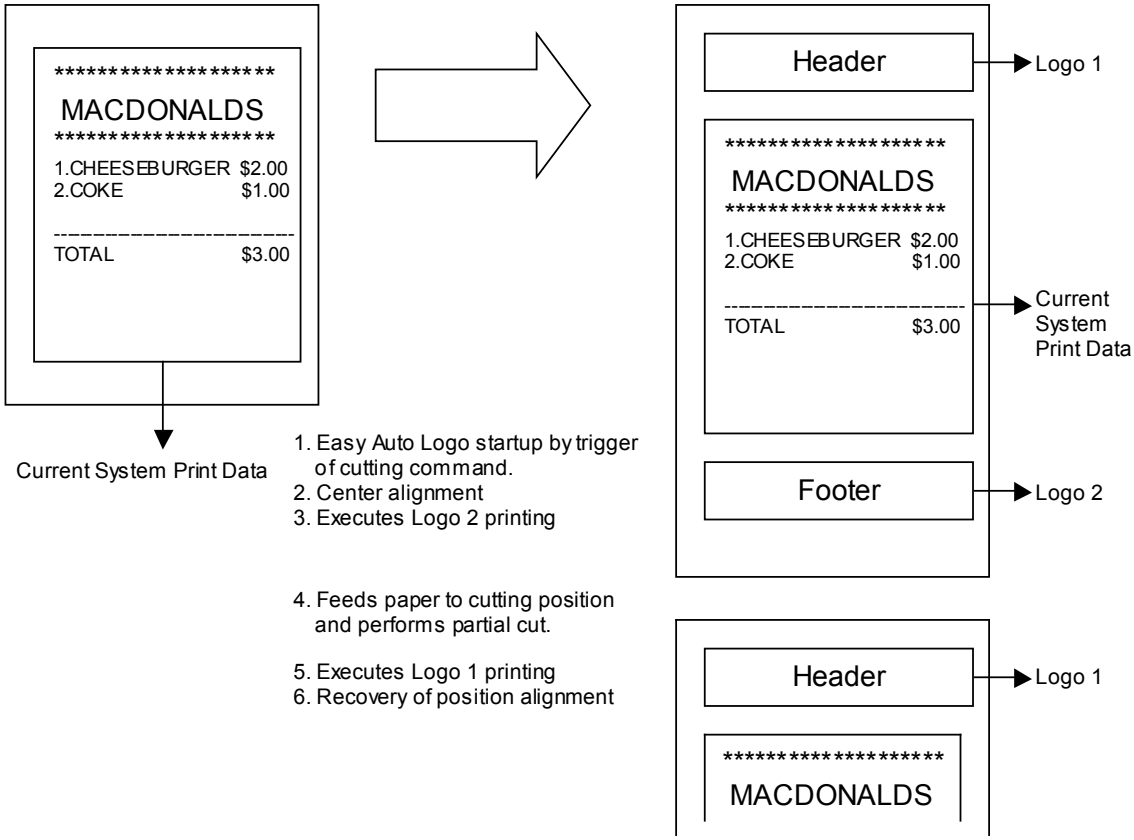


2) Simple Auto Logo Function

The simple Auto Logo function is preset and executes the following operations using the print cut command under the current system as a trigger.

1. Start up the simple Auto Logo function using the current system cut command as a trigger
2. Center alignment command process
3. Print Logo 2
4. Feed paper to cutting position and execute a partial cut
5. Print Logo 1
6. Recovers position alignment command to setting prior to execution of the simple Auto Logo

With the simple Auto Logo function, the logo number of the logo to be printed is decided in advance.



<Example of Command Transmission>

1) Set the Auto Logo function in advance and register it to the non-volatile memory.

ESC GS / 1 n (n=0x01)	Auto Logo Function ON
ESC GS / 2 n (n="/")	Specify Auto Logo Command Character ("/")
ESC GS / 3 nL nH d1 d2... dk	User Macro 1 Definition
nL=4 nH=0	Registered Macro Count = 4 Bytes
d1=0x1b d2=0x1d d2=0x61 d3=0x01	Registered Macro <ESC GS a 1: Center Alignment>
ESC GS / 4 nL nH d1 d2... dk	User Macro 2 Definition
nL=12 nH=0	Registered Macro Count = 12 Bytes
d1=0x1b d2=0x64 d3=0x03	Registered Macro <ESC d 3: Cutting position partial cut>
d4=0x1b d5=0x1c d6=0x70 d7=0x01 d8=0x00	<ESC FS p 1 0: Print Logo 1
d9=0x1b d10=0x1d d11=0x61 d12=0x00	<ESC GS a 0: Left Alignment>
ESC GS / 5 n (n=0x01)	Auto Logo Command Character, Space Switch
ESC GS / 6 n (n=0x01)	Partial Cut Before Auto Logo Printing Valid
ESC GS / W	Register Auto Logo Definition Data to Non-volatile Memory

2) Send registered command character embedded in print data

"CHEESE BURGER /2" → "/" is recognized as a command character.
Command characters are replaced by spaces.
"2" specifies Logo 2.

ESC GS / W

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

[Code]

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

[Defined Area] - - -

[Initial Value] - - -

[Function] Registers Auto Logo setting to non-volatile memory
After registration, the printer is reset.
This command is ignored when Auto Logo is being executed.
Consider the life of the non-volatile memory and avoid excessive use of this command.

ESC GS / C

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

[Code]

	ESC	GS	/	C
ASCII				
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.
After initialization, the printer is reset.
This command is ignored when Auto Logo is being executed.
Consider the life of the non-volatile memory and avoid excessive use of this command.

The default values of the Auto Logo function are below.

Setting	Initial Value
Auto Logo Function	OFF
Command Character	None
User Macro 1	None
User Macro 2	None
Command Character Switch	No print
Partial Cut Before Auto Logo Printing	Disabled

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] $0 \leq n \leq 2$

[Initial Value] n = 0

[Function] Turns the Auto Logo function on and off.
This command is registered to the non-volatile memory by the <ESC> <GS> / W command.
When in raster mode, the Auto Logo function is invalid.
This command is ignored when Auto Logo is being executed.

n	Setting
0	Auto Logo Function OFF
1	Standard Auto Logo Function ON <Operation Specifications> 1. Start up the Auto Logo function using the current system cut command as a trigger 2. Prints if there is print data in the image buffer 3. Executes user macro 1 4. Prints the Auto Logo 5. Executes user macro 2
2	Simple Auto Logo Function ON <Operation Specifications> 1. Start up the Auto Logo function using the current system cut command as a trigger 2. Prints if there is print data in the image buffer 3. Execute center alignment 4. Print Logo 2 (When 2 color printing is set: Logo3) 5. Feed paper to cutting position and executes a partial cut 6. Print Logo 1 7. Recover position alignment setting Note: • With this setting, user macro and command character are invalid. (“/” is printed as a character if the command character is set to “/” when setting.)

The commands that are the triggers for the Auto Logo function are below.
When the standard Auto Logo Function is turned on by n = 1, the following trigger commands function only as triggers and do not cut paper. Therefore, it is necessary to register any cut command to the user macro 2.
When the simple Auto Logo Function is turned on by n = 2, the following cut commands are executed and are the triggers for the simple Auto Logo function.

- <ESC> d n: Cut command
- <FF>: When allocated to the cutting function

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.
This command is registered to the non-volatile memory by the “<ESC> <GS> / W” command.
This command is ignored when Auto Logo is being executed.

n	Setting
32 to 127	Command Character
0	No Command Character Setting

A command character is a character that is a command for specifying the logo number to print with the Auto Logo printing.
When “/” is specified as the command character, “/2/3” is embedded in the print data.
The printer does not process the “/” as character data but as a command and stores number that follows at the end and prints it as an Auto Logo in the order that it is stored. Therefore, if “/2/3” is embedded, Auto Logo will print Logo2 and Logo3 in that order. If the specified logo has not been registered, logo printing will be ignored.
Also, if there is no set command character setting, a logo will not be printed.
Note that “/2/3” is processed as a command is not printed.
However, using the “<ESC> <GS> /5 n ” command it is possible to switch “/2/3” to a space.
In the same way as with “/2/3/2/2” if a logo is duplicated, only the initial logo is printed.
A maximum of 32 logos can be stored as Auto Logos.
Continuing after the command character, the following shows the defined area of the character d that specifies the logo number.
“1” ≦ d ≦ “9” (49 ≦ d ≦ 57) → Logo number 1 to 9
“A” ≦ d ≦ “F” (65 ≦ d ≦ 70) → Logo number 10 to 16

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] $1 \leq n \leq 64$
$nH = 0$
$1 \leq (nL + nH \times 256) \leq 64$
$dk = (nL + nH \times 256)$
$0 \leq d \leq 255$

[Initial Value] No user macro 1 setting

[Function] Sets the user macro 1 of the Auto Logo function.
This command is registered to the non-volatile memory by the “<ESC> <GS> / W” command.
This command is ignored when Auto Logo is being executed.
Registers print data in user macro 1.
A maximum of 64 bytes of data can be registered.
Note that it is prohibited to register Auto Logo command characters in a user macro.

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] $1 \leq nL \leq 64$
$nH = 0$
$1 \leq (nL + nH \times 256) \leq 64$
$dk = (nL + nH \times 256)$
$0 \leq d \leq 255$

[Initial Value] No user macro 2 setting

[Function] Sets the user macro 2 of the Auto Logo function.
This command is registered to the non-volatile memory by the “<ESC> <GS> / W” command.
This command is ignored when Auto Logo is being executed.
Registers print data in user macro 2.
A maximum of 64 bytes of data can be registered.
Note that it is prohibited to register Auto Logo command characters in a user macro.

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] $0 \leqq n \leqq 1$

[Initial Value] n = 0

[Function] Sets the Auto Logo function command character switching method.
This command is registered to the non-volatile memory by the “<ESC> <GS> / W” command.
This command is ignored when Auto Logo is being executed.

n	Setting
0	Does not print the command character and the following logo number
1	Switches the command character and the following logo number into a space character (0 x 20)

When “/” is specified as the command character, the “/2” embedded in the print data is not a character string, but processed as a command.
At this time, “/2” is processed as a command is not printed.
However, by specifying n = 1 in this command, it is possible to switch “/2” to a space.

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

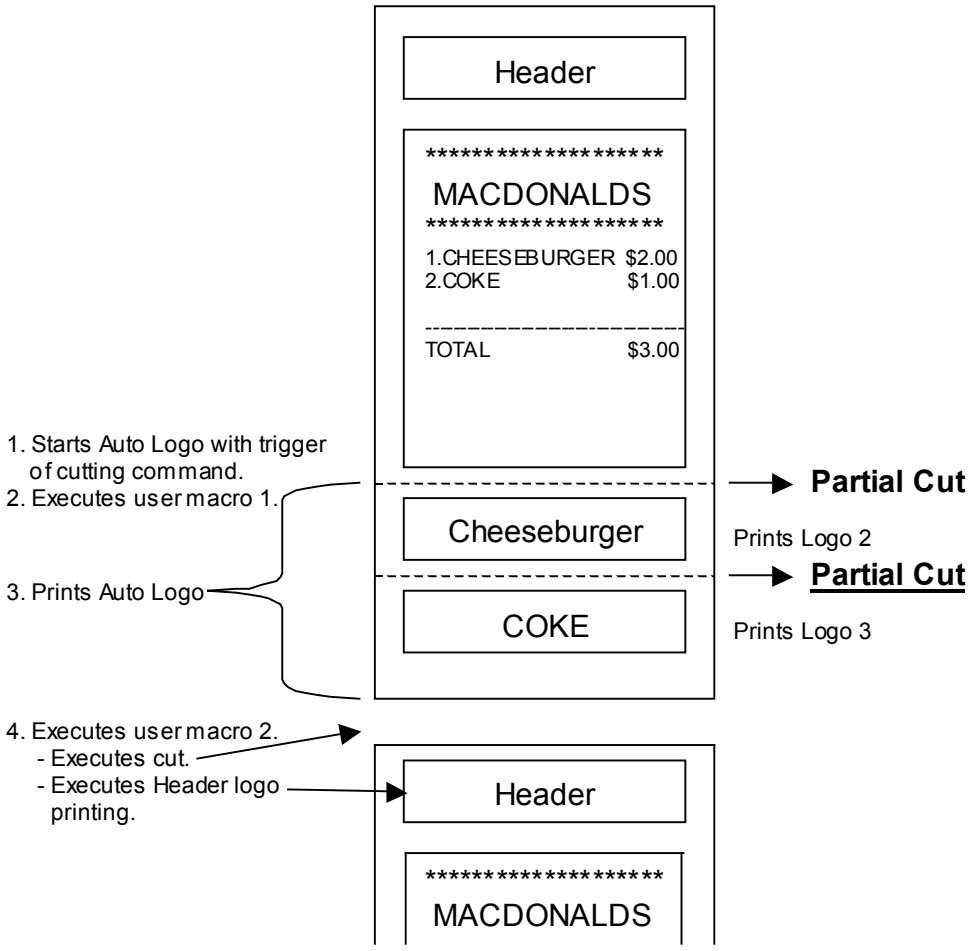
[Defined Area] $0 \leq n \leq 1$

[Initial Value] n = 0

[Function] Sets a partial cut before the Auto Logo printing.
This command is registered to the non-volatile memory by the "<ESC> <GS> / W" command.
This command is ignored when Auto Logo is being executed.

n	Setting
0	Does not execute a partial cut before the Auto Logo printing.
1	Executes a partial cut before the Auto Logo printing.

When printing Logo2 and Logo3 as Auto Logo printing like the one in the drawing below, this command selects to execute a partial cut before printing Logo2 of the Auto Logo and Logo3.
If a partial cut is executed using this function, it is possible to provide coupons, etc., that are printed using Auto Logo with a partial cut.



3.11. Two-dimensional Bar Code PDF417 Command Details

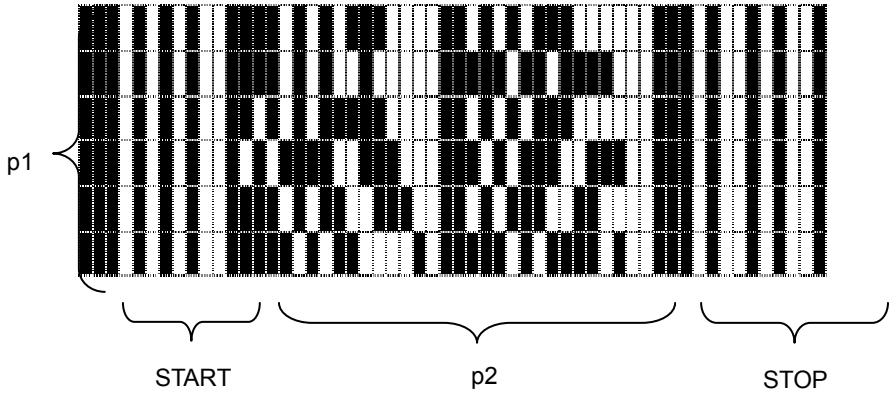
This command prints two-dimensional bar code PDF417.
There are four types of commands, according to functions, for two-dimensional bar code PDF417.

(1) Bar code type setting (<ESC> <GS> “x” “S”)
(2) Bar code data setting (<ESC> <GS> “x” “D”)
(3) Bar code printing (<ESC> <GS> “x” “P”)

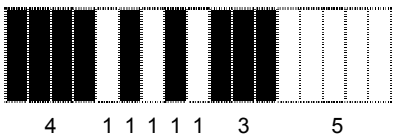
The following describes the functions in detail.

(1) Bar code type setting

These commands set the bar code type. Because these are all set with default values, they should be used only when it is necessary to change. (Refer to section below for details on each setting.)



PDF417 is configured by a fixed bar pattern for starting and stopping, and a bar pattern called a code word.
Code words are configured by 17 modules.



Code Word

<ESC> <GS> “x” “S” “0” specifies values of p1 and p2.
USE_LIMITS mode specify the ratio of p1 and p2. USE_FIXED mode specifies p1 (line count) and p2 (code word count per line).

<ESC> <GS> “x” “S” “1” specifies values of error correction levels.
PDF417 can read information even if a portion of the data is corrupted by using the error correction.
By increasing this level, the bar code size increases because there is more preparatory information.

<ESC> <GS> “x” “S” “2” and <ESC> <GS> “x” “S” “3” specify the size of the module that configures the code word.
The X direction size (in dot increments) is determined by <ESC> <GS> “x” “S” “2” for the module, and <ESC> <GS> “x” “S” “3” specifies the Y direction size from the aspect.
Module size setting is the basis for the bar code image that is generated, so the resulting print will vary according to that setting.

Printable size of bar code

Vertical Size [dots]	Horizontal Size [dots]
640	640

The settings above are set individually, so the errors described below may be generated even if there is no particular problem in those settings. In such case, if the bar code is generated the (3) print command (<ESC> <GS> “x” “P”) is ignored.

• Error is generated when generating a bar code, due to the combination of the bar code setting commands.
• The bar code data that is generated exceeds the printable size of PDF417.
• Print data exceeds the currently set print region.

It is recommended to use (4) Bar code expansion information acquisition (<ESC> <GS> “x” “I”) as a means for checking these errors prior to printing.

(2) Bar code data setting command

This command sets the print data of the bar code.

(3) Bar code print command

This command prints the bar code according to the settings of (1) and (2).

- Precautions for use of commands -

• Unless the following operations are performed, the setting values are maintained for (1) and (2).
  • Sending of new setting commands
  • Sending an initializing command (<ESC> @, <CAN>)
  • The power is turned off
• Sending (3) when needed
• Printing
  • When printing, position shifting according to the horizontal tab, absolute position specification, relative position specification, and position alignment is valid.
  • Upside-down printing and two-color printing are possible.
• When a bar code is printed, always verify it by actual use.

Send the command transmission example last.

1. Bar code type setting

<ESC> <GS> “x” “S” “0” 0 2 3: Sets the bar code size to USE_LIMITS = 2:3
<ESC> <GS> “x” “S” “1” 3: Sets ECC level to 3
<ESC> <GS> “x” “S” “2” 3: Sets the module X direction size to 3 dots
<ESC> <GS> “x” “S” “3” 3: Sets module aspect ratio to 3

2. Bar code data setting

<ESC> <GS> “x” “D” 10 0 “0123456789”: Sets the bar code data

3. Printing bar code

<ESC> <GS> “x” “P”: Print

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 l

[Name] Get PDF417 bar code expansion information

[Code]

ASCII	ESC	GS	x	l
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. Therefore, it is possible to check whether it is possible to print before actually printing, by using this command.
If an error occurs, this command is discarded even if the print command (<ESC> <GS> “x” “P”) is sent.

If the following errors occur, “Error” information is sent from the printer.
• 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

Transmission format: <ESC> <GS> “x” “l” n

n	
0	No Error
1	Error

3.12. 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.
It is prohibited to send this command while in the raster mode.

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.
The print starting timer starts measuring from the point where the print data reception stops, and measures up to the set print starting timer.
When the set print starting timer is reached, the printer starts printing if there is unprinted data in the image buffer.
It is prohibited to send this command while in the raster mode.

n	Operating Mode
0	Print starting timer = initial value
1 to 255	Print starting timer n x 10 msec.

3.13. Two-Dimensional Bar Code QR Code Command Details

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

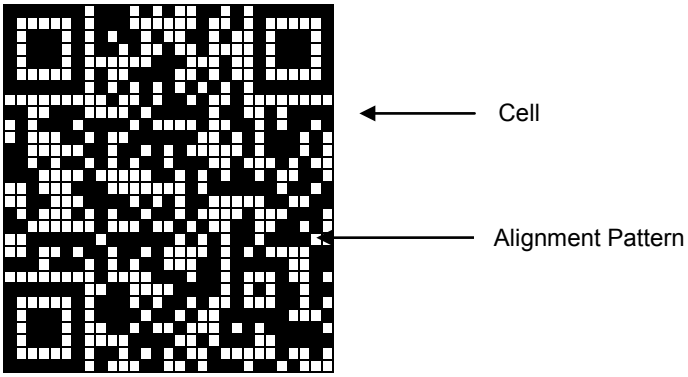
This command is for printing 2-dimensional bar code QR codes. There are four functions of the commands relating to the 2-dimensional bar code QR codes, shown below.

(1) Set bar code type	(<ESC> <GS> “y” “S”)
(2) Set bar code data	(<ESC> <GS> “y” “D”)
(3) Set page mode	(Reserved)
(4) Print Bar code	(<ESC> <GS> “y” “P”)

The details of each function are described below.

(1) Set bar code type

These commands set the bar code type. Because all initial values are set, use these only to make changes. (See the details for each setting below.)



<ESC> <GS> “y” “S” “0” Sets the model

Currently supported models are model 1 and model 2. Model 2 has a configuration including an alignment bar to improve its support of weight to handle skewing when codes are large.

<ESC> <GS> “y” “S” “1” Sets the error correction level

QR codes can be read even if a part of the data is corrupted, by using error correction. Raising this level increases the size of the bar code because there is an increase in preparatory information.

<ESC> <GS> “y” “S” “2” Specifies the size of the cell (One four squared region configuring the QR code)

The QR code is formed into a square of an equivalent size in the vertical and horizontal directions, but the size of the bar code image that is generated depends on the cell size setting. See Appendix 7 for details on the actual printed size of the QR code.

These settings are individual settings. Therefore, even though there may not be any particular problem in each of them, there is the potential for an error to be generated. (See the descriptions below.) In such cases, the bar code will not be generated and the (4) Print command (<ESC> <GS> “y” “P”) is ignored. With the (5) Get bar code expansion information command, an error code is returned.

• Error is generated when generating a bar code by the combination of each setting command.
• Print data exceeds the currently set print region

Therefore, it is recommended to use (5) Get bar code expansion information command (<ESC> <GS> “y” “I”) as a means for checking for these errors prior to printing.

(2) Set bar code data

This command sets the bar code print data. There are four types of data that can be set using QR codes. They are: numbers; English characters; binary; and Kanji. Furthermore, there are two types of data setting methods. One is to specify these along with the bar code data (data manual analysis), and the other is to specify only the bar code data (data automatic analysis).

(3) Set page mode
This command is not used.

(4) Print Bar code
This command prints bar codes based on the settings of (1) to (3).

= Precautions on using these commands =
• The setting values for (1) to (3) are held unless any of the following operations are performed.

- Sending a new setting command
- Sending an initialize command (<ESC> @, <CAN>)
- Turning the power OFF

• When there is an error in sending a command with (2), the set data is cleared and the command itself is disabled.

• (4) is sent when necessary.

• Printing:
  - When printing, position movement using specify absolute position, specify relative position, and align position are enabled.
  - Upside down printing and 2-color printing are possible.

• Printed bar codes should always be checked in an actual use.

The following is an example showing the sending of the commands.

(1) Set bar code type

<ESC> <GS> “y” “S” “0” 1	Sets to model 1.
<ESC> <GS> “y” “S” “1” 0	Sets mistake correction level to L.
<ESC> <GS> “y” “S” “2” 3	Sets cell size to 3 dots.

(2) Set bar code data

• <ESC> <GS> “y” “D” “1” 0 20 0 “2005, January, 1 (SAT)” <LF>
Sets bar code data (Data automatic analysis)
Sets bar code data (Data manual analysis)

• <ESC> <GS> “y” “D” “2”	9 1 4 0	“2005” “,”
	4 2 0	“Year” “,”
	1 1 0	“1” “,”
	4 2 0	“Month” “,”
	1 1 0	“1” “,”
	4 2 0	“Day” “,”
	4 2 0	“(” “,”
	2 3 0	“SAT” “,”
	4 2 0	“)” “,”
	3 1 0	<LF>

(3) Print bar code

<ESC> <GS> “y” “p”	Print

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]

	ESC	GS	y	P
ASCII				
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]

	ESC	GS	y	I
ASCII				
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. If there is an error in the expanded bar code, this command is ignored even if the expand command (<ESC> <GS> “y” “P”) is sent.

In the even that errors like the ones below occurs, “Error” information is sent from the printer.
• When there is an error in generating a bar code by the combination of bar code setting commands.
• When the generated bar code data exceeds the printable size

Sending Format: <ESC> <GS> “y” “I” n1 n2

n1 n2	Bar Code Information
0x0000	Error
0x0001 to 0xffff	Size around generated bar code (Units: Dots)

3.14. GS1 2D Code, Compound symbol Command Details

ESC GS (k pL pH cn fn [parameter]

[Name] Set and print symbol

[Code]

ASCII	ESC	GS	(	k	pL	pH	cn	fn	n
Hex.	1B	1D	28	6B	pL	pH	cn	fn	n
Decimal	27	29	40	107	pL	pH	cn	fn	n

[Function] Runs processes related to symbol.

- pL and pH specify the parameter count (pL + pH x 256) in bytes after cn.
- Specifies the type of symbol with cn.
- Specifies the function with fn.
- See the function specifications for details on [parameter].

cn	Type of Symbol
51	2D GS1 DataBar (GS1 DataBar Stacked, GS1 DataBar Stacked Omnidirectional, GS1 DataBar Expanded Stacked)
52	GS1 compound symbol(2-dimensional code)

cn	fn	Function No.	機能名
51	67	Function 367	2D GS1 DataBar: Set module size
	71	Function 371	2D GS1 DataBar: Set The maximum width of the 2D GS1DataBar Expanded Stacked
	80	Function 380	2D GS1 DataBar: Store data in symbol saving region
	81	Function 381	2D GS1 DataBar: Print symbol data of symbol saving region
52	67	Function 467	Compound symbol: Set module size
	71	Function 471	Compound symbol:Set The maximum width of the 2D GS1DataBar Expanded Stacked
	72	Function 472	Compound symbol: Set HRI Font
	80	Function 480	Compound symbol: Store data in symbol saving region
	81	Function 481	Compound symbol: Print symbol data of symbol saving region

<Function 367> ESC GS (k pL pH cn fn n (cn＝51, fn＝67)

[Name] 2D GS1 DataBar: Set module siz

[Code]

ASCII	ESC	GS	(	k	pL	pH	cn	fn	n
Hex.	1B	1D	28	6B	pL	pH	cn	fn	n
Decimal	27	29	40	107	pL	pH	cn	fn	n

[Defined Area] pL = 3, pH = 0
cn = 51
fn = 67
2 ≦ n ≦ 8

[Initial Value] n = 2

[Function] Sets 2D GS1 DataBar module width to n dots.

[Details] The setting of this function affects processes of Functions 081 and 082.
This setting is valid until ESC @ is executed, the printer is reset or the power is turned off.
Set in units of 1 dot.
The width is set in 0.125 mm (1/203 inches) units.

[Reference] ESC GS (k Function 381, ESC @

<Function 371> ESC GS (k pL pH cn fn nL nH (cn＝51, fn＝71)

[Name] 2D GS1 DataBar: Set The maximum width of the 2D GS1DataBar Expanded Stacked

[Code]

ASCII	ESC	GS	(	k	pL	pH	cn	fn	nL	nH
Hex.	1B	1D	28	6B	pL	pH	cn	fn	nL	nH
Decimal	27	29	40	107	pL	pH	cn	fn	nL	nH

[Defined Area] pL = 4, pH = 0
cn = 51
fn = 71
106 ≦ n ≦ 3952

[Initial Value] (nL + nH x 256) = 141 (nL = 141, nH = 0)

[Function] The maximum width of the 2D GS1DataBar Expanded Stacked is set to n dots.

[Details] The setting for this function affects the processing of function 381.
This setting is enabled until ESC@ is executed, the printer is reset, or the power is turned off.
The set unit is 1 dot.
The width is set as 0.125 mm (1/203 inches).

[Reference] ESC GS (k Function 381 , ESC @

<Function 380> ESC GS (k pL pH cn fn m n d1...dk (cn＝51, fn＝80)

[Name] 2D GS1 DataBar: Store data in symbol saving region

[Code]

ASCII	ESC	GS	(	k	pL	pH	cn	fn	m	n	d1	...	dk
Hex.	1B	1D	28	6B	pL	pH	cn	fn	m	n	d1	...	dk
Decimal	27	29	40	107	pL	pH	cn	fn	m	n	d1	...	dk

[Defined Area]
4≦ (pL+pH×256) ≦259 (0≦pL≦255, pH = 0, 1)
cn = 51
fn = 80
m = 48
n = 72, 73, 76
0 ≦ d ≦ 255
k = (pL + pH x 256) - 4

[Function] Symbol data (d1...dk) for the 2D GS1 DataBar is stored in the symbol saving region.

n	Type of Symbol	Data (k)	ASCII	Data (d)
72	GS1 Databar Stacked	k = 13	“0” to ”9”	48 ≦ d ≦ 57
73	GS1 Databar Stacked Omnidirectional	k = 13	“0” to”9”	48 ≦ d ≦ 57
76	GS1 Databar Expanded Stacked	2 ≦ k ≦ 255	0~9, A~Z, a~z SP, !, ", %, $, ', (,), *, +, ,, -, ., /, :, ;, <, =, >, ?, _, {	48 ≦ d ≦ 57,65 ≦ d ≦ 90,97 ≦ d ≦ 122, 32 ≦ d ≦ 34, 37 ≦ d ≦ 47, 58 ≦ d ≦ 63, d = 95,123 [However d1 = 40, 48≦d2≦57, 48 ≦ d3 ≦ 57,48 ≦ d1 ≦ 57,48 ≦ d2 ≦ 57]

[Details] Data stored in the symbol saving region by this function is processed using function 381.
After processing functions 381 and 382, data in the saving region is maintained.
k bytes for d1...dk are processed as symbol data.
This setting is valid until this function is reset, ESC@ is executed, the printer is reset, or the power is off.

[Reference] ESC GS (k Function 381 , ESC @

<Function 381> ESC GS (k pL pH cn fn m (cn＝51, fn＝81)

[Name] 2D GS1 DataBar: Print symbol data of symbol saving region

[Code]

ASCII	ESC	GS	(	k	pL	pH	cn	fn	m
Hex.	1B	1D	28	6B	pL	pH	cn	fn	m
Decimal	27	29	40	107	pL	pH	cn	fn	m

[Defined Area] pL = 3, pH = 0
cn = 51
fn = 81
m = 48

[Initial Value] (nL + nH x 256) = 141 (nL = 141, nH = 0)

[Function] Executes encoding and printing of the symbol data stored in the symbol saving region by ESC GS (k function 380.

[Note] The user must secure the quiet zone.

[Reference] ESC GS (k Function 380

[Details] This command prints bar code data or deploys it to the image buffer.
This command is ignored when one of the following errors occurs:
- Error that occurs when the bar code is generated due to the combination of each barcode setting command.
- When the generated bar code data exceeds the printable size for the GS1 DataBar.
- When the print data exceeds the current set print area.

Make sure you check the printed bar code before actual use.

For standby mode:
- If unprinted data still exists in the line buffer, the buffered data is printed out, the command is executed, and then the bar code is printed. Therefore, you cannot print mixed data (characters, bit images, bar codes) on the same line.

For page mode:
- This command only deploys bar code data to the image buffer.

<Function 467> ESC GS (k pL pH cn fn n (cn＝52, fn＝67)

[Name] Compound symbol: Set module width

[Code]

ASCII	ESC	GS	(	k	pL	pH	cn	fn	n
Hex.	1B	1D	28	6B	pL	pH	cn	fn	n
Decimal	27	29	40	107	pL	pH	cn	fn	n

[Defined Area] pL = 3, pH = 0
cn = 52
fn = 67
2 ≦ n ≦ 8

[Initial Value] n = 2

[Function] The width of one module for compound symbols is set to n dots.

[Details] The setting for this function affects the processing of function 481.
This setting is enabled until ESC@ is executed, the printer is reset, or the power is turned off.
The set unit is 1 dot.
The width is set as 0.125 mm (1/203 inches).

[Reference] ESC GS (k Function 481, ESC @

<Function 471> ESC GS (k pL pH cn fn nL nH (cn＝52, fn＝71)

[Name] Compound symbol: Set The maximum width of the 2D GS1DataBar Expanded Stacked

[Code]

ASCII	ESC	GS	(	k	pL	pH	cn	fn	nL	nH
Hex.	1B	1D	28	6B	pL	pH	cn	fn	nL	nH
Decimal	27	29	40	107	pL	pH	cn	fn	nL	nH

[Defined Area] pL = 4, pH = 0
cn = 52
fn = 71
106 ≦ n ≦ 3952

[Initial Value] (nL + nH x 256) = 141 (nL = 141, nH = 0)

[Function] The maximum width of the GS1DataBar Expanded Stacked in compound symbols is set to n dots.

[Details] The setting for this function affects the processing of function 481.
This setting is enabled until ESC@ is executed, the printer is reset, or the power is turned off.
The set unit is 1 dot.
The width is set as 0.125 mm (1/203 inches).

[Reference] ESC GS (k Function 481, ESC @

<Function 472> ESC GS (k pL pH cn fn n (cn＝52, fn＝72)

[Name] Compound symbol: Set the HRI font

[Code]

ASCII	ESC	GS	(	k	pL	pH	cn	fn	n
Hex.	1B	1D	28	6B	pL	pH	cn	fn	n
Decimal	27	29	40	107	pL	pH	cn	fn	n

[Defined Area] pL = 3, pH = 0
cn = 52
fn = 72
0 ≦ n ≦ 2, 48 ≦ n ≦ 50

[Initial Value] n = 0

[Function] Select the font for HRI characters when printing combined symbols.

n	HRI font
0, 48	not printed
1, 49	printed (Select font A(12x24))
2, 50	printed (Select font B(9x17))

[Details] Data stored in the symbol saving region by this function is processed using function 481.
When “Print” HRI is selected, HRI is printed under 1D bar codes.
When the combined symbol uses a 2D code (GS1 DataBar Stacked, GS1 DataBar Stacked Omnidirectional,GS1 DataBar Expanded Stacked), this setting is not affected and HRI is not printed.
This setting is valid until this function is reset, ESC@ is executed, the printer is reset, or the power is off.

[Reference] ESC GS (k Function 481, ESC @

<Function 480> ESC GS (k pL pH cn fn m a b d1...dk (cn＝52, fn＝80)

[Name] Compound symbol: Store data in symbol saving region

[Code]

ASCII	ESC	GS	(	k	pL	pH	cn	fn	m	a	b	d1	...	dk
Hex.	1B	1D	28	6B	pL	pH	cn	fn	m	a	b	d1	...	dk
Decimal	27	29	40	107	pL	pH	cn	fn	m	a	b	d1	...	dk

[Defined Area] 7 ≦ (pL+ pH × 256) ≦ 2366 (0 ≦ pL ≦ 255, 0 ≦ pH ≦ 9)
cn = 52
fn = 80
m = 48
a = 48,49
65 ≦ b ≦ 77(a=48)
b = 65,66 (a=49)
0 ≦ d ≦ 255
k = (pL+ pH × 256) - 5

[Initial Value] n = 0

[Function] Symbol data (d1...dk) for the Compound symbol:is stored in the symbol saving region.

a = 48

b	Bar Code Type	Data (k)	ASCII	Data (d)
65	EAN8	k = 7,8	“0”to”9”	48 ≦ d ≦ 57
66	EAN13	k = 12,13	“0”to”9”	48 ≦ d ≦ 57
67	UPC-A	k = 11,12	“0”to”9”	48 ≦ d ≦ 57
69	UPC-E (11-digit version (0 included))	k = 11,12	“0”to”9”	48 ≦ d ≦ 57
70	GS1 DataBar Omnidirectional	k = 13	“0”to”9”	48 ≦ d ≦ 57
71	GS1 DataBar Truncated	k = 13	“0”to”9”	48 ≦ d ≦ 57
72	GS1 DataBar Stacked	k = 13	“0”to”9”	48 ≦ d ≦ 57
73	GS1 DataBar Stacked Omnidirectional	k = 13	“0”to”9”	48 ≦ d ≦ 57
74	GS1 DataBar Limited	k = 13	“0”to”9”	48 ≦ d ≦ 57 [However d1 = 48,49]
75	GS1 DataBar Expanded	2 ≦ k ≦ 255	0~9, A~Z, a~z SP, !, ", %, $, ', (,), *, +, ,, -, ., /, :, ;, <, =, >, ?, _, {	48 ≦ d ≦ 57, 65 ≦ d ≦ 90, 97 ≦ d ≦ 122, 32 ≦ d ≦ 34, 37 ≦ d ≦ 47, 58 ≦ d ≦ 63, d = 95,123 [However d1 = 40, 48 ≦ d2 ≦ 57, 48 ≦ d3 ≦ 57 , 48 ≦ d1 ≦ 57, 48 ≦ d2 ≦ 57]
76	GS1 DataBar Expanded Stacked	2 ≦ k ≦ 255	0~9, A~Z, a~z SP, !, ", %, $, ', (,), *, +, ,, -, ., /, :, ;, <, =, >, ?, _, {	48 ≦ d ≦ 57, 65 ≦d ≦90, 97 ≦d ≦122, 32 ≦d ≦34, 37 ≦d ≦47, 58 ≦d ≦63, d = 95,123 [However d1 = 40, 48 ≦d2 ≦57, 48 ≦d3 ≦ 57 , 48 ≦d1 ≦57, 48 ≦d2 ≦57]
77	GS1-128	2 ≦ k ≦ 255		0 ≦d ≦127

a = 49

b	Type of Symbol	Data (k)	Data (d)
65	CC-A, CC-B, CC-C Automatic distinction by a digit number.	3 ≦ k ≦ 2361	32 ≦d ≦127
66	fixing to CC-C	3 ≦ k ≦ 2361	32 ≦ d ≦ 127

[Details] Data stored in the symbol saving region by this function is processed using function 481.
After processing functions 481, data in the saving region is maintained.
k bytes for d1...dk are processed as symbol data.
This setting is valid until this function is reset, ESC@ is executed, the printer is reset, or the power is off.

[Reference] ESC GS (k Function 481, ESC @

<Function 481> ESC GS (k pL pH cn fn m (cn＝52, fn＝81)

[Name] Compound symbol: Printe data in symbol saving region

[Code]

ASCII	ESC	GS	(	k	pL	pH	cn	fn	m
Hex.	1B	1D	28	6B	pL	pH	cn	fn	m
Decimal	27	29	40	107	pL	pH	cn	fn	m

[Defined Area] pL = 3, pH = 0
cn = 52
fn = 81
m = 48

[Function] Executes encoding and printing of the symbol data stored in the symbol saving region by GS (k function 480.

[Note] The user must secure the quiet zone.

[Reference] GS (k Function 480

[Function] This command prints bar code data or deploys it to the image buffer.
This command is ignored when one of the following errors occurs:
- Error that occurs when the bar code is generated due to the combination of each barcode setting command.
- When the generated bar code data exceeds the printable size for the GS1 DataBar.
- When the print data exceeds the current set print area.

Make sure you check the printed bar code before actual use.

For standby mode:
- If unprinted data still exists in the line buffer, the buffered data is printed out, the command is executed, and then the bar code is printed. Therefore, you cannot print mixed data (characters, bit images, bar codes) on the same line.

For page mode:
- This command only deploys bar code data to the image buffer.

3.15. Page Function Command Details

ESC GS h 0 k m n

[Name] 180 degree turnover

[Code]								
	ASCII	ESC	GS	h	0	k	m	n
	Hex.	1B	1D	68	30	k	m	n
	Decimal	27	29	104	48	k	m	n

[Defined Area] $0 \leqq k \leqq 1$, m = 0, n = 0

[Initial Value] ---

[Function] Sets 180 degree turnover function to be valid/invalid.

n	180 Degree Turnover Function
0	Invalid
1	Valid

<180 Degree Turnover Function>

When set to the 180 degree turnover function, that function is executed at the trigger.
However, this function is effective for print data that can be contained in the image buffer length.
Print data beyond the image buffer length is unaffected by this function.
Also, the 180 degree inversion function is ignored if printing is started by settings other than the following 180 degree inversion trigger while the print startup control is set for each line, if page mode is selected or if a macro is being registered or executed.
This setting is not cleared by <ESC> @ or <CAN>.

180 degree turnover triggers

- Cutter command: <ESC> d n
- FF command: <FF>
- BM detection command: <ESC> d n, <FF>
- Print start command: <ESC> <GS> g 0 m n
- Raster mode: When <FF> is executed.

Use example

1) When 180 degree turnover function is enabled: <ESC> <GS> h 0 k m n (k = 0x01, m = 0x00, n = 0x00)
2) Print data transfer: Print data (Print length is less than length of image buffer.)
3) Trigger command transfer: <ESC> d n (Cutter command is 180 degree turnover trigger.)

ESC GS h 1 k m n

[Name] 180 degree turnover

[Code]

ASCII	ESC	GS	h	1	k	m	n
Hex.	1B	1D	68	31	k	m	n
Decimal	27	29	104	49	k	m	n

[Defined Area] 0 ≦ k ≦ 2, 0 ≦ m ≦ 2, 1 ≦ n ≦ 255

[Initial Value] ---

[Function] Enables/disables watermark function..

n	Watermark Function
0	Invalid
1	Valid Prints 1 logo specified by n at position centered in horizontal and vertical directions
2	Valid Repeatedly prints the logo specified by n from top edge of page to bottom edge of page at position centered in horizontal direction.

To make the image appropriate for a watermark, set the logo data forming method to print as the watermark using this setting.
If it is not possible to the appropriate image using this setting, reregister the logo data registered as the watermark after forming it to the appropriate data.

m	Watermark Data Forming Method
0	Prints logo data specified by n as it is.
1	Thins logo data specified by n 25% for printing.
2	Thins logo data specified by n 12.5% for printing.

Specify the registered logo as the watermark.

n	Logo Number
1 - 255	Registered logo number If the specified logo number is not registered, the watermark will not be printed.

<Watermark Function>
When the watermark function is valid, the watermark is printed by a watermark printing trigger.
However, this function is executed on print data built-up within the image buffer length.
Watermark printing is ignored when there is print data beyond the length of the image buffer.
Watermark is ignored when in 2-color mode, page mode, when registering macros and when executing macros if printing is started by anything other than the following watermark triggers. This setting is not cleared by <ESC> @ or <CAN>.
The watermark printing (Logo data) is unaffected by the right and left margin.

After mark printing trigger
- Cutter command: <ESC> d n
- FF command: <FF>
- BM detection command: <ESC> d n, <FF>
- Print start command: <ESC> <GS> g 0 m n
- Raster mode: When <FF> is executed.

Use example
1) Register logo to logo number 1 when using watermark.
2) Watermark function enable: <ESC> <GS> h 1 k m n (k = 0x02, m = 0x01, n = 0x01)
3) Print data transfer: Print data (Print length is less than length of image buffer.)
4) Trigger command transfer: <ESC> d n (Cutter command is watermark printing trigger.)

3.16. Reduced Printing Function Command Details

ESC GS c h v

[Name] Set reduced printing

[Code]						
	ASCII	ESC	GS	c	h	v
	Hexadecimal	1B	1D	63	h	v
	Decimal	27	29	99	h	v

[Defined Area] $0 \leq h \leq 255$
$0 \leq v \leq 255$

[Initial Value] h = 0 (Horizontal direction reduced printing setting invalid)
v = 0 (Vertical direction reduced printing setting invalid)

[Function] Set reduced printing

h	Set horizontal direction reduced printing
0	Invalid
1	Valid (67%)
2 to 255	Command ignored

v	Set vertical direction reduced printing
0	Invalid
1	Valid (50%)
2 to 255	Command ignored

- Reduced printing in the horizontal direction compresses the entire horizontal direction 67%.
- Reduced printing in the vertical direction prints in Double Resolution mode, so this is invalid in low peak current mode and powered USB I/F.
- Disabled in Page Mode.
- Reduced printing of barcodes can be enabled or disabled by memory switch setting. However, cares must be taken as the print position other than the barcode is affected if reduced printing is disabled.

3.17. Page Mode Command Details

ESC GS P 0

[Name] Selects page mode

[Code]

ASCII	ESC	GS	P	0
Hexadecimal	1B	1D	50	30
Decimal	27	29	80	48

[Function] Switches from standard mode to page mode.

- Valid only when input at the top of the line.
- Invalid when input in page mode.
- Returns to standard mode after running this command.
- ESC GS P 1 (selects standard mode)
- ESC GS P 7 (prints in page mode and recovers)
- The character expansion position uses the starting point specified by ESC GS P2 (selection of character print direction in page mode) in the print region specified by ESC GS P 3 (set print region in page mode).
- Switches the following command setting values that have independent values for both page and standard modes to the setting values of page mode.
- Set space amount: ESC SP , ESC : , ESC M, ESC P, ESC g, ESC p, ESC s, ESC t
- Set the line feed amount: ESC z, ESC 0, ESC 1, ESC 2,
- Set horizontal tab: ESC D
- The following commands are invalid in page mode.
- VT: Vertical tab
- FF: Form feed
- ESC GS c: Reduced Printing
- ESC GS) B: Text Search
- ESC RS m: BM setting
- ESC RS A: Printing Region Setting
- ESC GS M: Maintenance counter control
- ESC GS r: Get CRC
- ESC GS %: User ID
- ESC GS *: Print Mark
- ESC RS C: Set printing mode
- ESC * r: Related to raster mode
- ESC RS r: Set print speed
- ESC RS L: Lump print of logos
- ESC FS p: Print logo

ESC GS P 1

[Name] Cancel page mode

[Code]					
	ASCII	ESC	GS	P	1
	Hexadecimal	1B	1D	50	31
	Decimal	27	29	80	49

[Function] Cancels page mode.

- Valid only when input in page mode.
- Data expanded in page mode is erased.
- After execution, the top of the line is positioned at the next print starting position.
- Print region set by ESC GS P 3 (Set print region in page mode) is initialized.
- Switches the following command setting values that have independent values for both standard and page modes to the setting values of standard mode.

- Set space amount: ESC SP , ESC: , ESC M, ESC P, ESC g, ESC p, ESC s, ESC t
- Set the line feed amount: ESC z, ESC 0, ESC 1, ESC 2,
- Set horizontal tab: ESC D
- The following commands are valid only when set in standard mode.
- ESC GS P 3: Set print region in page mode
- ESC GS P 2: Select character print direction in page mode
- The following commands are ignored in standard mode.
- ESC GS P 4: Specify character vertical direction absolute position in page mode
- ESC GS P 5: Specify character vertical direction relative position in page mode
- ESC GS P 6: Print data in page mode
- ESC GS P 7: Print in page mode and recover
- ESC GS P 8: Cancel print data in page mode
- When power is turned on and when a reset is implemented, standard mode is selected when executing initialization (ESC @) of the printer.

ESC GS P 2 n

[Name] Select character print direction in page mode

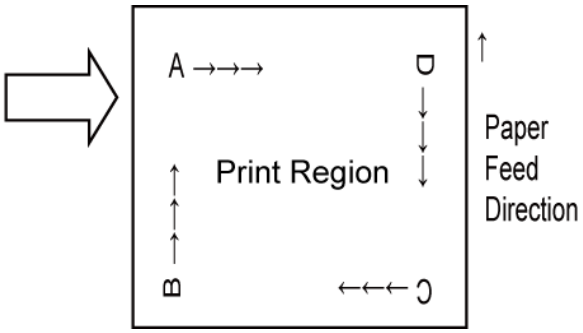
[Code]					
	ASCII	ESC	GS	P	2
	Hexadecimal	1B	1D	50	32
	Decimal	27	29	80	50

[Defined Area] $0 \leqq n \leqq 3, 48 \leqq n \leqq 51$

[Initial Value] n = 0

[Function] Select character print direction and starting point in page mode.

n	Printing Direction	Starting Point
0, 48	Left to Right	Upper Left (Drawing at Right A)
1, 49	Bottom to Top	Bottom Left (Drawing at Right B)
2, 50	Right to Left	Bottom Right (Drawing at Right C)
3, 51	Top to Bottom	Top Right (Drawing at Right D)



• When standard mode is selected, only internal printer flag operations are executed when this command is entered.
In that case, printing in standard mode is unaffected.
• The starting point in the print region specified by ESC GS P 3 (Set print region in page mode) is used for the start of character expansion.

ESC GS P 3 xL xH yL yH dxL dxH dyL dyH

[Name] Set print region in page mode

[Code]

ASCII	ESC	GS	P	3
Hexadecimal	1B	1D	50	33
Decimal	27	29	80	51

[Defined Area] 0 ≦ xL, xH, yL, yH, dxL, dxH, dyL, dyH ≦ 255
However, this excludes dxL = dxH = 0 or dyL = dyH = 0.

[Initial Value] xL = xH = yL = yH = 0
See the table below for dxL, dxH, dyL, and dyH.

[Function] Set print region in page mode
Sets the position and size of the print region.
• Horizontal starting point = [(xL + xH x 256) x 1/8] mm
• Vertical starting point = [(yL + yH x 256) x 1/8] mm
• Horizontal direction length = [(dxL + dxH x 256) x 1/8] mm
• Vertical direction length = [(dyL + dyH x 256) x 1/8] mm
• When standard mode is selected, only internal printer flag operations are executed when this command is entered. Has no affect on printing.
• If the horizontal or vertical starting point is outside of the print region, invalidate all settings.
• If the horizontal or vertical length direction is 0, invalidate all settings.
• The character expansion stating point is the one specified by the selection of the character printing direction (ESC GS P 2) in page mode in the print region.
• If the (horizontal direction starting point + horizontal direction length) exceeds the horizontal direction printable region, the (horizontal direction printable region – horizontal direction starting point) becomes the horizontal direction length.
• If the (vertical direction starting point + vertical direction length) exceeds the vertical direction printable region, the (vertical direction printable region – vertical direction starting point) becomes the vertical direction length.
• If the calculated results is a fraction, that is corrected to the minimum mechanical pitch and excess is discarded.

• FVP10

Printing Region Set (Memory Switch Setting)	Initial Value						Maximum Value	
	dxL	dxH	dyL	dyH	Printable Region Width		Printable Region Width	
					X Direction	Y Direction	X Direction	Y Direction
72mm	64	2	AA	3	72mm	117.3mm	72mm	300mm
52.5mm	164	1	AA	3	52.5mm	117.3mm	52.5mm	300mm
50.8mm	150	1	AA	3	50.8mm	117.3mm	50.8mm	300mm
52mm	160	1	AA	3	52mm	117.3mm	52mm	300mm
30mm	240	0	AA	3	30mm	117.3mm	30mm	300mm

Basic Calculated Pitch: X = 1/203 (inch), Y = 1/203 (inch)

ESC GS P 4 nL nH

[Name] Specify character vertical direction absolute position in page mode

[Code]

ASCII	ESC	GS	P	4
Hexadecimal	1B	1D	50	34
Decimal	27	29	80	52

[Defined Area] 0 ≦ nL ≦ 255, 0 ≦ nH ≦ 255

[Initial Value] - - -

[Function] Specify the position for character vertical direction of the data expansion starting position in page mode with the absolute position that uses the starting point as a reference.
The position of the character vertical direction of the starting position for subsequent data expansion uses the position from the starting point [(nL + nH x 256) x 1/8]mm.

- This command is ignored when page mode is not selected.
- Absolute position specifications that exceed the specified print region are ignored.
- The position of the character horizontal direction of the data expansion starting position does not move.
- Specify the reference starting point using ESC GS P 2.
- The following operations will occur depending on the starting point of ESC GS P 2 (select character print direction in page mode).

a. When the starting point is “upper left” or “bottom right,” specify the absolute position of the paper feed direction.

b. When the starting point is “upper right” or “bottom left,” specify the absolute position of the perpendicular direction to the paper feed.
   - If the calculated results is a fraction, that is corrected to the minimum mechanical pitch and excess is discarded.

ESC GS P 5 nL nH

[Name] Specify character vertical direction relative position in page mode

[Code]

ASCII	ESC	GS	P	5
Hexadecimal	1B	1D	50	35
Decimal	27	29	80	53

[Defined Area] 0 ≦ nL ≦ 255, 0 ≦ nH ≦ 255

[Initial Value] - - -

[Function] Specify the position for character vertical direction of the data expansion starting position in page mode with the relative position that uses the current position as a reference.
The subsequent data expansion starting position uses the position moved [(nL + nH x 256) x 1/8] mm from the current position.
• This command is ignored when page mode is not selected.
• When specifying the characters downward from the current position the value is positive (plus); when specifying upward, the value is negative (minus).
• Negative numbers are represented by a complement of 65536. For example, use the following to move upward N pitches.
nL + nH x 256 = 65536-N
• Relative position specifications that exceed the specified print region are ignored.
• The following operations will occur depending on the ESC GS P 2 (select character print direction in page mode).
a. When the starting point is “upper left” or “bottom right,” specify the absolute position of the paper feed direction.
b. When the starting point is “upper right” or “bottom left,” specify the relative position of the perpendicular direction to the paper feed.
• If the calculated results is a fraction, that is corrected to the minimum mechanical pitch and excess is discarded.

ESC GS P 6

[Name] Print data in page mode

[Code]

ASCII	ESC	GS	P	6
Hexadecimal	1B	1D	50	36
Decimal	27	29	80	54

[Function]

Lump-prints data expanded to the entire print region in page mode.
- Valid only when page mode is selected.
- After printing, the following information is maintained.

a. Expanded data
b. Selection of character print direction in page mode (ESC GS P 2)
c. Setting of print region in page mode (ESC GS P 3)
d. Character expansion position

ESC GS P 7

[Name] Print in page mode and recover

[Code]

ASCII	ESC	GS	P	7
Hexadecimal	1B	1D	50	37
Decimal	27	29	80	55

[Function]

Lump-prints data expanded to the entire print region and recovers to standard mode.
- All expanded data is erased after printing.
- Print region set by ESC GS P 3 (Set print region in page mode) is initialized.
- No paper cut is executed.
- After execution, the top of the line is positioned at the next print starting position.
- Valid only when page mode is selected.

ESC GS P 8

[Name] Cancel print data in page mode

[Code]

ASCII	ESC	GS	P	8
Hexadecimal	1B	1D	50	38
Decimal	27	29	80	56

[Function]

Erases all data in presently set print region, in page mode.
- Valid only when page mode is selected.
- Portion included in the currently set print region is deleted even if data of the print region set previously.

3.18. Text Search Command Details

ESC GS) B pL pH fn [parameter]

[Name] Set text search

[Code]

ASCII	ESC	)	B	pL	pH	fn	[parameter]
Hexadecimal	1B	29	42	pL	pH	fn	[parameter]
Decimal	27	41	66	pL	pH	fn	[parameter]

[Function] Runs processes related to text search.
- pL and pH specify the parameter count (pL + pH x 256) in bytes after fn.
- See the function specifications for details on [parameter].

fn	Function No.	Function Name
48	Function 48	Enable and disables text search
49	Function 49	Set the number of times to run the text search macro
50	Function 50	Set to print the string that matches in the text search
64	Function 64	Define the text search string
65	Function 65	Define the text search macro
80	Function 80	Register text search settings and definitions in the non-volatile memory
81	Function 81	Initialize text search settings and definitions
96	Function 96	Print the text search settings and definitions
97	Function 97	Run the text search macro

<Function 48> ESC GS) B pL pH fn m (fn = 48)

[Name] Enable and disables text search

[Code]

ASCII	ESC	GS	)	B	pL	pH	fn	m
Hexadecimal	1B	1D	29	42	pL	pH	fn	m
Decimal	27	29	41	66	pL	pH	fn	m

[Defined Area] pL = 2, pH = 0
fn = 48
m = 0, 1

[Initial Value] Depends on setting registered in the non-volatile memory (At the time of shipment: m = 0)

[Function] Makes text searches valid or invalid.

m	Set
0	Invalid
1	Valid

When text search is valid, determines whether a string registered in the printer in advance is in the print data.
If it is included, run a text search macro that corresponds to that string after running the following trigger command.
- Execute cuts by continous <LF>.
- <ESC> “d”

No setting when the parameter is not a valid value.
This setting is applied to printer operations when this command is processed.
This setting is registered to non-volatile memory by the ESC GS) B <Function 80) command.
This command is ignored when the text search macro is running.
Enabled in Page Mode.

<Function 49> ESC GS) B pL pH fn m (fn = 49)

[Name] Set the number of times to run the text search macro

[Code]

ASCII	ESC	GS	)	B	pL	pH	fn	m
Hexadecimal	1B	1D	29	42	pL	pH	fn	m
Decimal	27	29	41	66	pL	pH	fn	m

[Defined Area] pL = 2, pH = 0
fn = 49
m = 0, 1

[Initial Value] Depends on setting registered in the non-volatile memory (At the time of shipment: m = 0)

[Function] Sets the number of times to run the text search macro when the strings match.

m	Set
0	Run one time
1	Run for the number of times strings match

No setting when the parameter is not a valid value.
This setting is applied to printer operations when this command is processed.
This setting is registered to non-volatile memory by the ESC GS) B <Function 80) command.
This command is ignored when the text search macro is running.
Enabled in Page Mode.

<Function 50> ESC GS) B pL pH fn m (fn = 50)

[Name] Set to print the string that matches in the text search

[Code]

ASCII	ESC	GS	)	B	pL	pH	fn	m
Hexadecimal	1B	1D	29	42	pL	pH	fn	m
Decimal	27	29	41	66	pL	pH	fn	m

[Defined Area] pL = 2, pH = 0
fn = 50
m = 0, 1, 2

[Initial Value] Depends on setting registered in the non-volatile memory (At the time of shipment: m = 0)

[Function] Sets the string print operation when strings match.

m	Set
0	Prints the string
1	Does not print the string
2	Switches the string with a blank character

No setting when the parameter is not a valid value.
This setting is applied to printer operations when this command is processed.
This setting is registered to non-volatile memory by the ESC GS) B <Function 80) command.
This command is ignored when the text search macro is running.
Enabled in Page Mode.

<Function 64> ESC GS) B pL pH fn m k d1...dk (fn = 64)

[Name] Define the text search string

[Code]

ASCII	ESC	GS	)	B	pL	pH	fn	n	m	k	d1	...	dk
Hexadecimal	1B	1D	29	42	pL	pH	fn	n	m	k	d1	...	dk
Decimal	27	29	41	66	pL	pH	fn	n	m	k	d1	...	dk

[Defined Area]
4 ≦ (pL + pH x 256) ≦ 65535 (0 ≦ pL ≦ 255, 0 ≦ pH ≦ 255)
fn = 64
1 ≦ n ≦ 100
1 ≦ m ≦ 100
0 ≦ k ≦ 32
32 ≦ d ≦ 255

[Initial Value]
Depends on setting registered in the non-volatile memory (At the time of shipment: no string definition)

[Function]
Defines the text search string for number n.
If the text search string for number n is already defined, it is overwritten.
M specifies the text search macro number to run.
K specifies the size of the defined data in bytes.
D specifies the defined data.
When the parameter has an invalid value, no definition.
This definition is applied to printer operations when this command is processed.
This definition is registered to non-volatile memory by the ESC GS) B <Function 80) command.
This command is ignored when the text search macro is running.
Enabled in Page Mode.

<Function 65> ESC GS) B pL pH fn m k1 k2 d1...dk (fn = 65)

[Name] Define the text search macro

[Code]

ASCII	ESC	GS	)	B	pL	pH	fn	m	k1	k2	d1	...	dk
Hexadecimal	1B	1D	29	42	pL	pH	fn	m	k1	k2	d1	...	dk
Decimal	27	29	41	66	pL	pH	fn	m	k1	k2	d1	...	dk

[Defined Area]
4 ≦ (pL + pH x 256) ≦ 65535 (0 ≦ pL ≦ 255, 0 ≦ pH ≦ 255)
fn = 65
1 ≦ m ≦ 100
0 ≦ (k = k1 + k2 x 256) ≦ 7680 (0 ≦ k1 ≦ 255, 0 ≦ k2 ≦ 30)
(Size of defined area = 7,680 bytes)
0 ≦ d ≦ 255

[Initial Value]
Depends on setting registered in the non-volatile memory (At the time of shipment: no text search macro definition)

[Function]
Defines the text search macro for number m.
If the text search macro for number m is already defined, it is overwritten.
(k = k1 + k2 x 256) specifies the size of the defined data in bytes.
d specifies the defined data.
If the parameter has an invalid value, processing of this command ends at that point.
This definition is applied to printer operations when this command is processed.
This definition is registered to non-volatile memory by the ESC GS) B <Function 80) command.
This command is ignored when the text search macro is running.
Enabled in Page Mode.

<Function 66> ESC GS) B pL pH fn n t (fn = 66)

[Name] Print the text search settings and definitions

[Code]

ASCII	ESC	GS	)	B	pL	pH	fn	n	t
Hex.	1B	1D	29	42	pL	pH	fn	n	t
Decimal	27	29	41	66	pL	pH	fn	n	t

[Defined Area] pL = 3, pH = 0
fn = 66
1≦ n≦ 100
t = 0, 1

[Initial Value] Depends on setting registered in the non-volatile memory
(At the time of shipment: Soon after cutting)

[Function] Sets when to execute a text search macro when there is a match for text search string n.

T	Set
0	soon after cutting
1	soon before cutting

No setting when the parameter is not a valid value.
This setting is applied to printer operations when this command is processed.
This setting is registered to non-volatile memory by the ESC GS) B <Function 80) command.
This command is ignored when the text search macro is running.
Enabled in Page Mode.

<Function 80> ESC GS) B pL pH fn m (fn = 80)

[Name] Register text search settings and definitions in the non-volatile memory

[Code]

ASCII	ESC	GS	)	B	pL	pH	fn	m
Hexadecimal	1B	1D	29	42	pL	pH	fn	m
Decimal	27	29	41	66	pL	pH	fn	m

[Defined Area] pL = 2, pH = 0
fn = 80
m = 0

[Initial Value] ---

[Function] Registers the text search setting to non-volatile memory.
The following shows the contents to register.

Function No.	Contents
Function 48	Enable and disables text search
Function 49	Set the number of times to run the text search macro
Function 50	Set to print the string that matches in the text search
Function 64	Define the text search string
Function 65	Define the text search macro
Function 81	Initialize text search settings and definitions

After registration ends, resets the printer.
The printer operates by reading the setting registered using this command the next time the printer power is turned on.
This command is ignored when the text search macro is running.
Consider the life of the non-volatile memory and avoid over-sue of this command.
Enabled in Page Mode.

<Function 81> ESC GS) B pL pH fn m (fn = 81)

[Name] Initialize text search settings and definitions

[Code]

ASCII	ESC	GS	)	B	pL	pH	fn	m
Hexadecimal	1B	1D	29	42	pL	pH	fn	m
Decimal	27	29	41	66	pL	pH	fn	m

[Defined Area] pL = 2, pH = 0
fn = 81
m = 0

[Initial Value] ---

[Function] Initialize text search settings and definitions
The following shows the contents to initialize.

Function No.	Contents	Initial Value
Function 48	Enable and disables text search	Invalid
Function 49	Set the number of times to run the text search macro	1 times
Function 50	Set to print the string that matches in the text search	Prints the string
Function 64	Define the text search string	No text search string definition
Function 65	Define the text search macro	No text search macro definition

This setting is applied to printer operations when this command is processed.
This setting is registered to non-volatile memory by the ESC GS) B <Function 80) command.
This command is ignored when the text search macro is running.
Enabled in Page Mode.

<Function 96> ESC GS) B pL pH fn m (fn = 96)

[Name] Print the text search settings and definitions

[Code]

ASCII	ESC	GS	)	B	pL	pH	fn	m
Hexadecimal	1B	1D	29	42	pL	pH	fn	m
Decimal	27	29	41	66	pL	pH	fn	m

[Defined Area] pL = 2, pH = 0
fn = 96
m = 0

[Initial Value] ---

[Function] Prints text search settings and definitions
The following shows the contents to print.

Function No.	Contents
Function 48	Enable and disables text search
Function 49	Set the number of times to run the text search macro
Function 50	Set to print the string that matches in the text search
Function 64	Define the text search string
Function 65	Define the text search macro

The text search macro is not run at this time.
This command is ignored when the text search macro is running.
Enabled in Page Mode.

<Function 97> ESC GS) B pL pH fn m (fn = 97)

[Name] Run the text search macro

[Code]

ASCII	ESC	GS	)	B	pL	pH	fn	m
Hexadecimal	1B	1D	29	42	pL	pH	fn	m
Decimal	27	29	41	66	pL	pH	fn	m

[Defined Area] pL = 2, pH = 0
fn = 97
$1 \leqq m \leqq 100$

[Initial Value] ---

[Function] Runs the text search macro for number m.
This command is ignored when the text search macro is running.
Enabled in Page Mode.

3.19. Audio Command Details

ESC GS s O z a n c1 c2 d1 d2 t1 t2

[Name] Playback NV audio

[Code]														
	ASCII	ESC	GS	s	O	z	a	n	c1	c2	d1	d2	t1	t2
	Hexadecimal	1B	1D	73	4F	z	a	n	c1	c2	d1	d2	t1	t2
	Decimal	27	29	115	79	z	a	n	c1	c2	d1	d2	t1	t2

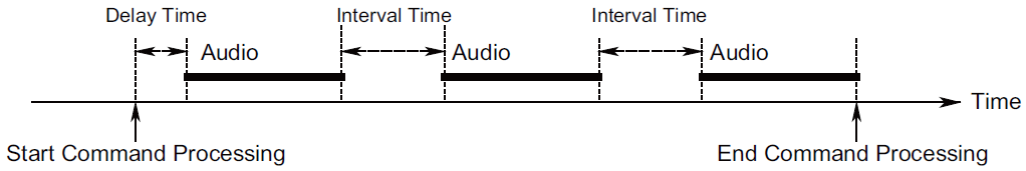
[Defined Area] Z = 0
a = 0, 1, 48, 49
1 ≦ n ≦ 255
1 ≦ c1 + c2x256 ≦ 65535
0 ≦ d1 + d2x256 ≦ 65535
0 ≦ t1 + t2x256 ≦ 65535

[Initial Value] ---

[Function] Plays back the specified NV audio.
a specifies the area where the audio data to playback is stored.

a	Audio data storage area
1, 49	User area

n specifies the audio number to playback.
(c1 + c2 x 256) specifies the number of times.
(d1 + d2 x 256) specifies the delay time.
Delay time is the time from starting to process this command to the start of audio playback (in seconds).
(t1 + t2 x 256) specifies the interval time.
Interval time is the time from the end of the previous audio to the start of the next audio (in seconds).



If audio is already being played back, playback after waiting for the end of the audio.
If the printer is printing, playback after printing is ended.
When the parameter has an invalid value, there is no audio playback.
If the audio data of the specified audio number has not been registered, there will be no playback.
Audio will stop by inputting the FEED switch while there is audio playback using this command.
Audio will stop using the NV audio stop command (ESC GS s P) while there is audio playback using this command.

ESC GS s P

[Name] Stop NV audio

[Code]

ASCII	ESC	GS	s	P	
Hexadecimal	1B	1D	73	50	
Decimal	27	29	115	80	

[Defined Area] ---

[Initial Value] ---

[Function] Stops audio playback for the following reasons.

- NV audio playback command ESC GS s O
- NV audio lump playback command ESC GS s T

When run in real-time when this command is received

This command is ignored with there is no audio playback.

ESC GS s R z n1 n2 n3 d1 … dn

[Name] Playback received audio

[Code]

ASCII	ESC	GS	s	R	z	n1	n2	n3	d1	…	dn
Hexadecimal	1B	1D	73	52	z	n1	n2	n3	d1	…	dn
Decimal	27	29	115	82	z	n1	n2	n3	d1	…	dn

[Defined Area] Z = 0

$1 \leqq (n = n1 + n2 \times 256 + n3 * 65536) \leqq 16777215$

$0 \leqq d \leqq 255$

[Initial Value] ---

[Function] Does not register audio data in the non-volatile memory and plays back one time while receiving data.

(n1 + n2 x 256 + n3 x 65536) specifies the number of bytes of the audio data.

d is audio data in sampling frequency of 11.025 kHz, ADPCM format in quantization bit rate of 4 bits.

When data transfer from the host is slow (theoretical value: 44,100 bps or lower), playback is intermittent.

ESC GS s l z e a n c1 c2 d1 d2 t1 t2 … 0xFF

[Name] Register automatic audio setting information

[Code]																
ASCII	ESC	GS	s	l	z	e	a	n	c1	c2	d1	d2	t1	t2	…	0xFF
Hexadecimal	1B	1D	73	49	z	e	a	n	c1	c2	d1	d2	t1	t2	…	FF
Decimal	27	29	115	73	z	e	a	n	c1	c2	d1	d2	t1	t2	…	255

[Defined Area] z = 0, 1
0 ≦ e ≦ 63(0x3F)
a = 1, 49
0 ≦ n ≦ 255
0 ≦ c1 + c2 x 256 ≦ 65535
0 ≦ d1 + d2 x 256 ≦ 65535
0 ≦ t1 + t2 x 256 ≦ 65535

[Initial Value] At the time of shipment: Set to automatic audio

e	Printer Internal Status	a	n	c1 + c2x256	d1 + d2x256	t1 + t2x256
0x00	Cutter error	0	1	1	0	0
0x01	Flash ROM error	0	2	1	0	0
0x02	EE-PROM error	0	3	1	0	0
0x03	SRAM error	0	4	1	0	0
0x04	Head temperature detection error	0	5	1	0	0
0x05	Power voltage error	0	6	1	0	0
0x06 to 0x0F	(Reserved)	0	0	0	0	0
0x10	BM Error	0	7	1	0	0
0x11	PE error	0	8	1	0	0
0x12	Cover open	0	9	1	5	0
0x13	NE error	0	10	1	0	0
0x14 to 0x1F	(Reserved)	0	0	0	0	0
0x20	Head high temperature stop error	0	11	1	0	0
0x21 to 0x2F	(Reserved)	0	0	0	0	0
0x30	Idling	0	0	0	0	0
0x31 to 0x3F	(Reserved)	0	0	0	0	0

[Function] When z = 1, the automatic audio setting information returns to the default factory setting. (At this time, do not send parameters after e.)
When z = 0, register the automatic audio setting information to playback when the printer's internal status occurs.
e specifies the printer's internal status assigned to audio.
a specifies the area where the audio data to set is stored.

a	Audio data storage area
1, 49	User area

n specifies the audio number to playback.
However, when n = 0, or audio data of a specified number is not registered, automatic audio is invalid.
(c1 + c2 x 256) specifies the number of times.
(d1 + d2 x 256) specifies the delay time.
Delay time is the time from the occurrence of the printer's internal status to the start of audio playback (in seconds).
(t1 + t2 x 256) specifies the interval time.
Interval time is the time from the end of the previous audio to the start of the next audio (in seconds).
You can register multiple times by repeating parameters e to t2.

Perform lump registration until 0xFF which is the end code.
When the parameter is determined to be free of error, the printer starts processing this command. When the parameter has an invalid value, there is no setting. (Sets already determined to be free of problems are valid.)
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.
After registering automatic audio setting information, reset the printer.
Error processing mechanical operations or status processing and the like are not possible while registering automatic audio setting information (the time from receiving 0xFF which is the end code until printer reset is completed after automatic audio registration ends).
Audio will stop by inputting the FEED switch while there is audio playback using this setting.

Command Transmission Example

Cutter error:	User area 12th/3 times/delay 2 seconds/interval 1 second,
Flash ROM error:	User area 13th/4 times/delay 5 seconds/interval 6 seconds
	ESC GS s l z e a n c1 c2 d1 d2 t1 t2
1B 1D 73 49 00	00 01 0C 03 00 02 00 01 00
	01 01 0D 04 00 05 00 06 00 FF

ESC GS s U z n [k1 k2 k3 d1 … dk]1 … [k1 k2 k3 d1 … dk]n

[Name] Register user area NV audio data

[Code]

ASCII	ESC	GS	s	U	z	n	[k1	k2	k3	d1	..	dk]1	..	[k1	k2	k3	d1	..	dk]n
Hexadecimal	1B	1D	73	55	z	n	[k1	k2	k3	d1	..	dk]1	..	[k1	k2	k3	d1	..	dk]n
Decimal	27	29	115	85	z	n	[k1	k2	k3	d1	..	dk]1	..	[k1	k2	k3	d1	..	dk]n

[Defined Area] Z = 0

$0 \leqq n \leqq 255$

$0 \leqq [\ k1 + k2 \times 256 + k3 \times 65536\ ]1 + \ldots + [\ k1 + k2 \times 256 + k3 \times 65536\ ]n \leqq 1701888$

$0 \leqq d \leqq 255$

[Initial Value] Japanese or English (See table below)

n	English Audio
1	Welcome !
2	Thank you !
3	Order coming in.
4	Drink Order coming in.
5	Food Order coming in.
6	Order has been Cancelled.
7	New order coming in.
8	Order to go coming in.
9	Print finished.
10	Please take your receipt.
11	Please come again.
12	Please give your receipt to the operator.
13	Now printing, please wait a moment.
14	Please do not pull the paper until printing finishes.
15	Thank you for visiting.
16	Please take the number ticket.
17	Please have a seat and wait a moment.
18	Thank you for your purchase.
19	Please wait here, we will guide you shortly.

[Function] All data already registered in the user area is erased when starting processing of this command.
Registers n audio data to the user area. (However, when n = 0, nothing is registered.)
Audio numbers are set in ascending order in the order they are registered from user area audio number 1 to n.
(k1 + k2 x 256 + k3 x 65536) specifies the number of bytes of the audio data.
d is audio data in sampling frequency of 11.025 kHz, monaural ADPCM format in quantization bit rate of 4 bits.
The size of the registration region is 1,662 KB (approx. 308 seconds).
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.
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 reset if audio data registration is completed or register processing is forcibly aborted.
Error processing, mechanical operations and status processing and the like cannot executed while registering audio data (the time from when the first parameter is determined to be OK until printer initialization is completed after registering audio data).

ESC GS s T a t1 t2

[Name] Batch playback of NV audio

[Code]

ASCII	ESC	GS	s	T	t1	t2
Hexadecimal	1B	1D	73	54	t1	t2
Decimal	27	29	115	84	t1	t2

[Defined Area] a = 1, 49

$0 \leq t1 + t2 \times 256 \leq 65535$

[Initial Value] ---

[Function] Lump-playback of NV audio registered in the non-volatile memory from #1 in ascending order.

a specifies the audio data registration area.

a	Audio data storage area
1, 49	User area

(t1 + t2 x 256) specifies how many seconds from the top to playback each audio data.

However, when () = 0, plays back each audio data completely without specifying the number of seconds.

Insert 1 second of interval time between the previous audio and the next audio.

Audio will stop by inputting the FEED switch while this command is running.

Audio will stop using the NV audio stop command (ESC GS s P) while running this command.

3.20. Graphics data Command Details

ESC G S (L pL pH m fn [parameter]
ESC G S 8 L p1 p2 p3 p4 m fn [parameter]

[Name] Specify graphics data

[Code]											
	ASCII	ESC	GS	(	L	pL	pH	m	fn	[parameter]	
	Hexadecimal	1B	1D	28	4C	pL	pH	m	fn	[parameter]	
	Decimal	27	29	40	76	pL	pH	m	fn	[parameter]	

[Name] Specify graphics data

[Code]												
	ASCII	ESC	GS	8	L	p1	p2	p3	p4	m	fn	[parameter]
	Hexadecimal	1B	1D	38	4C	p1	p2	p3	p4	m	fn	[parameter]
	Decimal	27	29	56	76	p1	p2	p3	p4	m	fn	[parameter]

(*) Use the GS (L code to explain each function.
• GS (L and GS 8 L are the same function.
• If [parameter] in each function exceeds 65533 bytes, use GS 8 L.

[Function] Runs the process related to the graphics data specified by the function code (fn).

Fn	Code	Function No.	Function	For STAR
0,48	GS (L pL pH m fn	48	Send NV graphics memory capacity	Supported
2,50	GS (L pL pH m fn	50	Print raster graphics data	Receive and discard
3,51	GS (L pL pH m fn	51	Send remaining NV Graphics memory capacity	Supported
64	GS (L pL pH m fn d1 d2	64	Send NV graphics key code	Supported
65	GS (L pL pH m fn d1 d2 d3	65	Batch all delete NV graphics data	Supported
66	GS (L pL pH m fn kc1 kc2	66	Delete the specified NV graphics data	Supported
67	GS (L pL pH m fn a kc1 kc2 b xL xH yL yH [c d1...dk]1 [c d1... dk]b	67	Define NV graphics data	Supported
69	GS (L pL pH m fn a kc1 kc2 x y	68	Print the specified NV graphics data	Supported
112	GS (L pL pH m fn a bx by c xL xH yL yH d1...dk	112	Store raster graphics data	Supported

<Function 48> GS (L pL pH m fn (fn=48)
<Function 48> GS 8 L p1 p2 p3 p4 m fn (fn=48)

[Name] Send NV graphics memory capacity

[Code]	ASCII	GS	(	L	pL	pH	m	fn		
	Hexadecimal	1D	28	4C	pL	pH	m	fn		
	Decimal	29	40	76	pL	pH	m	fn		
[Code]	ASCII	GS	8	L	p1	p2	p3	p4	m	fn
	Hexadecimal	1D	38	4C	p1	p2	p3	p4	m	fn
	Decimal	29	56	76	p1	p2	p3	p4	m	fn

Defined Region
- Parameter for GS (L
  (pL+pH×256)=2 (pL=2, pH=0)
- Parameter for GS 8 L
  (p1+p2×256+p3x65536+p4x16777216)=2 (p1=2, p2=0, p3=0, p4=0)
- Parameter are shared by for GS (L and GS 8 L.
  m = 48,
  fn = 0, 48

Function Sends the entire capacity of NV graphics area in bytes.

Details · The byte count is sent in the following format:

Transmission data	Hex	Decimal	Data length
Header	37H	55	1 Byte
Identifier	30H	48	1 Byte
Total capacity *1	30H to 39H	48 to 57	1 to 8 Byte
NUL	00H	0	1 Byte

*1 The total capacity is the total number of bytes in this region.
The decimal value indicating the total capacity is converted to text data and sent in order from the MSB.
Ex.: When the total capacity is 1200 bytes:
"1200" (Hex:31H, 32H, 30H, 30H, Decimal:49, 50, 48, 48) is converted to 4-bytes of data.

- This command is used when sending total capacity, and the total byte capacity of the region is sent regardless of the current setting for the NV graphics data. This total capacity includes the information region.
- When the value that indicates the entire capacity is "0" (Hex:30H, Decimal:48), it is not possible to use the NV graphics function.

Note
- Data transmission process: Function 48, 51, 52, 64
  Observe the following rules when using these functions.
  - When the host PC sends this command, the printer sends response data or the status to the PC. The PC does not send any more data until it receives response data or status from the printer.
  - When using a serial interface, configure operations for the host PC to use the printer only while the printer is in the READY state.
  - When using a parallel interface, data sent by this function ([header to NUL] block) is temporarily stored in the transmission buffer of the printer in the same way as other data. When the host PC enters reverse mode, data is sent from the top of the transmission buffer in order.
  - When the amount of data exceeds the capacity of the transmission buffer, data is erased. When using this command, it is important to set operations so that the host PC immediately enters a reverse mode and quickly processes the status transmission.
- When using the Xon/Xoff mode communications of the serial interface, it is possible to use Xoff in a data string of [header to NUL].
- Transmission information of each function can be identified as other transmission data by specific data (identifier) of the transmission data string.
  When the header sent by the printer is [Hex = 37H/Decimal = 55], data up to NUL [Hex = 00H/Decimal = 0] is handled as one group, and identified by corresponding to the combination of the header and identifier.

<Function 51> GS (L pL pH m fn (fn=51)
<Function 51> GS 8 L p1 p2 p3 p4 m fn (fn=51)

[Name] Send NV graphics memory capacity

[Code]	ASCII	GS	(	L	pL	pH	m	fn	
	Hexadecimal	1D	28	4C	pL	pH	m	fn	
	Decimal	29	40	76	pL	pH	m	fn	
[Code]	ASCII	GS	8	L	p1	p2	p3	p4	m	fn
	Hexadecimal	1D	38	4C	p1	p2	p3	p4	m	fn
	Decimal	29	56	76	p1	p2	p3	p4	m	fn

Defined Region
- Parameter for GS (L
  (pL+pH×256)=2 (pL=2, pH=0)
- Parameter for GS 8 L
  (p1+p2×256+p3x65536+p4x16777216)=2 (p1=2, p2=0, p3=0, p4=0)
- Parameter are shared by for GS (L and GS 8 L.
  m = 48,
  fn = 3, 51

Function Details
Sends the remaining capacity (or unused area) of NV graphics area in bytes.
- Sends the number of bytes in the following format.:

Transmission data	Hex	Decimal	Data length
Header	37H	55	1 Byte
Identifier	30H	48	1 Byte
Total capacity *1	30H to 39H	48 to 57	1 to 8 Byte
NUL	00H	0	1 Byte

*1 The unused capacity is the total number of bytes of the unused region.
The decimal value indicating the unused capacity is converted to text data and sent in order from the MSB.
Ex.: When the unused capacity is 120 bytes:
“120” (Hex:31H, 32H, 30H, Decimal:49, 50, 48) is converted to 3-bytes of data.

- Information region is also included in the use capacity.
- Do not use this function at the same time as the NV bit image (FS q) command.
- See the Note for <Function 48> for a detailed explanation of the sending process.

Reference FS q, GS (L/GS 8 L <Function 48>

<Function 64> GS (L pL pH m fn d1 d2 (fn=64)
<Function 64> GS 8 L p1 p2 p3 p4 m fn d1 d2 (fn=64)

[Name]

[Code]	ASCII	GS	(	L	pL	pH	m	fn	d1	d2	
	Hexadecimal	1D	28	4C	pL	pH	m	fn	d1	d2	
	Decimal	29	40	76	pL	pH	m	fn	d1	d2	

[Code]	ASCII	GS	8	L	p1	p2	p3	p4	m	fn	d1	d2
	Hexadecimal	1D	38	4C	p1	p2	p3	p4	m	fn	d1	d2
	Decimal	29	56	76	p1	p2	p3	p4	m	fn	d1	d2

Defined Region
- Parameter for GS (L
  (pL+pH×256)=4 (pL=4, pH=0)
- Parameter for GS 8 L
  (p1+p2×256+p3x65536+p4x16777216)=4 (p1=4, p2=0, p3=0, p4=0)
- Parameter are shared by for GS (L and GS 8 L.
  m = 48,
  fn = 64
  d1 = 75, d2 = 67

Function: Sends the defined NV graphics key code list.

Details
- Sends the key code in the following format:

Transmission data	Hex	Decimal	Data length
Header	37H	55	1 Byte
Identifier	72H	114	1 Byte
Identifier information *1, 2	40H/41H	64/65	1 Byte
Data	20H to 7EH	32 to 126	2 to 80 Byte
NUL	00H	0	1 Byte

*1 Send one block with identification information (3rd byte) as 40Hex, when the defined NV graphcis data count is less than 40.

*2 Send one block with identification information (3rd byte) as 41Hex, when the defined NV graphcis data count is over 41.

- If there is no defined NV graphics key code list, it sends the following format.

Transmission data	Hex	Decimal	Data length
Header	37H	55	1 Byte
Identifier	72H	114	1 Byte
Identifier information	40H	64	1 Byte
NUL	00H	0	1 Byte

- Do not use this function at the same time as the NV bit image (FS q) command. NV bit images defined by <FS q> are determined to have no data.
- See the Note for <Function 48> for a detailed explanation of the sending process.

Reference: FS q, GS (L/GS 8 L <Function 48>

<Function 65> GS (L pL pH m fn d1 d2 d3 (fn=65)
<Function 65> GS 8 L p1 p2 p3 p4 m fn d1 d2 d3 (fn=65)

[Name]

[Code]	ASCII	GS	(	L	pL	pH	m	fn	d1	d2	d3	
	Hexadecimal	1D	28	4C	pL	pH	m	fn	d1	d2	d3	
	Decimal	29	40	76	pL	pH	m	fn	d1	d2	d3	

[Code]	ASCII	GS	8	L	p1	p2	p3	p4	m	fn	d1	d2	d3
	Hexadecimal	1D	38	4C	p1	p2	p3	p4	m	fn	d1	d2	d3
	Decimal	29	56	76	p1	p2	p3	p4	m	fn	d1	d2	d3

Defined Region
- Parameter for GS (L
  (pL+pH×256)=5 (pL=5, pH=0)
- Parameter for GS 8 L
  (p1+p2×256+p3x65536+p4x16777216)=5 (p1=5, p2=0, p3=0, p4=0)
- Parameter are shared by for GS (L and GS 8 L.
  m = 48,
  fn = 65
  d1 = 67, d2 = 76, d3 = 82

Function

Erases all NV graphics data defined by Function 67.
- The erased area is set to be an “unused area.”
- All key codes become undefined.

Details
- Effective only at the top of the line in standard mode.
- Data for this parameter is discarded in page mode.
- Do not use this function for macro definition because this function is not compatible with the macros.
- If you use this function, all NV graphics data is erased. Take special care if NV graphics data is used in multiple applications.
- This function also erases the NV graphics data defined by the “FS q” command.

Reference

FS q, GS (L/GS 8 L <Function 67>

<Function 66> GS (L pL pH m fn kc1 kc2 (fn=66)
<Function 66> GS 8 L p1 p2 p3 p4 m fn kc1 kc2 (fn=66)

[Name] Erase the specified NV graphics data

[Code]	ASCII	GS	(	L	pL	pH	m	fn	kc1	kc2
	Hexadecimal	1D	28	4C	pL	pH	m	fn	kc1	kc2
	Decimal	29	40	76	pL	pH	m	fn	kc1	kc2

[Code]	ASCII	GS	8	L	p1	p2	p3	p4	m	fn	kc1	kc2
	Hexadecimal	1D	38	4C	p1	p2	p3	p4	m	fn	kc1	kc2
	Decimal	29	56	76	p1	p2	p3	p4	m	fn	kc1	kc2

Defined Region
- Parameter for GS (L
  (pL+pH×256)=4 (pL=4, pH=0)
- Parameter for GS 8 L
  (p1+p2×256+p3x65536+p4x16777216)=4 (p1=4, p2=0, p3=0, p4=0)
- Parameter are shared by for GS (L and GS 8 L.
  m = 48,
  fn = 66
  32 ≤ kc1 ≤ 126
  32 ≤ kc2 ≤ 126

Function

Erases the NV graphics data defined by key codes kc1 and kc2.
- The erased area is set to be an “unused area.”
- The erased key code becomes undefined.

Details
- Effective only at the top of the line in standard mode.
- Data for this counter is discarded in page mode.
- Do not use this function for macro definition because this function is not compatible with the macros

Reference

GS (L/GS 8 L <Function 67>

<Function 67> GS (L pL pH m fn a kc1 kc2 b xL xH y L yH [c d1 ... dk] 1 ... [c d1 ... dk] b (fn=67)

<Function 67> GS 8 L p1 p2 p3 p4 m fn a kc1 kc2 b xL xH y L yH [c d1 … dk] 1 … [c d1 … dk] b (fn=67)

[Name] Erase the specified NV graphics data

[Code]	ASCII	ESC	GS	(	L	pL	pH	m	fn	a	kc1	kc2	b					
					xL	xH	yL	yH	[c	d1	…	dk]1	…	[c	d1	…	dk]b	
	Hexadecimal	1B	1D	28	4C	pL	pH	m	fn	a	kc1	kc2	b					
					xL	xH	yL	yH	[c	d1	…	dk]1	…	[c	d1	…	dk]b	
	Decimal	27	29	40	76	pL	pH	m	fn	a	kc1	kc2	b					
					xL	xH	yL	yH	[c	d1	…	dk]1	…	[c	d1	…	dk]b	

[Code]	ASCII	ESC	GS	8	L	p1	p2	p3	p4	m	fn	a	kc1	kc2				
					xL	xH	yL	yH	[c	d1	…	dk]1	…	[c	d1	…	dk]b	
	Hexadecimal	1B	1D	38	4C	p1	p2	p3	p4	m	fn	a	kc1	kc2				
					xL	xH	yL	yH	[c	d1	…	dk]1	…	[c	d1	…	dk]b	
	Decimal	27	29	56	76	p1	p2	p3	p4	m	fn	a	kc1	kc2				
					xL	xH	yL	yH	[c	d1	…	dk]1	…	[c	d1	…	dk]b	

Defined Region

- Parameter for GS (L
  12 ≤ (pL+pH×256) ≤ 65535 (0 ≤ pL ≤ 255, 0 ≤ pH ≤ 255)
- Parameter for GS 8 L
  12 ≤ (p1+p2×256+p3x65536+p4x16777216) ≤ 4294967295
  (0 ≤ p1 ≤ 255, 0 ≤ p2 ≤ 255, 0 ≤ p3 ≤ 255, 0 ≤ p4 ≤ 255)
- Parameter are shared by for GS (L and GS 8 L.
  m = 48, fn = 67, a = 48
  32 ≤ kc1 ≤ 126
  32 ≤ kc2 ≤ 126
  b = 1, 2
  1 ≤ (xL+xH×256) ≤ 8192, (0 ≤ xL ≤ 255, 0 ≤ xH ≤ 32)
  1 ≤ (yL+yH×256) ≤ 2304, (0 ≤ yL ≤ 255, 0 ≤ yH ≤ 9)
  c = 49 (Single-color), c = 49,50 (2-color)
  0 ≤ d ≤ 255
  k = int (((xL + xH×256) + 7)÷8)×(yL + yH×256)

Function

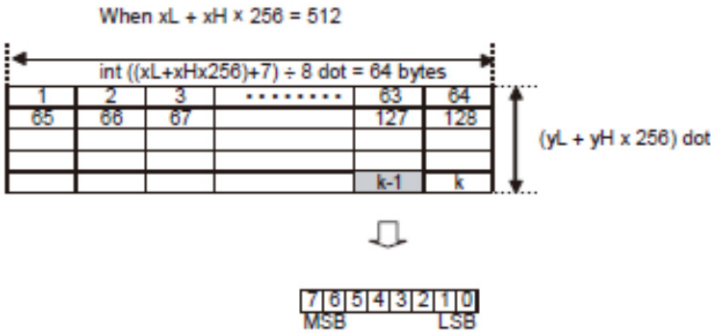
Defines the NV graphics data (in raster format) as the record specified by key codes kc1 and kc2.

- “b” specifies a number of colors of the definition data.
- “xL” and “xH” specify the horizontal size of definition data to “xL + xH x 256” dots.
- “yL” and “yH” specify the vertical size of definition data to “yL + yH x 256” dots.

- “c” specifies the definition data color as follows.
  c=49: Black
  c=50: Red

- “d” specifies the definition data (in raster format).
- If the specified key code already exists in memory, it is overwritten by the specified one.

Details
- NV graphics are image data defined in the non-volatile memory of the printer.
  Data definitions for NV graphics data generated by using this command are valid until redefined by this command.
- This command is used to define NV graphics data.
- This function is defined by the raster format.
- Valid only at the top of the line in standard mode.
- When page mode is selected, counter data is received and discarded.
- Do not use this function when defining a macro because it is not compatible with macros.
- If there is not an adequate amount of space to store the NV graphics data, this function cannot be use.
  Use Function 51 to check the available space that can be used.
- k byte data d1 … dk are processed as one item of the defined NV graphics data.
  Bits that correspond to the dots to print are “1,” and the bits that correspond to the dots that are not printed are “0.”
- When single-color (b=1) is selected, this is defined as one data group [c d1 … dk].
- When 2-color (b=2) is selected, this is defined as two data groups [c d1 … dk].
  When a color (c) is specified, it is important to specify a color different from the data group.
  At that time, the vertical and horizontal sizes of the data are the same.
- NV graphics data is printed using Function 69.
- Be aware that this command and NV bit image data (FS q) cannot both be defined at the same time.
  The NV bit image data definition (FS q) is erased by using this command.
- The relationship of NV graphics data (raster format) and printing results are shown below.



Notes
- When the specification of (xL + xH×256), and (yL + yH×256) exceed the remaining capacity of the NV graphics region, this function does not operate.
- When processing this function when the NV bit image is defined using FS q, after all NV bit images are deleted, define data using this function.
- This function uses the NV graphics area of “Number of data sets (k) + Management data (14 bytes)”.
- The NV bit image data defined by this command is printable by “FS p”. See Appendix- 8 for setting details.

Reference GS (L/GS 8 L <Function 51>, <Function 69>, FS q, Appendix- 8

<Function 69> GS (L pL pH m fn kc1 kc2 x y (fn=69)
<Function 69> GS 8 L p1 p2 p3 p4 m fn kc1 kc2 x y (fn=69)

[Name] Print the specified NV graphics data

[Code]	ASCII	GS	(	L	pL	pH	m	fn	kc1	kc2	x y
	Hexadecimal	1D	28	4C	pL	pH	m	fn	kc1	kc2	x y
	Decimal	29	40	76	pL	pH	m	fn	kc1	kc2	x y

[Code]	ASCII	GS	8	L	p1	p2	p3	p4	m	fn	kc1	kc2	x y
	Hexadecimal	1D	38	4C	p1	p2	p3	p4	m	fn	kc1	kc2	x y
	Decimal	29	56	76	p1	p2	p3	p4	m	fn	kc1	kc2	x y

Defined Region

- Parameter for GS (L
  (pL+pH×256)=6 (pL=6, pH=0)
- Parameter for GS 8 L
  (p1+p2×256+p3x65536+p4x16777216)=6 (p1=6, p2=0, p3=0, p4=0)
- Parameter are shared by for GS (L and GS 8 L.
  m = 48
  fn = 69
  32 ≤ kc1 ≤ 126
  32 ≤ kc2 ≤ 126
  x = 1, 2
  y = 1, 2

Function

Prints the NV graphics data defined by key codes kc1 and kc2.

- Selected data can be printed in the “horizontal x-times” by “vertical y-times” scale.

Details

- This function is used to print the NV graphics data defined by Function 67.
- The printer prints data only when the NV graphics data that matches the specified key code is defined.
- If data with the specified key code is not found, the data of this counter is discarded.
- This command is effective only when no data exists in the print buffer in standard mode.
- If any data exists in the print buffer, the data for this counter is discarded.
- Data for this counter is discarded in page mode.
- If graphics that exceeds the print area size is specified, the data within the print area is printed out but the excess data is not printed out.
- The horizontal and vertical size of NV graphics can be specified by “x” and “y”.
- Excluding upside-down printing, print modes (emphasized printing, overlap printing, underlines, character sizes, black/white inverted printing, and 90 degree rotation) are unaffected.
- When normal mode or double-width mode is specified, the paper is fed for the number of dots (the height of NV graphics) and when double-height mode or 4x mode is specified, the paper is fed for the number of dots (NV graphics height multiplied by 2) regardless of the settings of default line spacing (ESC 2) and line feed amount (ESC 3).
- After these graphics are printed, the next printing starts at the beginning of a line (the printer is at the “beginning of the line” and has “no print data”), and subsequent data is processed as normal data.

• This command is affected by the following command settings:
Alignment (ESC a n)
Move to absolute position (ESC $ n1 n2)
Move to relative position (ESC \ n1 n2)
Set print area (ESC RS A n)
Horizontal tab (HT)
Upside-down printing (ESC { n)

Reference GS (L/GS 8 L , ESC 2 , ESC 3 , ESC a , ESC $, ESC \ , ESC RS A , HT , ESC {

<Function 112> GS (L pL pH m fn a bx by c xL xH yL yH d1...dk (fn=112)

<Function 112> GS 8 L p1 p2 p3 p4 m fn a bx by c xL xH yL yH d1...dk (fn=112)

[Name] Print the specified NV graphics data

[Code]	ASCII	GS	(	L	pL	pH	m	fn	a	bx	by	c	xL	xH	yL	yH	d1	…	dk
	Hexadecimal	1D	28	4C	pL	pH	m	fn	a	bx	by	c	xL	xH	yL	yH	d1	…	dk
	Decimal	29	40	76	pL	pH	m	fn	a	bx	by	c	xL	xH	yL	yH	d1	…	dk

[Code]	ASCII	GS	8	L	p1	p2	p3	p4	m	fn	a	bx	by	c	xL	xH	yL	yH	d1	…	dk
	Hexadecimal	1D	38	4C	p1	p2	p3	p4	m	fn	a	bx	by	c	xL	xH	yL	yH	d1	…	dk
	Decimal	29	56	76	p1	p2	p3	p4	m	fn	a	bx	by	c	xL	xH	yL	yH	d1	…	dk

Defined Region

- Parameter for GS (L
  11 ≤ (pL+pH×256) ≤ 65535 (0 ≤ pL ≤ 255, 0 ≤ pH ≤ 255)
- Parameter for GS 8 L
  11 ≤ (p1+p2×256+p3x65536+p4x16777216) ≤ 4294967295 (0 ≤ p1 ≤ 255, 0 ≤ p2 ≤ 255, 0 ≤ p3 ≤ 255, 0 ≤ p4 ≤ 255)
- Parameter are shared by for GS (L and GS 8 L.
  m = 48, fn = 112, a = 48,
  1 ≤ bx ≤ 2, 1 ≤ by ≤ 2
  49 ≤ c ≤ 50 (c=49: Single color, c=50: Two-color)
  1 U (xL+xHx256) ≤ 2047
- When single color is specified
  1 ≤ (yL+yHx256) ≤ 1662 (When by=1)
  1 ≤ (yL+yHx256) ≤ 831 (When by=2)
- When two-color is specified
  1 ≤ (yL+yHx256) ≤ 831 (When by=1)
  1 ≤ (yL+yHx256) ≤ 415 (When by=2)
  0 ≤ d ≤ 255
  k=(int((xL+yHx256)+7)/8) x (yL+yHx256)

Function

Stores raster-format graphics data in the print buffer using horizontal bx/vertical by.

- xL and xH specify the horizontal direction of the raster graphic in (xL + xH×256) dots.
- yL and yH specify the vertical direction of the raster graphic in (yL + yH×256) dots.
- c specifies the color of the print data.

C	Print Data Color
49	First Color (Black: High Energy)
50	Second Color (Red: Low Energy)

STAR

- Prints using this command.
  With EPSON specifications, 1) after the data is stored in the print buffer, 2) that data stored in the print
  buffer is printed, but with STAR specifications, 1) the command prints the graphics data, then 2) the printer receives the print command for the data stored in the printer buffer, and discards it.
  1) GS (L pL pH m fn a bx by c xL xH yL yH d1 … dk (fn=112)
  2) GS (L pL pH m fn (fn=2, 50)
- When c=50 (Two color) is specified, the command is ignored.
- The command is processed as normal data in Page mode.

Reference

GS (L pL pH m fn (fn=2, 50)

3.21. Individual Logo Commands

ESC GS) L pL pH fn [parameter]

[Name] Set graphics data

[Code]								
	ASCII	GS	)	L	pL	pH	fn	[parameter]
	Hexadecimal	1B	29	4C	pL	pH	fn	[parameter]
	Decimal	27	41	76	pL	pH	fn	[parameter]

Function

Executes graphics data processing.

- pL and pH specify the parameter count (pL + pH x 256) in bytes after fn.
- See the function specifications for details on [parameter].

Fn	Function No	Function Name
48	Function 48	Send the registered individual logo CRC
49	Function 49	Send the registered individual NV graphics memory capacity
50	Function 50	Send all key code of the registered NV graphics

<Function 48> ESC GS) L pL pH fn kc1 kc2

[Name] Send the registered individual logo CRC

[Code]

ASCII	ESC	GS	)	L	pL	pH	fn	kc1	kc2
Hexadecimal	1B	1D	29	4C	pL	pH	fn	kc1	kc2
Decimal	27	29	41	76	pL	pH	fn	kc1	kc2

Defined Region

pL = 3, pH = 0
fn = 48
32 ≤ kc1 ≤ 126, 32 ≤ kc2 ≤ 126

Function

Sends a CRC of the logo already stored in the printer.

Details

- The CRC operation is used only for the logo graphics data currently stored in the printer.
- The key codes, size and color information are excluded from the CRC operation.
- When the printer receives the command, it calculates the CRC and sends it.
- If a logo containing multiple colors is stored, the logo data of the “n+1” color is added after the logo data of the “n-th” color and calculated.
- The CRC operation is as follows.

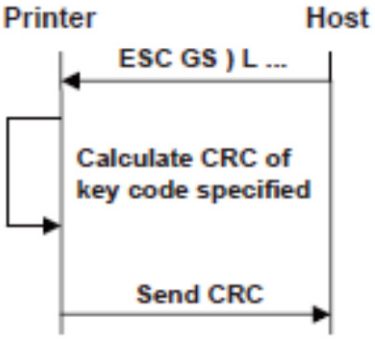
  CRC16: P olynomial = x16+x15+x2+x0
  Initial value: FFFF (Hex)
  Shift direction: Right
  Output XOR: FFFF (Hex)

  * See the sample codes for concrete implementation examples.
- The CRC of only the stored logo can be sent by the “GS (L” or “GS 8 L” command.
- When logo data is stored, the CRC of the received data is operated.
- If the logo data exceeds the horizontal print area, the CRC is operated based on the data that is received when logo data is stored.
- A CRC of the logo, stored by the “FS q” command, cannot be sent.

The CRC is sent in the following format:
ESC GS) L pL pH fn kc1 kc2 CRC-data LF NUL
* The CRC data is converted into a character string and sent.

If a unregistered key code is specified, the following data is sent instead:
ESC GS) L pL pH fn kc1 kc2 LF NUL

<Command processing flow>



<CRC calculation procedure, sample codes, C language>

```
#define CRC16 0xA001
unsigned int CalcCrc16( int size, unsigned char data[] )
{
                    unsigned int result;
                    int i,j;

                    result = 0xFFFF;

                    for( i=0 ; i<size; i++)
                    {
                     result ^= data[i];
                     for(j = 0x0001; j < 0x0100; j = j << 1)
                     {
                     if( result & 0x0001 )
                                        {
                                         result >>= 1;
                                         result ^= CRC16;
                                        }
                                   else
                                        {
                                        result >>= 1;
                                        }
                     }
                    }
                    result = (~result) & 0xFFFF;
                    return result;
}
```

Notes
- If a logo is registered by the “FS q” command, the logo data already existing is erased.
- If a logo is registered by the “GS (L” or “GS 8 L” command, the logo that has been registered by the “FS q” command is erased and the new one is registered.

Reference GS (L, GS 8 L

<Function 49> ESC GS) L pL pH fn kc1 kc2

[Name] Transmit capacity used by registered individual NV graphics

[Code]

ASCII	ESC	GS	)	L	pL	pH	fn	kc1	kc2
Hexadecimal	1B	1D	29	4C	pL	pH	fn	kc1	kc2
Decimal	27	29	41	76	pL	pH	fn	kc1	kc2

Defined range
pL = 3, pH = 0
fn = 49
32 □kc1 □126, 32 □kc2 □126

Function
Transmits the capacity used by the individual NV graphics data registered in the printer.

Detail
□The used capacity is the total number of bytes of the used area.
□The used capacity includes the management data (14 bytes).
□Only the capacity used by NV graphics data registered with the "GS (L" or "GS 8 L" command can be transmitted.
□The capacity used by a NV graphics data registered with the "FS q" command cannot be transmitted.

The used capacity is transmitted in the following format:
ESC GS) L pL pH fn kc1 kc2 [used capacity] LF NUL
Example: When the used capacity is 1200 bytes, [used capacity] will be "1200" converted into four-byte data (Hex 31h, 32h, 30h, 30h; Decimal: 49, 50, 48, 48).

If an unregistered key code is specified, the following data is transmitted instead:
ESC GS) L pL pH fn kc1 kc2 LF NUL

Reference
GS (L, GS 8 L

<Function 50> E S C G S) L p L p H f n d 1 d 2

Name — Send all key code of the registered NV graphics

[Code]										
	ASCII	ESC	GS	)	L	pL	pH	fn	d1	d2
	Hexadecimal	1B	1D	29	4C	pL	pH	fn	d1	d2
	Decimal	27	29	41	76	pL	pH	fn	d1	d1

Defined Region
pL = 3, pH = 0
fn = 50
d1 = 0, d2 = 0

Function — Send all key code of NV graphics already stored in the printer.

Details
- If NV graphics are registered with "GS (L" or "GS 8 L" command, all of their key codes can be sent.
- If NV graphics are registered with "FS q" command, none of their key codes can be sent.

All key codes are sent in the following format.
ESC GS) L pL pH fn k1 k2 [key-code key-code ...] LF NUL
Up to 512 key codes can be sent, but logo key codes exceeding this limit are not sent.
k1 and k2 represent the number of transmission data bytes (k1+k2*256) after the key codes.
Example: If NV graphics of key codes 01 and 02 are registered, k1=6 and k2=0. [key-code key-code...] is "0102" (30h, 31h, 30h, 32h in Hex; and 48, 49, 48, 50 in Decimal).
If NV graphics are not registered, the following data is sent.
ESC GS) L pL pH fn k1 k2 LF NUL (where, k1=2 and k2=0)
If the USB interface is used, the NSB must be made invalid.

Reference — ESC GS（ L , ESC GS 8 L

3.22. Printer Information Transmission Commands

ESC GS) I pL pH fn [parameter]

[Name] Transmit printer information

[Code]								
	ASCII	ESC	)	I	pL	pH	fn	[parameter]
	Hexadecimal	1B	29	49	pL	pH	fn	[parameter]
	Decimal	27	41	73	pL	pH	fn	[parameter]

[Function] Executes printer information processing.

☐ "pL" and "pH" specify the number of parameters after "fn" as "pL + pH * 256" bytes.

☐ See the function specifications for details on [parameter].

Fn	Function No.	Function Name
48	Function 48	Transmit all types of multibyte fonts

<Function 48> ESC GS) I pL pH fn d1 d2

[Name] Transmit all types of multibyte fonts

[Code]										
	ASCII	ESC	GS	)	I	pL	pH	fn	d1	d2
	Hexadecimal	1B	1D	29	49	pL	pH	fn	d1	d2
	Decimal	27	29	41	73	pL	pH	fn	d1	d2

Defined range pL = 3, pH = 0
fn = 48
d1 = 0, d2 = 0

Function Transmits all types of multibyte fonts installed in the printer.

Detail Information is transmitted in the following format:
ESC GS) I pL pH fn k1 k2 [multibyte font type 1, multibyte font type 2, ...] LF NUL
Where, k1 and k2 indicate the number of data bytes (k1 + k2 * 256) transmitted after the multibyte font type.
When two or more multibyte fonts are installed, the fonts are transmitted separated by a separator (2Ch).
The multibyte font type is transmitted as a character string.

Multibyte font type	Transmitted character string
Japanese	KANJI JAPANESE
Simplified Chinese GB2312	CHINA GB2312
Simplified Chinese GB18030	CHINA GB18030
Traditional Chinese BIG5	TAIWAN BIG-5
Korean	KOREA C-5601C

Example: When simplified Chinese GB18030 and standard Chinese BIG5 are installed, the following is transmitted.
ESC GS) I pL pH fn k1 k2 CHINA GB18030 , TAIWAN BIG-5 , LF NUL (Where, k1 = 29, k2 = 0)

When no multibyte font is installed, the following is transmitted.
ESC GS) I pL pH fn k1 k2 LF

4. CHARACTER CODE TABLES

Refer to the separate ”Character Code Tables” .

5. APPENDIX

5.1. Appendix 1: Bar Code Specification Details

Refer to the dedicated manuals for characteristics and methods of use for each bar code symbol.
This section describes precautions and methods for setting when printing with the printer.

Bar code widths are set for each bar code according to the mode. The following describes each mode and the dot counts.
The user must ensure the specified printing position and quiet zone at the position where the bar code begins.

5.1.1. Code 39

Code 39 represents numbers 0 to 9 and the letters of the alphabet from A to Z. These are the symbols most frequently used today in industry.

1. Length of characters in each mode

Items	Mode 1	Mode 2	Mode 3	Mode 4	Mode 5	Mode 6	Mode 7	Mode 8	Mode 9
Narrow Element Width	2 dots	3 dots	4 dots	2 dots	3 dots	4 dots	2 dots	3 dots	4 dots
Wide Element Width	6 dots	9 dots	12 dots	5 dots	8 dots	10 dots	4 dots	6 dots	8 dots
Ratio	1:3	1:3	1:3	1:2.5	1:2.7	1:2.5	1:2	1:2	1:2
Character Spacing	2 dots	3 dots	4 dots	2 dots	3 dots	4 dots	2 dots	3 dots	4 dots
Length of 1 Character	4 mm	6 mm	8 mm	3.625 mm	5.625 mm	7.25 mm	3.25 mm	4.875 mm	6.5 mm

(*) The length of 1 character includes the character spacing.

2. Regulations

The start and stop bar code (*) in Code 39 are automatically inserted.

5.1.2. Interleaved 2 of 5

Interleaved 2 of 5 represents numbers 0 to 9. Higher density of characters is possible and with JIS and EAN, and printing to cardboard for distribution has been standardized.

1) Narrow element width and length of symbols per 2 characters

Items	Mode 1	Mode 2	Mode 3	Mode 4	Mode 5	Mode 6	Mode 7	Mode 8	Mode 9
Narrow Element Width	2 dots	4 dots	6 dots	2 dots	4 dots	6 dots	2 dots	3 dots	4 dots
Wide Element Width	5 dots	10 dots	15 dots	4 dots	8 dots	12 dots	6 dots	9 dots	12 dots
Ratio	1:2.5	1:2.5	1:2.5	1:2	1:2	1:2	1:3	1:3	1:3
Length of 1 Character	4mm	8mm	12mm	3.5mm	7mm	10.5mm	4.5mm	6.75mm	9mm

2. Regulations

- By selecting interleaved 2 of 5 bar code symbols, start and stop patterns are automatically inserted.
- When the bar code data digit count is odd, a zero is added to the highest value digit.
- Details conform to standards for AIM, USS-12/5, ANSI and JIS x 0502.

5.1.3. JAN/EAN/UPC

Used numbers, not only the bar code symbols, are controlled using JAN, EAN and UPC as shared common commercial codes. Mainly, they are used for supermarkets such as shops and grocery stores.

1. Each mode and bar code width

Items		Mode 1	Mode 2	Mode 3
Module Width		2 dots	3 dots	4 dots
Bar code width (*)	JAN/EAN-8	16.75 mm	25.125 mm	33.5 mm
	JAN/EAN-13	23.75 mm	35.625 mm	47.5 mm
	UPC-A	23.75 mm	35.625 mm	47.5 mm
	UPC-E	12.75 mm	19.125 mm	25.5 mm

(*) Includes the guard bar (left/right/center) but not the white space.

2. Regulations

- JAN/EAN -8:
  Data is in 7 or 8 digits. The command is ignored for others.
  The check digit uses a modulus weight of 10/3 and is automatically applied.
  When the calculated value and the numerical value of the 8th digit differ, the calculated value has priority.
- JAN/EAN -13:
  Data is in 12 or 13 digits. The command is ignored for others.
  The check digit uses a modulus weight of 10/3 and is automatically applied.
  When the calculated value and the numerical value of the 13th digit differ, the calculated value has priority.
- UPC – A:
  Data is in 11 or 12 digits. The command is ignored for others.
  The check digit uses a modulus weight of 10/3 and is automatically applied.
  When the calculated value and the numerical value of the 12th digit differ, the calculated value has priority.
- UPC – E:
  Data is in 11 or 12 digits. The command is ignored for others.
  The check digit uses a modulus weight of 10/3 and is automatically applied.
  When the calculated value and the numerical value of the 12th digit differ, the calculated value has priority.
  Data conversion to rectangles is automatic.
  Data that cannot be shortened is processed as invalid data.

5.1.4. Code 128

These are bar code symbols that can print ASCII 128 characters. For that reason, use thereof is increasing.

1. Each module and module width

Items	Mode 1	Mode 2	Mode 3
Module Width	2 dots	3 dots	4 dots
Length of 1 Character (*)	2.75 mm	4.125 mm	5.5 mm

(*) Start and stop bars not included.

2. Regulations

When using <LF> with the command, control codes are not sent by the host PC, so the control codes are sent as data, as shown below.

• When sending the following data, it represents a 2 character set.
% (25H) represents %0 (25H 30H).
Control codes (00H to 1FH) represent 40H to 5FH applied behind %.
Control code (7FH) represents %5 (25H 35H).
Function codes represent 1 to 4 (31H to 34H) applied behind %.
Start codes represent 6 to 8 (36H to 38H) applied behind %.
• Stop code (SC)/Check character (CK) are automatically applied.
• When start code is omitted:
Uses START C when more than 4 digits continue after header.
Uses START A when initial data other than numbers are the control code.
Uses START B for other cases.

• 2 Character set code table

<Control Codes>

<Control Codes>

Code	Format
NUL 00H	%@ 25H 40H
SOH 01H	%A 25H 41H
STX 02H	%B 25H 42H
ETX 03H	%C 25H 43H
EOT 04H	%D 25H 44H
ENQ 05H	%E 25H 45H
ACK 06H	%F 25H 46H
BEL 07H	%G 25H 47H
BS 08H	%H 25H 48H
HT 09H	%I 25H 49H
LF 0AH	%J 25H 4AH
VT 0BH	%K 25H 4BH
FF 0CH	%L 25H 4CH
CR 0DH	%M 25H 4DH
SO 0EH	%N 25H 4EH
SI 0FH	%O 25H 4FH
DLE 10H	%P 25H 50H
DC1 11H	%Q 25H 51H
DC2 12H	%R 25H 52H
DC3 13H	%S 25H 53H
DC4 14H	%T 25H 54H
NAK 15H	%U 25H 55H
SYN 16H	%V 25H 56H
ETB 17H	%W 25H 57H
CAN 18H	%X 25H 58H
EM 19H	%Y 25H 59H
SUB 1AH	%Z 25H 5AH
ESC 1BH	%[25H 5BH
FS 1CH	% ¥25H 5CH
GS 1DH	%] 25H 5DH
RS 1EH	%^ 25H 5EH
US 1FH	%_ 25H 5FH
DEL 7FH	%5 25H 35H

<Control Codes>

Code	Format
% 25H	%0 25H 30H

<Function Codes>

Code	Format	
FNC1	%1 25H 31H	☆
FNC2	%2 25H 32H	☆
FNC3	%3 25H 33H	☆
FNC4	%4 25H 34H	☆

<Start Codes>

Code	Format	
START A	%6 25H 36H	☆
START B	%7 25H 37H	☆
START C	%8 25H 38H	☆

5.1.5. Code 93

1. Each mode and module width

Items	Mode 1	Mode 2	Mode 3
Module Width	2 dots	3 dots	4 dots
Length of 1 Character (*)	2.25 mm	3.375 mm	4.5 mm

(*) Start and stop bars not included.

2. Regulations
   - Start/stop codes are automatically applied.
   - Check character (C, K) is automatically applied.
   - 2 character set expression conforms to Code 128.

   However, items marked with a star are codes that can only be used with Code 128, and not with Code 93.

5.1.6. NW7 (CODERBAR)

NW7 normally uses either A through D as the start/stop codes and represents special symbols (- (minus sign)/$ (dollar sign)/: (colon)// (slash)/. (period)/+ (plus sign) between 0 to 9.
These are used as carrier package marking bar codes, DPE (photo prints) and for medical related industries (USA).

1. Length of 1 character in each mode

Items	Mode 1	Mode 2	Mode 3	Mode 4	Mode 5	Mode 6	Mode 7	Mode 8	Mode 9
Narrow Element Width	2	3	4	2	3	4	2	3	4
Wide Element Width	6	9	12	5	8	10	4	6	8
Ratio	1:3	1:3	1:3	1:2.5	1:2.7	1:2.5	1:2	1:2	1:2
Character Spacing (Dots)	2	3	4	2	3	4	2	3	4
Length of 1 Character (Normally mm) (Width mm)	3 3.5	4.5 5.25	6 7	2.75 3.125	4.25 5.125	5.5 6.25	2.5 2.75	3.75 4.125	5 5.5

- With NW7, lengths differ because narrow elements and wide elements are included according to the characters.
- Normal characters (narrow: 5, wide: 2) and numbers (0 to 9), - and $
- Wide characters (narrow: 4, wide: 3) ,/,.,+, A to D
- Character spaces are included in 1 character length.

5.1.7. GS1-128

Basic structure of data

Start character	FNC1	AI	Data	Check digit A	Check digit B	Stop character
Added automatically		(d1...dn)			Added automatically	

Connection structure of data

Start character	FNC1	AI	Data	Check digit A	FNC1	AI	Data	Check digit A	Check digit B	Stop character
Added automatically		(d1...dn)							Added automatically	

The following four special characters operate as shown below.

Special Characters			
Characters	Hex.	Decimal	
SP	20	32	The first SP after d1 is the data division identifier for identifying (AI). The SP is reflected by the HRI but is not included in the encoding data.
(	28	40	"(" is reflected by the HRI. This is useful when using "(",")" to highlight the AI. It is not included in encoding data.
)	29	41	The first ")" after d1 is the data division identifier for identifying (AI). The ")" is reflected by the HRI but is not included in the encoding data.
*	2A	42	The check digit calculated by modulus 10 is inserted automatically at the position specified in "*". The check digit is reflected in the HRI instead of the "*".

Data added automatically is not entered in the HRI characters.
Special HRI characters are processed as shown below.

- Start characters (CODE A, CODE B, CODE C) are not printed in HRI characters.
- SP is used for HRI characters for function characters (FNC1 and FNC3) and control characters (00H to 1FH and 7FH).
- HRI characters for SP and "(",")" are printed as they are.
- The check digit is printed in the "*" position.

The available data ranges for each code set (CODE A, CODE B, CODE C) are shown in the following table.
Bar code data for special characters (FNC1, FNC3) or "(",")", "*", "{" sends double-byte characters as shown in the following table.

d		Character		
Hex.	Decimal	CODE A	CODE B	CODE C
00	0	NUL		00
01	1	SOH		01
02	2	STX		02
03	3	ETX		03
04	4	EOT		04
05	5	ENQ		05
06	6	ACK		06
07	7	BEL		07
08	8	BS		08
09	9	HT		09
0A	10	LF		10
0B	11	VT		11
0C	12	FF		12
0D	13	CR		13
0E	14	SO		14
0F	15	SI		15
10	16	DLE		16
11	17	DC1		17
12	18	DC2		18
13	19	DC3		19
14	20	DC4		20
15	21	NAK		21
16	22	SYN		22
17	23	ETB		23
18	24	CAN		24
19	25	EM		25
1A	26	SUB		26
1B	27	ESC		27
1C	28	FS		28
1D	29	GS		29
7B, 1E	123, 30	RS		30
1F	31	US		31
20	32			
21	33	!	!	33
22	34	“	“	34
23	35	#	#	35
24	36	$	$	36

d		Character		
Hex.	Decimal	CODE A	CODE B	CODE C
25	37	%	%	37
26	38	&	&	38
27	39	‘	‘	39
7B, 28	123, 40	(	(	40
7B, 29	123, 41	)	)	41
7B, 2A	123, 42	*	*	42
2B	43	+	+	43
2C	44	,	,	44
2D	45	-	-	45
2E	46	.	.	46
2F	47	/	/	47
30	48	0	0	48
31	49	1	1	49
32	50	2	2	50
33	51	3	3	51
34	52	4	4	52
35	53	5	5	53
36	54	6	6	54
37	55	7	7	55
38	56	8	8	56
39	57	9	9	57
3A	58	:	:	58
3B	59	;	;	59
3C	60	<	<	60
3D	61	=	=	61
3E	62	>	>	62
3F	63	?	?	63
40	64	@	@	64
41	65	A	A	65
42	66	B	B	66
43	67	C	C	67
44	68	D	D	68
45	69	E	E	69
46	70	F	F	70
47	71	G	G	71
48	72	H	H	72
49	73	I	I	73

d		Character		
Hex.	Decimal	CODE A	CODE B	CODE C
4A	74	J	J	74
4B	75	K	K	75
4C	76	L	L	76
4D	77	M	M	77
4E	78	N	N	78
4F	79	O	O	79
50	80	P	P	80
51	81	Q	Q	81
52	82	R	R	82
53	83	S	S	83
54	84	T	T	84
55	85	U	U	85
56	86	V	V	86
57	87	W	W	87
58	88	X	X	88
59	89	Y	Y	89
5A	90	Z	Z	90
5B	91	[	[	91
5C	92	\	\	92
5D	93	]	]	93
5E	94	^	^	94
5F	95	_	_	95
60	96		`	96
61	97		a	97
62	98		b	98
63	99		c	99
64	100		d	
65	101		e	
66	102		f	
67	103		g	
68	104		h	
69	105		i	
6A	106		j	
6B	107		k	
6C	108		l	
6D	109		m	
6E	110		n	

d		Character		
Hex.	Decimal	CODE A	CODE B	CODE C
6F	111		o	
70	112		p	
71	113		q	
72	114		r	
73	115		s	
74	116		t	
75	117		u	
76	118		v	
77	119		w	
78	120		x	
79	121		y	
7A	122		z	
7B, 7B	123, 123		{	
7C	124		|	
7D	125		}	
7E	126		~	
7F	127		DEL	

d		Special Characters		
Hex.	Decimal	CODE A	CODE B	CODE C
7B, 31	123, 49	FNC1	FNC1	FNC1
7B, 33	123, 51	FNC3	FNC3	
20	32	SP	SP	SP
28	40	(	(	(
29	41	)	)	)
2A	42	*	*	*

5.1.8. GS1 Databar Omnidirectional

Sends 13 digits of data except for AI (application identifiers) and check digits.
AI (“01”) is added automatically.
One check digit is added automatically.
When HRI printing is enabled, 18 digits of [“(01)”, (d1...d13), check digit] are printed by the HRI.
When the setting for the bar code height is smaller than [module width x33], the bar code height is printed at the [module width x33]. (Except for HRI heights)

5.1.9. GS1 Databar Truncated

Sends 13 digits of data except for AI (application identifiers) and check digits.
AI (“01”) is added automatically.
One check digit is added automatically.
When HRI printing is enabled, 18 digits of [“(01)”, (d1...d13), check digit] are printed by the HRI.
When the setting for the bar code height is smaller than [module width x13], the bar code height is printed at the [module width x13]. (Except for HRI heights)

5.1.10. GS1 Databar Limited

Sends 13 digits of data except for AI (application identifiers) and check digits.
When HRI printing is enabled, 18 digits of [“(01)”, (d1...d13), check digit] are printed by the HRI.
When the setting for the bar code height is smaller than [module width x10], the bar code height is printed at the [module width x10]. (Except for HRI heights)

5.1.11. GS1 Databar Expanded

When sending special characters (FNC1) or “(“,”)”, the following double-byte data is sent.

	Send data		
Data	ASCII	Hex.	Decimal
FNC1	{ + 1	7B + 31	123 + 49
(	{ + (	7B + 28	123 + 40
)	{ +)	7B + 29	123 + 41

The special character (“(“,”)”) is processed as shown in the following table.

Special characters			
character	Hex.	Decimal	
(	28	40	“(“ is entered in the HRI character. AI can be highlighted by using in combination with “)”. “) “ is not encoded.
)	29	41	The first “)” after d1 is handled as an AI and the data divider. “)” is entered in the HRI character. “) “ is not encoded.

When HRI character printing is enabled, special characters are handled in the HRI as shown below.
Control characters (FNC1) are not printed.
Special characters (“(“,”)”) are printed.
Bar code data [“{“ + (“(“, “)”)] is printed as (“(“, “)”).

When the setting for the bar code height is smaller than [module width x34], the bar code height is printed at the [module width x34]. (Except for HRI heights)

5.2. Appendix 2: Status Specifications

5.2.1. ENQ Command Status

This status is the one the printer transmits using the ENQ command.

Bit	Contents	Status		Model Compatability											
		"0"	"1"	TSP800	TSP700	TSP600	TUP900	TSP1000	TSP828L	TSP700II	TSP650	TUP500	TSP800	FVP10	TSP650II
7	Conversion SW	OPEN	CLOSE	OK	OK	OK	No	NO	NO	OK	OK	NO	OK	OK	OK
6	Overrun Error	No	Yes	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
5	Reception Buffer Empty	Has Data	Empty	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
4	Fixed at "0"		-	-	-	-	-	-	-	-	-	-	-	-	-
3	Paper end	Paper	No Paper	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
2	Other Errors	No	Yes	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
1	Framing Error	No	Yes	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
0	Parity Error	No	Yes	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK

• Overrun errors/Framing errors/Parity errors

These errors occur when using a serial I/F.

These errors are after holding the error and using this command to inquire the status and the error status is sent.

• Other Errors

Indicates non-recoverable errors and cover open errors.

5.2.2. EOT Command Status

This status is the one the printer transmits using the EOT command.

Bit	Contents	Status		Model Compatability											
		"0"	"1"	TSP800	TSP700	TSP600	TUP900	TSP1000	TSP828L	TSP700II	TSP650	TSP800	FVP10	TSP650II	
7	Compulsion SW	OPEN	CLOSE -	OK	OK	OK	-	-	-	OK	OK	NO	NO	OK	
6	Presenter Paper Jam Error	No	Yes	No	No	No	OK	No	NO	NO	NO	NO	NO	NO	
5	Paper Near-end (Outer Side)	Paper	No Paper	No	No	No	No	No	NO	NO	NO	-	-	NO	
4	Fixed at "1"		-	-	-	-	-	-	-	-	-	-	-	-	
3	Paper end	Paper	No Paper	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	
2	Paper Near-end (Inner Side)	Paper	No Paper	OK	OK	OK	OK	OK	NO	OK	OK	OK	OK	OK	
1	BINDING MEDIA Error	No	Yes	No	No	No	OK	OK	OK	OK	NO	OK	OK	NO	
0	Fixed at "0"		-	-	-	-	-	-	-	-	-	-	-	-	

• BM Error

On models that use a common PE and BM sensor, if a continuous error is detected beyond a determined amount, it indicates not a black mark error, but a paper out error.

5.2.3. Automatic Status

Automatic status is a group of states that are automatically returned from the printer to the host when the printer's status has changed. Automatic status is composed of "Header – 1," "Header – 2" and "plurality of bytes of the printer status and is continuously returned to the host. The host always uses an identifying method to identify the data for every byte received.
(It is possible that Xon/Xoff codes are exceptionally mixed in the automatic status in the Xon/Xoff mode (when using a serial I/F), so it is necessary to consider that on the receiving side.)
The valid/invalid conditions of the automatic status abide by the DIPSW settings for the initial values.
It is possible to change the conditions using the ESC RS a n command after turning ON the power.
Also, it is possible to get the automatic status using the ESC ACK SOH command, regardless of the valid/invalid conditions.

1. Header – 1

Header – 1 is the 1 byte length information transmitted at the head of the automatic status.
The table below shows the composition of the Header – 1. Header – 1 represents the entire status transmission byte count, including Header – 1, using bit 1 to bit 3 and bit 5. The host gets the transmission byte information and always receives the status data for that amount transmission bytes. For reference, the table below shows the relationship of actual transmission bytes and the Header – 1. Because the bit 0 that indicates that this is the Header – 1 is normally 1 (the second byte and beyond is 0), to detect the Header – 1, it is acceptable to verify that bit 0 is 1 and bit 4 = 0 for this data. Note that bit 6 is for future expansion and is ignored in host-side processes.

<Header – 1 (First Byte)>

Bit	Contents	Status		Model Compatability											
		"0"	"1"	TSP800	TSP700	TSP600	TUP900	TSP1000	TSP828L	TSP700II	TSP650	TUP500	TSP800II	FVP10	TSP650II
7	Fixed at "0"		-	-	-	-	-	-	-	-	-	-	-	-	-
6	Reserved (Fixed at "0")		-	-	-	-	-	-	-	-	-	-	-	-	-
5	Printer Status Byte Count			OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
4	Fixed at "0"		-	-	-	-	-	-	-	-	-	-	-	-	-
3	Printer Status Byte Count			OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
2	Printer Status Byte Count			OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
1	Printer Status Byte Count			OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
0	Fixed at "1"	-		-	-	-	-	-	-	-	-	-	-	-	-

Actual transmission byte count and header – 1 table

Transmission Byte Count n ($7 \leq n \leq 15$)	Header – 1
7	00001111B (0F Hex)
8	00100001B (21 Hex)
9	00100011B (23 Hex)
10	00100101B (25 Hex)
11	00100111B (27 Hex)
12	00101001B (29 Hex)
13	00101011B (2B Hex)
14	00101101B (2D Hex)
15	00101111B (2F Hex)

2. Header -2

Header -2 is the 1 byte length information transmitted from the second byte of the automatic status. The table below shows the composition of the Header -2.

Header -2 represents the automatic status version (called automatic status version below) using bit 1 to bit 3 and bit 5. For reference, the table below shows the relationship of actual version bytes and the Header -2. The automatic status version will be used as new information is added to the printer status bit positions that were empty, by adding new functions in the future.

When the host does not control the automatic status version, it is acceptable to ignore Header – 2 received.

<Header -2 (Second Byte)>

Bit	Contents	Status		Model Compatability											
		"0"	"1"	TSP800	TSP700	TSP600	TUP900	TSP1000	TSP828L	TSP700II	TSP650	TUP500	TSP800II	FVP10	TSP650II
7	ASB Status Expansion	No Expansion	Expansion	-	-	-	-	-	-	-	-	-	-	-	-
6	Not Used (Fixed at "0")		-	-	-	-	-	-	-	-	-	-	-	-	-
5	Version No.			OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
4	Fixed at "0"		-	-	-	-	-	-	-	-	-	-	-	-	-
3	Version No.			OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
2	Version No.			OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
1	Version No.			OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
0	Fixed at "0"	-		-	-	-	-	-	-	-	-	-	-	-	-

Actual automatic status version and header -2 table

Version No. n	Header -2
1	00000010B (02 Hex)
2	00000100B (04 Hex)
3	00000110B (06 Hex)
4	00001000B (08 Hex)
5	00001010B (0A Hex)
6	00001100B (0C Hex)
7	00001110B (0E Hex)
8	00100000B (20 Hex)
9	00100010B (22 Hex)
• • •	• • •
30	01101100B (6C Hex)
31	01101110B (6E Hex)

Printer Status Version

Model Name	Version No.	Status
TSP800	1 (02 Hex)	Up to printer status 5 (7th byte) loaded
	1 (02 Hex)	Up to printer status 6 (8th byte) loaded, Ver 4.0 and later
	3 (06 Hex)	Up to printer status 7 (9th byte) loaded, Ver 4.3 and later
TSP700	1 (02 Hex)	Up to printer status 5 (7th byte) loaded
	1 (02 Hex)	Up to printer status 6 (8th byte) loaded, Ver 3.0 and later
	3 (06 Hex)	Up to printer status 7 (9th byte) loaded, Ver 3.2 and later
TSP600	1 (02 Hex)	Up to printer status 5 (7th byte) loaded
	1 (02 Hex)	Up to printer status 6 (8th byte) loaded, Ver 3.0 and later
	3 (06 Hex)	Up to printer status 7 (9th byte) loaded, Ver 3.2 and later
TUP900	2 (04 Hex)	Up to printer status 6 (8th byte) loaded
	3 (06 Hex)	Up to printer status 7 (9th byte) loaded, Ver 1.2 and later
TSP1000, TSP800L, TSP700II, TSP650, TUP500,TSP800II FVP10,TSP650II	3 (06 Hex)	Up to printer status 7 (9th byte) loaded

3. Printer Status

Printer status is the status of the printer sent from the third byte of the automatic status.

Printer status is returned for (transmitted byte count – 2 in Header – 1).

Printer status is always updated for new information. (No log exists.) The following shows the composition of the status.

<Printer status 1 Printer status (Third Byte)>

Bit	Contents	Status		Model Compatability											
		"0"	"1"	TSP800	TSP700	TSP600	TUP900	TSP1000	TSP828L	TSP700II	TSP650	TUP500	TSP800II	FVP10	TSP650II
7	Fixed at "0"		-	-	-	-	-	-	-	-	-	-	-	-	-
6	OFFLINE By Switch Input	No	Yes	No	No	No	No	No	NO	NO	NO	-	NO	NO	NO
5	Cover Status	Closed	Open	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
4	Fixed at "0"		-	-	-	-	-	-	-	-	-	-	-	-	-
3	ONLINE/OFFLINE Status	ONLINE	OFFLINE	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
2	Conversion SW	Open	Closed	OK	OK	OK	No	No	NO	OK	OK	NO	OK	OK	OK
1	<ETB> Command	Not Executed	Executed	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
0	Fixed at "0"		-	-	-	-	-	-	-	-	-	-	-	-	-

• <ETB> Command

Cleared when received at the host (by clearing bit 1 to 0, automatic status is not targeted to occur).

<Printer status 2 Error Information (Fourth Byte)>

Bit	Contents	Status		Model Compatability											
		"0"	"1"	TSP800	TSP700	TSP600	TUP900	TSP1000	TSP828L	TSP700II	TSP650	TUP500	TSP800II	FVP10	TSP650II
7	Fixed at "0"		-	-	-	-	-	-	-	-	-	-	-	-	-
6	Stopped by high head temperature	Not stopped	Stopped	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
5	Non-recoverable Error	No	Yes	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
4	Fixed at "0"		-	-	-	-	-	-	-	-	-	-	-	-	-
3	Auto-cutter Error	No	Yes	OK	OK	OK	OK	OK	NO	OK	OK	OK	OK	OK	OK
2	Mechanical Error	No	Yes	No	No	No	No	No	NO	NO	NO	-	NO	NO	NO
	Head Thermistor Error	No	Yes	-	-	-	-	-	-	-	-	OK	-	-	-
1	Not Used (Fixed at "0")			-	-	-	-	-	-	-	-	-	-	-	-
0	Fixed at "0"		-	-	-	-	-	-	-	-	-	-	-	-	-

<Printer status 3 Error Information (Fifth Byte)>

Bit	Contents	Status		Model Compatability											
		"0"	"1"	TSP800	TSP700	TSP600	TUP900	TSP1000	TSP828L	TSP700II	TSP650	TUP500	TSP800II	FVP10	TSP650II
7	Fixed at "0"		-	-	-	-	-	-	-	-	-	-	-	-	-
6	Receive Buffer Overflow	No	Yes	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
5	Command Error (in Page Mode)	No	Yes	OK	No	No	No	No	NO	NO	NO	X	NO	NO	NO
4	Fixed at "0"		-	-	-	-	-	-	-	-	-	-	-	-	-
3	BM Error	No	Yes	No	No	No	OK	OK	OK*	OK	NO	OK	OK	OK	NO
2	Presenter Paper Jam Error	No	Yes	No	No	No	OK	No	NO	NO	NO	OK	NO	NO	NO
1	Head Up Error	No	Yes	No	No	No	No	No	NO	NO	NO	-	NO	NO	NO
	Electric Voltage Error	No	Yes	-	-	-	-	-	-	-	-	OK	-	-	-
0	Fixed at "0"		-	-	-	-	-	-	-	-	-	-	-	-	-

• Receive Buffer Overflow

Overflow errors cleared to 0 when returned to host.

• Command Error (in Page Mode)

Command errors cleared to 0 when returned to host.

• BM Error

On models that use a common PE and BM sensor, if a continuous error is detected beyond a determined amount, it indicates not a black mark error, but a paper out error.

(*) TSP828L (Label Printer) BM errors occur for the following reasons.

TSP828L Operation Mode	Sensor Used	Cause of BM Errors
Tear Bar Mode	Transmissive Type	Detected label paper over 400 mm Detected base paper over 400 mm Detected page error (When MSW is valid) When length error detected (When MSW is valid)
	Reflective Type	Detected label paper over 400 mm Detected page error (When MSW is valid) When length error detected (When MSW is valid)
Peel Mode	Transmissive Type	Detected label paper over 400 mm Detected base paper over 400 mm Detected page error When length error detected (When MSW is valid)
	Reflective Type	Detected label paper over 400 mm Detected page error When length error detected (When MSW is valid)

<Printer status 4 Sensor Information (Sixth Byte)>

Bit	Contents	Status		Model Compatability											
		"0"	"1"	TSP800	TSP700	TSP600	TUP900	TSP1000	TSP828L	TSP700II	TSP650	TUP500	TSP800II	FVP10	TSP650II
7	Fixed at "0"		-	-	-	-	-	-	-	-	-	-	-	-	-
6	Not Used (Fixed at "0")		-	-	-	-	-	-	-	-	-	-	-	-	-
5	Not Used (Fixed at "0")		-	-	-	-	-	-	-	-	-	-	-	-	-
4	Fixed at "0"		-	-	-	-	-	-	-	-	-	-	-	-	-
3	Paper end	Paper	No Paper	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
2	Paper Near-end (Inner Side)	Paper	No Paper	OK	OK	OK	OK	OK	NO	OK	OK	OK	OK	OK	OK
1	Paper Near-end (Outer Side)	Paper	No Paper	No	No	No	No	No	NO	NO	NO	NO	NO	NO	NO
0	Fixed at "0"		-	-	-	-	-	-	-	-	-	-	-	-	-

<Printer status 5 Sensor Information (Seventh Byte)>

Bit	Contents	Status		Model Compatability											
		"0"	"1"	TSP800	TSP700	TSP600	TUP900	TSP1000	TSP828L	TSP700II	TSP650	TUP500	TSP800II	FVP10	TSP650II
7	Fixed at "0"		-	-	-	-	-	-	-	-	-	-	-	-	-
6	Not Used (Fixed at "0")		-	-	-	-	-	-	-	-	-	-	-	-	-
5	Not Used (Fixed at "0")		-	-	-	-	-	-	-	-	-	-	-	-	-
4	Fixed at "0"		-	-	-	-	-	-	-	-	-	-	-	-	-
3	Slip BOF Detector	Paper	No Paper	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
2	Slip TOF Detector	Paper	No Paper	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
1	Presenter Paper Detector	No Paper	Paper	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
	Stack Sensor Detector	No Paper	Paper	NO	NO	NO	NO	OK	NO	NO	NO	NO	NO	NO	NO
	Peel Sensor Detector	No Paper	Paper	NO	NO	NO	NO	NO	OK	NO	NO	NO	NO	NO	NO
0	Fixed at "0"		-	-	-	-	-	-	-	-	-	-	-	-	-

<Printer status 6 ETB Counter (Eighth Byte)>

Bit	Contents	Status		Model Compatability											
		"0"	"1"	TSP800	TSP700	TSP600	TUP900	TSP1000	TSP828L	TSP700II	TSP650	TUP500	TSP800II	FVP10	TSP650II
7	Fixed at 0		-	-	-	-	-	-	-	-	-	-	-	-	-
6	ETB Counter Bit-4			OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
5	ETB Counter Bit-3			OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
4	Fixed at 0		-	-	-	-	-	-	-	-	-	-	-	-	-
3	ETB Counter Bit-2			OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
2	ETB Counter Bit-1			OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
1	ETB Counter Bit-0			OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
0	Fixed at 0		-	-	-	-	-	-	-	-	-	-	-	-	-

(*) ETB Counter

This counter is the 5 bit ETB counter.
(It counts from 0 to 31. When the counter overflows, it counts up from 31 to 0.)
This counter is incremented by 1 using the <ETB> command.
The ETB counter is initialized by the following commands. When doing so, ASB ETB status is cleared.
However, when initializing the ETB counter, ASB is not transmitted.

<ETB Counter Initialization Commands>
• <ESC> <RS> E n : ETB Counter Initialization
• <CAN> : Cancel print data and initialize commands

<Printer status 7 Position for Presenter Paper (Ninth Byte)>

Bit	Contents	Status		By model											
		"0"	"1"	TSP800 Ver. 4.3 or later	TSP700 Ver. 3.2 or later	TSP600 Ver. 3.2 or later	TUP900 Ver. 1.2 or later	TSP1000	TSP828L	TSP700II	TSP650	TUP500	TSP800II	FVP10	TSP650II
7	Fixed at "0"		-	-	-	-	-	-	-	-	-	-	-	-	-
6	Not Used (Fixed at "0")		-	NO	NO	NO	OK	NO	NO	NO	NO	NO	NO	NO	NO
5	Not Used (Fixed at "0")		-	NO	NO	NO	OK	NO	NO	NO	NO	NO	NO	NO	NO
4	Fixed at "0"		-	-	-	-	-	-	-	-	-	-	-	-	-
3	Presenter Paper Position	(See table below)		NO	NO	NO	OK	NO	NO	NO	NO	OK	NO	NO	NO
2	Presenter Paper Position	(See table below)		NO	NO	NO	OK	NO	NO	NO	NO	OK	NO	NO	NO
1	Presenter Paper Position	(See table below)		NO	NO	NO	OK	NO	NO	NO	NO	OK	NO	NO	NO
0	Fixed at "0"		-	-	-	-	-	-	-	-	-	-	-	-	-

• This status is valid only on models provided with a presenter. Models not provided with a presenter should send this status fixed at "0."

• This status is made valid and invalid using the memory switch only on models provided with a presenter.

When valid, the presenter paper position status is updated, but when invalid, the presenter paper position status is fixed at "0" and there is no change in status.

• Details of the Presenter Paper Position

bit 3	bit 2	bit 1	Presenter Paper Position
0	0	0	Paper position 0 State where there is no paper in presenter
0	0	1	Paper position 1 State where paper is supplied (loop state)
0	1	0	Paper position 2 (Reserved)
0	1	1	Paper position 3 State where paper is discharged (Can be pulled out)
1	0	0	Paper position 4 (Reserved)
1	0	1	Paper position 5 (Reserved)
1	1	0	Paper position 6 State where paper is recovered
1	1	1	Paper position 7 State where paper is pulled out.

• Presenter operation mode: Paper position status transition

Operating Mode	Paper	Presenter paper position state transition
Loop Take-up Internal recovery	Recovery	Position 0 to Position 1 to (Paper cut) to Position 3 to (Paper recovery) to Position 6 to Position 0
	Pull out	Position 0 to Position 1 to (Paper cut) to Position 3 to (Paper pull out) to Position 7 to Position 0
Loop Take-up Front Discharge	Recovery	Position 0 to Position 1 to (Paper cut) to Position 3 to (Paper pull out) to Position 6 to Position 0
	Pull out	Position 0 to Position 1 to (Paper cut) to Position 3 to (Paper pull out) to Position 7 to Position 0
No Loop Internal recovery	Recovery	Position 0 to Position 1 to (Paper cut) to Position 3 to (Paper pull out) to Position 6 to Position 0
	Pull out	Position 0 to Position 1 to (Paper cut) to Position 3 to (Paper pull out) to Position 7 to Position 0
No Loop Front Discharge	Recovery	Position 0 to Position 1 to (Paper cut) to Position 3 to (Paper pull out) to Position 6 to Position 0
	Pull out	Position 0 to Position 1 to (Paper cut) to Position 3 to (Paper pull out) to Position 7 to Position 0
Recovery Invalid	Recovery	Position 0 to Position 1 to (Paper cut) to Position 6 to Position 0
	Pull out	Position 0 to Position 1 to (Paper cut) to Position 6 to Position 0

4. Note

Do not use ENQ, EOT, and ESC ACK SOH when automatic status is valid. Invalidate the automatic status in advance using the DIPSW (memory switch) or the ESC RS a n command to query these.

5. Status identification method

Command/Functions	Status							
	bit7	bit6	bit5	bit4	bit3	bit2	bit1	bit0
XON	0	0	0	1	0	0	0	1
XOFF	0	0	0	1	0	0	1	1
ENQ	*	*	*	0	*	*	*	*
EOT	*	*	*	1	*	*	*	0
ASB (Header – 1)	0	*	*	0	*	*	*	1
ASB (Other than Header – 1)	0	*	*	0	*	*	*	0

Indicates “0” bit is fixed at 0/Indicates 1 is fixed at 1/Indicates * variable bit.

5.2.4 Printer status transmission specification when using Ethernet I/F and Wireless LAN I/F

The following describes printer status transmission specifications when using an Ethernet I/F and wireless LAN I/F.

1) Transmission Format:

• When transmitting only STAR ASB:
STAR ASB (Second Byte Bit 7 = 1) + Length (Length = 0x0000)
• When transmitting printer status other than STAR ASB:
STAR ASB (Second Byte Bit 7 = 1) + Length + Status Data

<Length Details>
• 2 byte value indicating status data byte count (0x0000 ≦ Length ≦ 0x0200)
• When the status data is 10 bytes: Length = 0x000a
• Apply Length = 0x0000 to only transmit STAR ASB.
• When STAR ASB Second Byte Bit-7 is applied with Length, set to Bit-7 = 1

In analysis of printer statuses, the total number of bytes of the ASB according to the STAR ASB First byte is detected, and it is detected whether Length has been applied by the second byte Bit-7 of STAR ASB. Depending on the length, by acquiring subsequent status data byte counts, it is possible to analyze the status.

2) Status data transmission format

Status type + separator character 1 + data type + status length + *printer status* + separator character 2

1. Status Type (2byte or 4Byte)
• First and Second Bytes
Indicate the cause to generate a printer status.
• “00”: Reserved
• “01” to ”09”: Star real-time status request command
• ”10” to ”49”: Star status request command
• “50”: Reserved
• “51” to ”59”: Reserved
• “60” to ”99”: Reserved
• “A0” to “FF”: Reserved
• Third and Fourth Bytes
When a cause occurs, these indicate the command n parameter.
If there is no n parameter, the third and fourth bytes can be omitted.
<Ex.> When n = 0x31 using the ESC SYN 3 n command, the third and fourth bytes are “31.”

2. Separator character 1 (1 Byte)
Sends ":"

3. Data Type (1byte)
Indicate printer status data; sends "B" (binary type).

4. Status Length (2 bytes)
2 byte value indicating printer status byte count.

5. Printer Status (Variable length)
Status sent by printer.
Status differs according to the cause.
See the command causes and automatic status for details on the content of statuses.

6. Separator character 2 (1 Byte)
Sends ";"

3) Status Transmission Specification List

Status Cause	STAR ASB	Length	Status Data						
			Status Type		Separated Character 1	Data Type	Status Length	Printer Status	Separated Character 2
			First/Second Bytes Cause	Third/Fourth Bytes n Parameter					
ASB Automatic Status	ASB	0x0000	--	--	--	--	--	--	--
ESC ACK SOH Printer Status Request	ASB	0x0000	--	--	--	--	--	--	--
ENQ Printer Status Request	ASB	0x0008	"01"	Omitted	":"	"B"	0x0001	Status	";"
EOT Printer Status Request	ASB	0x0008	"02"	Omitted	":"	"B"	0x0001	Status	";"
ESC SYN 3 n Presenter Counter Request	ASB	0x0011	"13"	"00" ≦ n ≦ "01" "30" ≦ n ≦ "31"	":"	"B"	0x0008	Status	";"
ESC GS x I PDF417 Information Request	ASB	0x000C	"16"	Omitted	":"	"B"	0x0005	Status	";"
ESC GS y I QR Code Information Request	ASB	0x000D	"19"	Omitted	":"	"B"	0x0006	Status	";"
ESC GS ETX n1 n2 Print End Counter Request	ASB	0x000F	"20"	Omitted	":"	"B"	0x0008	Status	";"
GS (L / GS 8 L fn48, 51, 64 ESC GS L fn50 Command response request	ASB	Variable length	"A1"	Omitted	":"	B"	Variable length	Black Data	";"

(*1) Automatic status is distributed to all hosts connected to the TCP#9,100 port.

* Installed MSW region is different depending on the model.

5.3. Appendix 3: Blank Code Page Configuration

Blank code pages are character code tables that are empty from character code 80H to FFH. They can be specified using the command below.

- ESC GS t n (n=255)

Also, it is possible to write data to the blank code page area using the command below.

- ESC GS = ...

1. Example configuration of Font A data. (12 x 24 font)

	MSB							LSB		MSB							LSB
d1									d2					0	0	0	0
d3					•	•	•	•	d4					0	0	0	0
d5			•	•	•	•	•	•	d6	•	•			0	0	0	0
d7			•	•					d8	•	•			0	0	0	0
d9		•	•						d10		•	•		0	0	0	0
d11		•	•						d12		•	•		0	0	0	0
d13		•	•						d14		•	•		0	0	0	0
d15									d16		•	•		0	0	0	0
d17									d18	•	•			0	0	0	0
d19									d20	•	•			0	0	0	0
d21								•	d22	•				0	0	0	0
d23							•	•	d24					0	0	0	0
d25							•	•	d26					0	0	0	0
d27						•	•		d28					0	0	0	0
d29					•	•	•		d30					0	0	0	0
d31				•	•	•			d32					0	0	0	0
d33				•	•				d34					0	0	0	0
d35			•	•					d36					0	0	0	0
d37		•	•	•					d38					0	0	0	0
d39		•	•	•	•	•	•	•	d40	•	•	•		0	0	0	0
d41		•	•	•	•	•	•	•	d42	•	•	•		0	0	0	0
d43									d44					0	0	0	0
d45									d46					0	0	0	0
d47									d48					0	0	0	0

Fig. A-1 12 x 24 Font

2. Example configuration of Font B data. (9 x 24 font)
The STAR mode is not loaded with Font B. However, when registering data, Font A and Font B must be registered as a set. When doing so, Font B data can be zero data.

	MSB							LSB		MSB							LSB
d1									d2		0	0	0	0	0	0	0
d3				•	•	•			d4		0	0	0	0	0	0	0
d5			•	•	•	•	•		d6		0	0	0	0	0	0	0
d7			•	•		•	•	•	d8		0	0	0	0	0	0	0
d9		•	•				•	•	d10		0	0	0	0	0	0	0
d11		•	•				•	•	d12		0	0	0	0	0	0	0
d13		•	•				•	•	d14		0	0	0	0	0	0	0
d15							•	•	d16		0	0	0	0	0	0	0
d17							•	•	d18		0	0	0	0	0	0	0
d19							•	•	d20		0	0	0	0	0	0	0
d21						•	•	•	d22		0	0	0	0	0	0	0
d23					•	•	•	•	d24		0	0	0	0	0	0	0
d25					•	•	•		d26		0	0	0	0	0	0	0
d27				•	•	•			d28		0	0	0	0	0	0	0
d29			•	•	•				d30		0	0	0	0	0	0	0
d31			•	•					d32		0	0	0	0	0	0	0
d33			•	•					d34		0	0	0	0	0	0	0
d35		•	•	•					d36		0	0	0	0	0	0	0
d37		•	•	•					d38		0	0	0	0	0	0	0
d39		•	•	•	•	•	•	•	d40		0	0	0	0	0	0	0
d41		•	•	•	•	•	•	•	d42		0	0	0	0	0	0	0
d43									d44		0	0	0	0	0	0	0
d45									d46		0	0	0	0	0	0	0
d47									d48		0	0	0	0	0	0	0

Fig. A-2 9 x 24 Font

5.4. Appendix 4 Maximum Number of Input Characters for Each Version of QR Code

1) Model 1 Version and Maximum Number of Input Characters

Version	Cell Count on One Side	Mistake Correction Level	Number of Characters	English Characters	Binary	Kanji
1	21	L	40	24	17	10
		M	33	20	14	8
		Q	25	15	11	6
		H	16	10	7	4
2	25	L	81	49	34	20
		M	66	40	28	17
		Q	52	31	22	13
		H	33	20	14	8
3	29	L	131	79	55	33
		M	100	60	42	25
		Q	81	49	34	20
		H	52	31	22	13
4	33	L	186	113	78	48
		M	138	84	58	35
		Q	114	69	48	29
		H	76	46	32	19
5	37	L	253	154	106	65
		M	191	116	80	49
		Q	157	95	66	40
		H	105	63	44	27
6	41	L	321	194	134	82
		M	249	151	104	64
		Q	201	122	84	51
		H	133	81	56	34
7	45	L	402	244	168	103
		M	311	188	130	80
		Q	253	154	106	65
		H	167	101	70	43
8	49	L	493	299	206	126
		M	378	229	158	97
		Q	301	183	126	77
		H	203	123	85	52
9	53	L	585	354	244	150
		M	441	267	184	113
		Q	369	223	154	94
		H	239	145	100	61
10	57	L	690	418	287	177
		M	526	319	219	135
		Q	433	262	180	111
		H	291	176	121	74
11	61	L	800	485	333	205
		M	608	368	253	156
		Q	493	299	205	126
		H	342	207	142	87
12	65	L	915	555	381	234
		M	694	421	289	178
		Q	579	351	241	148
		H	390	236	162	100
13	69	L	1030	624	429	264
		M	790	479	329	202
		Q	656	398	273	168
		H	454	275	189	116
14	73	L	1167	707	486	299
		M	877	531	365	225
		Q	738	447	307	189
		H	498	302	207	127

2) Model 2 Version and Maximum Number of Input Characters

Version	Cell Count on One Side	Mistake Correction Level	Number of Characters	English Characters	Binary	Kanji
1	21	L	41	25	17	10
		M	34	20	14	8
		Q	27	16	11	7
		H	17	10	7	4
2	25	L	77	47	32	20
		M	63	38	26	16
		Q	48	29	20	12
		H	34	20	14	8
3	29	L	127	77	53	32
		M	101	61	42	26
		Q	77	47	32	20
		H	58	35	24	15
4	33	L	187	114	78	48
		M	149	90	62	38
		Q	111	67	46	28
		H	82	50	34	21
5	37	L	255	154	106	65
		M	202	122	84	52
		Q	144	87	60	37
		H	106	64	44	27
6	41	L	322	195	134	82
		M	255	154	106	65
		Q	178	108	74	45
		H	139	84	58	36
7	45	L	370	224	154	95
		M	293	178	122	75
		Q	207	125	86	53
		H	154	93	64	39
8	49	L	461	279	192	118
		M	365	221	152	93
		Q	259	157	108	66
		H	202	122	84	52
9	53	L	552	335	230	141
		M	432	262	180	111
		Q	312	189	130	80
		H	235	143	98	60
10	57	L	652	395	271	167
		M	513	311	213	131
		Q	364	221	151	93
		H	288	174	119	74
11	61	L	772	468	321	198
		M	604	366	251	155
		Q	427	259	177	109
		H	331	200	137	85
12	65	L	883	535	367	226
		M	691	419	287	177
		Q	489	296	203	125
		H	374	227	155	96
13	69	L	1022	619	425	262
		M	796	483	331	204
		Q	580	352	241	149
		H	427	259	177	109
14	73	L	1101	667	458	282
		M	871	528	362	223
		Q	621	376	258	159
		H	468	283	194	120
15	77	L	1250	758	520	320
		M	991	600	412	254
		Q	703	426	292	180
		H	530	321	220	136

Version	Cell Count on One Side	Mistake Correction Level	Number of Characters	English Characters	Binary	Kanji
16	81	L	1408	854	586	361
		M	1082	656	450	277
		Q	775	470	322	198
		H	602	365	250	154
17	85	L	1548	938	644	397
		M	1212	734	504	310
		Q	876	531	364	224
		H	674	408	280	173
18	89	L	1725	1046	718	442
		M	1346	816	560	345
		Q	948	574	394	243
		H	746	452	310	191
19	93	L	1903	1153	792	488
		M	1500	909	624	384
		Q	1063	644	442	272
		H	813	493	338	208
20	97	L	2061	1249	858	528
		M	1600	970	666	410
		Q	1159	702	482	297
		H	919	557	382	235
21	101	L	2232	1352	929	572
		M	1708	1035	711	438
		Q	1224	742	509	314
		H	969	587	403	248
22	105	L	2409	1460	1003	618
		M	1872	1134	779	480
		Q	1358	823	565	348
		H	1056	640	439	270
23	109	L	2620	1588	1091	672
		M	2059	1248	857	528
		Q	1468	890	611	376
		H	1108	672	461	284
24	113	L	2812	1704	1171	721
		M	2188	1326	911	561
		Q	1588	963	661	407
		H	1228	744	511	315
25	117	L	3057	1853	1273	784
		M	2395	1451	997	614
		Q	1718	1041	715	440
		H	1286	779	535	330
26	121	L	3283	1990	1367	842
		M	2544	1542	1059	652
		Q	1804	1094	751	462
		H	1425	864	593	365
27	125	L	3514	2132	1465	902
		M	2701	1637	1125	692
		Q	1933	1172	805	496
		H	1501	910	625	385
28	129	L	3669	2223	1528	940
		M	2857	1732	1190	732
		Q	2085	1263	868	534
		H	1581	958	658	405
29	133	L	3909	2369	1628	1002
		M	3035	1839	1264	778
		Q	2181	1322	908	559
		H	1677	1016	698	430
30	137	L	4158	2520	1732	1066
		M	3289	1994	1370	843
		Q	2358	1429	982	604
		H	1782	1080	742	457

Version	Cell Count on One Side	Mistake Correction Level	Number of Characters	English Characters	Binary	Kanji
31	141	L	4417	2677	1840	1132
		M	3486	2113	1452	894
		Q	2473	1499	1030	634
		H	1897	1150	790	486
32	145	L	4686	2840	1952	1201
		M	3693	2238	1538	947
		Q	2670	1618	1112	684
		H	2022	1226	842	518
33	149	L	4965	3009	2068	1273
		M	3909	2369	1628	1002
		Q	2805	1700	1168	719
		H	2157	1307	898	553
34	153	L	5253	3183	2188	1347
		M	4134	2506	1722	1060
		Q	2949	1787	1228	756
		H	2301	1394	958	590
35	157	L	5529	3351	2303	1417
		M	4343	2632	1809	1113
		Q	3081	1867	1283	790
		H	2361	1431	983	605
36	161	L	5836	3537	2431	1496
		M	4588	2780	1911	1176
		Q	3244	1966	1351	832
		H	2524	1530	1051	647
37	165	L	6153	3729	2563	1577
		M	4775	2894	1989	1224
		Q	3417	2071	1423	876
		H	2625	1591	1093	673
38	169	L	6479	3927	2699	1661
		M	5039	3054	2099	1292
		Q	3599	2181	1499	923
		H	2735	1658	1139	701
39	173	L	6743	4087	2809	1729
		M	5313	3220	2213	1362
		Q	3791	2298	1579	972
		H	2927	1774	1219	750
40	177	L	7089	4296	2953	1817
		M	5596	3391	2331	1435
		Q	3993	2420	1663	1024
		H	3057	1852	1273	784

5.5. Appendix 5 TSP800L Cut Command Specifications

<Line Mode>

Command		Normal Thermal Paper	Label Paper	
			Tear Bar	Peel Mode
<FF>		Form Feed	Label Gap Detection	Label Gap Detection + Peeling Position Conveyance
<ESC> d n	n = 0, 48 n = 1, 49	Tear Bar Position Conveyance	Label Gap Detection + Tear Bar Position Conveyance	Label Gap Detection + Peeling Position Conveyance
	n = 2, 50 n = 3, 51 n = 116 (“t”)	Tear Bar Position Conveyance	Label Gap Detection + Tear Bar Position Conveyance	Label Gap Detection + Peeling Position Conveyance

<Raster Mode FF/EOT>

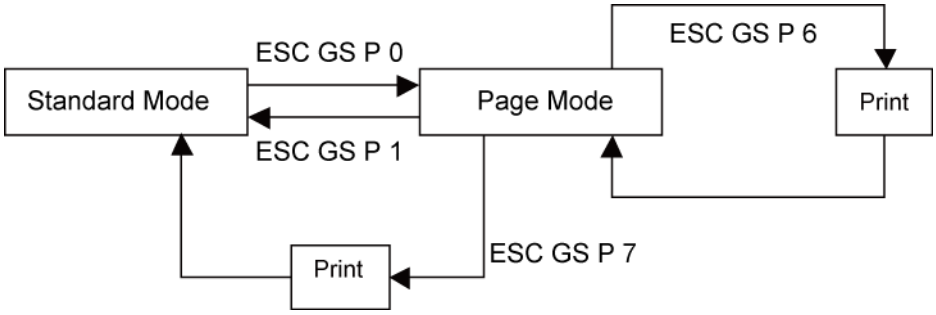
Command		Normal Thermal Paper	Label Paper	
			Tear Bar	Peel Mode
Form Feed	Valid	Print	Print + Label Gap Detection	Print + Label Gap Detection
	Invalid	Print	Print + Label Gap Detection	Print + Label Gap Detection
Cut Feed	Valid	Tear Bar Position Conveyance	Tear Bar Position Conveyance	Peeling Position Conveyance
	Invalid	---	---	Peeling Position Conveyance

5.6. Appendix 6 Explanation of Page Mode

5-6-1. Overview

This printer is equipped with two print modes. They are standard and page mode.
In standard mode, the printer prints and feeds paper each time it receives the print and paper feed instructions, but the print and paper feed instructions received in page mode are executed on the print region on the specified memory and the printer does not operate. Then, when the ESC GS P6 or ESC GS P7 commands are executed, the printer batch expands data to the printing region and prints. In other words, when printing and performing a line feed for data of "ABCDEF" <LF>, in standard mode, "ABCDEF" is printed and paper is fed one line. In page mode, however, "ABCDEF" is written to the print region specified on the memory, and one line is moved on the memory to write the next print data. This printer will enter page mode using ESC GS P 0. Commands received thereafter are all processed as page mode. By running ESC GS P 6, you can lump-print received data. Also, by running ESC GS P 7, you can return to standard mode after lump printing received data. You can return to standard mode without printing page mode print data using ESC GS P 1. However, print data will be cleared.

<Transitioning to Standard Mode and Page Mode>



5-6-2. Setting Values Using Each Command in Standard Mode and Page Mode

· The values set by each command are shared by both standard and page modes. However, only the settings of the following commands are independently set.
→ ESC 0, ESC M, ESC P, ESC :, ESC g, ESC SP, ESC 0, ESC z, ESC 1, ESC D, ESC P, ESC s, ESC t, ESC p

· The following commands are invalid in page mode.
→ ESC GS c, ESC GS) B, ESC RS m, ESC RS A, ESC GS M, ESC GS r, ESC GS %, ESC GS * 0, ESC RS C, ESC *, ESC RS r
ESC RS L, ESC FS p, VT, FF,

• The maximum number of dots is prescribed in standard mode, but the y directions (the x direction when there is no rotation) when printing is rotated 90 or 270º are larger than that. For details, see the setting (ESC GS P 3) command of the print region in page mode.

5-6-3. Print Data Expansion to the Print Region

Expanding print data to the print region is performed in the following way.

(1) The print region is set by ESC GS P 3, but when all printing and paper feeds are ended before the printer receives ESC GS P 3 the left edge when facing the printer becomes the origin of the print region (x0, y0). The print region is a square shape using dx pitch for the x direction (horizontal direction) and dy pitch for the y direction (perpendicular direction) as sides, including the origin point from the origin points (x0, y0). (When ESC GS P 3 is not set, the initial value is the print region.)

(2) When the print region is set by ESC GS P 3, and the printer receives print data after the print direction is set by ESC GS P 2, point A in Fig. 2.3.1 becomes the starting point initial value, and the print data is expanded in the print region. For characters, this starting point is the base line. Downloaded bit images and bar codes are expanded using the lower left-hand point of the image data as the baseline (Point B in Fig. 5.9.3.1). However, HRI characters with a bottom bar code are printed below the base line. When expanding characters (double-tall characters) higher than the standard character height and download bit images and the like at the starting point, the portion higher than the standard characters is not printed.

(3) If the print data is out of the print region (including character right spaces) before receiving commands that accompany line feeds (LF, ESC J and the like), the line feed is automatically performed in the print region, and the expansion position of the print data is moved one line so the next expansion position is at the top of the line. The line feed amount at that time uses the line feed amount set by ESC 0 and ESC 1.

Fig. 5.6.3.1 Expansion Position of Character Data

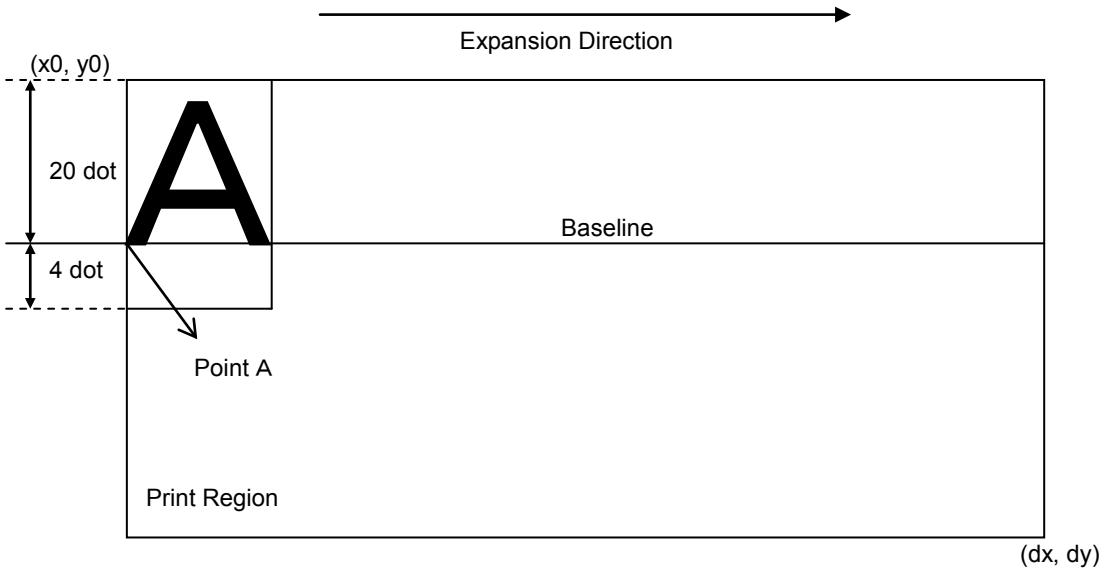
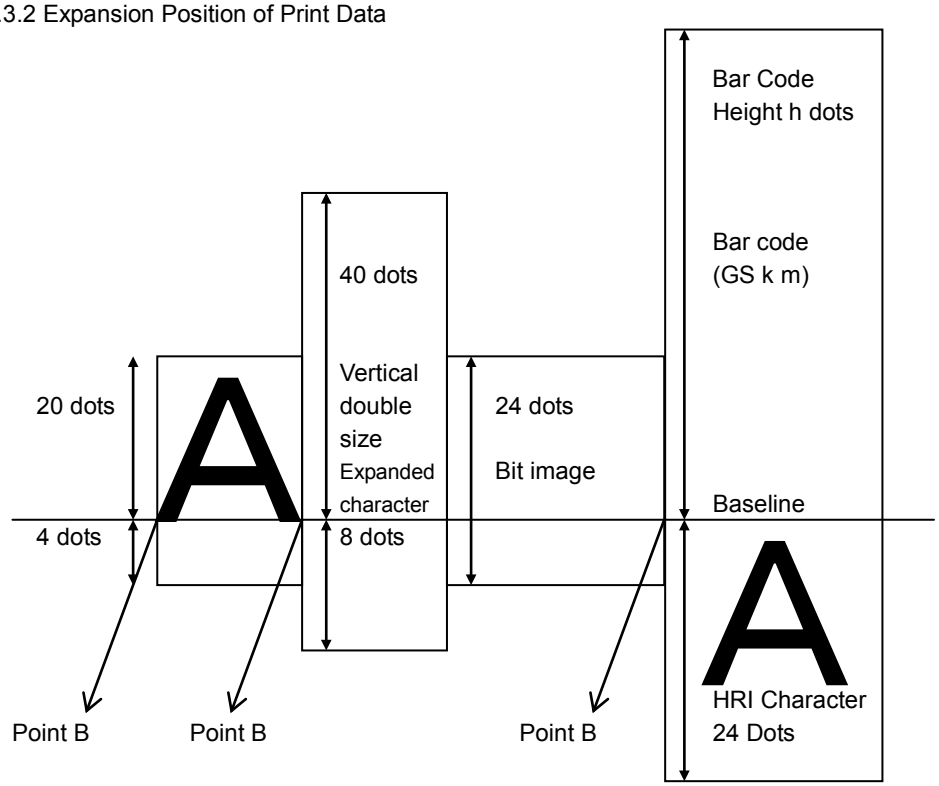


Fig. 5.6.3.2 Expansion Position of Print Data



5.7. Appendix 7 Explanation of Print Startup Control Starting Printing When Set to Page Units

When print startup control is set to page units, printing starts when the image buffer length is full or the following commands are run.
If the following commands are not received, start printing after a 1-second timeout.
For details on image buffer length and how to set print startup control, see the product specifications manual.

Print starting trigger

- Cutter command : <ESC> d n
- FF command : <FF>
- BM detection command : <ESC> d n, <FF>
- Print startup command : <ESC><GS> g 0 m n
- Raster mode : <ESC> <FF> <NUL>
  : <ESC> <FF> <EOT>

5.8. Appendix 8 Printing NV Bit Images Defined by "GS (L <fn=67>" or "GS 8 L <fn=67>" with "FS p"

Some NV bit images defined by key codes (kc1 and kc2) using "GS (L <fn=67>" or "GS 8 L <fn=67>" can be printed with "FS p n."

The following table indicates the correspondence between parameters. Note that <SP> in the table indicates "space" (Hex: 20h).

n	kc1	kc2
1	0	1
2	0	2
3	0	3
4	0	4
5	0	5
6	0	6
7	0	7
8	0	8
9	0	9
10	1	0
11	1	1
12	1	2
13	1	3
14	1	4
15	1	5
16	1	6
17	1	7
18	1	8
19	1	9
20	2	0
21	2	1
22	2	2
23	2	3
24	2	4
25	2	5
26	2	6
27	2	7
28	2	8
29	2	9
30	3	0
31	3	1
32	3	2
33	3	3
34	3	4
35	3	5
36	3	6
37	3	7
38	3	8
39	3	9
40	4	0
41	4	1
42	4	2
43	4	3
44	4	4
45	4	5
46	4	6
47	4	7
48	4	8
49	4	9
50	5	0
51	5	1
52	5	2
53	5	3
54	5	4
55	5	5
56	5	6
57	5	7
58	5	8
59	5	9
60	6	0
61	6	1
62	6	2
63	6	3
64	6	4
65	6	5
66	6	6
67	6	7
68	6	8
69	6	9
70	7	0
71	7	1
72	7	2
73	7	3
74	7	4
75	7	5
76	7	6
77	7	7
78	7	8
79	7	9
80	8	0
81	8	1
82	8	2
83	8	3
84	8	4
85	8	5
86	8	6
87	8	7
88	8	8
89	8	9
90	9	0
91	9	1
92	9	2
93	9	3
94	9	4
95	9	5
96	9	6
97	9	7
98	9	8
99	9	9
100	<SP>	<SP>
101	<SP>	!
102	<SP>	"
103	<SP>	#
104	<SP>	$
105	<SP>	%
106	<SP>	&
107	<SP>	'
108	<SP>	(
109	<SP>	)
110	<SP>	*
111	<SP>	+
112	<SP>	,
113	<SP>	-
114	<SP>	.
115	<SP>	/
116	<SP>	0
117	<SP>	1
118	<SP>	2
119	<SP>	3
120	<SP>	4
121	<SP>	5
122	<SP>	6
123	<SP>	7
124	<SP>	8
125	<SP>	9
126	<SP>	:
127	<SP>	;
128	<SP>	<
129	<SP>	=
130	<SP>	>
131	<SP>	?
132	<SP>	@
133	<SP>	A
134	<SP>	B
135	<SP>	C
136	<SP>	D
137	<SP>	E
138	<SP>	F
139	<SP>	G
140	<SP>	H
141	<SP>	I
142	<SP>	J
143	<SP>	K
144	<SP>	L
145	<SP>	M
146	<SP>	N
147	<SP>	O
148	<SP>	P
149	<SP>	Q
150	<SP>	R
151	<SP>	S
152	<SP>	T
153	<SP>	U
154	<SP>	V
155	<SP>	W
156	<SP>	X
157	<SP>	Y
158	<SP>	Z
159	<SP>	[
160	<SP>	¥
161	<SP>	]
162	<SP>	^
163	<SP>	_
164	<SP>	`
165	<SP>	a
166	<SP>	b
167	<SP>	c
168	<SP>	d
169	<SP>	e
170	<SP>	f
171	<SP>	g
172	<SP>	h
173	<SP>	i
174	<SP>	j
175	<SP>	k
176	<SP>	l
177	<SP>	m
178	<SP>	n
179	<SP>	o
180	<SP>	p
181	<SP>	q
182	<SP>	r
183	<SP>	s
184	<SP>	t
185	<SP>	u
186	<SP>	v
187	<SP>	w
188	<SP>	x
189	<SP>	y
190	<SP>	z
191	<SP>	{
192	<SP>	|
193	<SP>	}
194	<SP>	~
195	!	<SP>
196	!	!
197	!	"
198	!	#
199	!	$
200	!	%
201	!	&
202	!	'
203	!	(
204	!	)
205	!	*
206	!	+
207	!	,
208	!	-
209	!	.
210	!	/
211	!	0
212	!	1
213	!	2
214	!	3
215	!	4
216	!	5
217	!	6
218	!	7
219	!	8
220	!	9
221	!	:
222	!	;
223	!	<
224	!	=
225	!	>
226	!	?
227	!	@
228	!	A
229	!	B
230	!	C
231	!	D
232	!	E
233	!	F
234	!	G
235	!	H
236	!	I
237	!	J
238	!	K
239	!	L
240	!	M
241	!	N
242	!	O
243	!	P
244	!	Q
245	!	R
246	!	S
247	!	T
248	!	U
249	!	V
250	!	W
251	!	X
252	!	Y
253	!	Z
254	!	[
255	!	¥

5.9. Appendix 9 Special Specifications when the Bluetooth Interface (IFBD-HB03) is used

5-9-1) Self-printing

1) When the Bluetooth information is printed at the end of self-printing, the communication with the host device is terminated.
   Therefore, if you continue to transmit data using commands after self-printing, you need to open the virtual COM port again.

6. SPECIAL APPENDIX COMMAND LIST FOR EACH MODEL IN EACH I/F

6.1. RS-232C I/F

• Standard Commands

Commands	Model Name											
	TSP800	TSP700	TSP600	TUP900	TSP1000	TSP800L	TSP700II	TSP650	TUP500	TSP800II	FVP10	TSP650II
ESC RS F	NO	NO	NO	NO	OK	OK	OK	OK	OK	OK	OK	OK
ESC GS t	Spec. A	Spec. A	Spec. A	Spec. A	Spec. A	Spec. A	Spec. A Before Ver. 4.0 Spec. C Ver.4.1 or later	Spec. A Before Ver. 3.1 Spec. B Ver.3.2 or later	Spec. A	Spec. A Before Ver. 1.5 Spec. C Ver.1.6 or later	Spec. A Before Ver. 1.4 Spec. C Ver.1.5 or later	Spec. B Before Ver. 1.1 Spec. D Ver.1.2 or later
ESC GS =	Ver. 3.0 or later	Spec. A	Spec. A	Spec. A	Spec. A	Spec. A	Spec. B	Spec. B	Spec. B	Spec. B	Spec. B	Spec. B
ESC R	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
ESC /	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
ESC SP	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
ESC M	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
ESC P	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
ESC :	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
ESC p (Not recommended)	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
ESC g	Spec. A	Spec. A	Spec. A	Spec. B	Spec. B	Spec. B	Spec. A	Spec. A	Spec. B	Spec. A	Spec. A	Spec. A
ESC i	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
ESC W	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
ESC h	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
SO	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
DC4	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
ESC SO	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
ESC DC4	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
ESC E	Spec. A	Spec. A	Spec. A	Spec.A Before Ver. 4.4 Spec. B Ver. 5.0 or later	Spec. A	Spec. A	Spec. A Before Ver. 2.0 Spec. B Ver. 2.0 or later	Spec. A Before Ver. 2.0 Spec. B Ver. 2.0 or later	Spec. A Before Ver. 2.0 Spec. B Ver. 2.0 or later	Spec. B	Spec. B	Spec. B
ESC F	Spec. A	Spec. A	Spec. A	Spec. B	Spec. B	Spec. B	Spec. A Before V. 2.0 Spec. B V. 2.0 or later	Spec. A Before V. 2.0 Spec. B V. 2.0 or later	Spec. A Before V. 2.0 Spec. B V. 2.0 or later	Spec. B	Spec. B	Spec. B
ESC -	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
ESC _	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
ESC 4	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
ESC 5	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
SI	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
DC2	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
ESC GS b	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	OK
LF	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
CR	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
ESC a	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
ESC z	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
ESC 0	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
ESC J	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
ESC I	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
FF	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
ESC C	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
ESC C 0	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
VT	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
ESC B	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
ESC I	Spec. A	Spec. A	Spec. A	Spec. B	Spec. B	Spec. B	Spec. A	Spec. A	Spec. B	Spec. A	Spec. A	Spec. A
ESC Q	Spec. A	Spec. A	Spec. A	Spec. B	Spec. B	Spec. B	Spec. A	Spec. A	Spec. B	Spec. A	Spec. A	Spec. A
HT	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
ESC D	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
ESC GS A	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
ESC GS R	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
ESC GS a	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
ESC &	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
ESC %	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
ESC K	Spec. A	Spec. A	Spec. A	Spec. A	Spec. A	Spec. A	Spec. B	Spec. B	Spec. B	Spec. B	Spec. B	Spec. B
ESC L	Spec. A	Spec. A	Spec. A	Spec. A	Spec. A	Spec. A	Spec. B	Spec. B	Spec. B	Spec. B	Spec. B	Spec. B
ESC k	Spec. A	Spec. A	Spec. A	Spec. A	Spec. A	Spec. A	Spec. B	Spec. B	Spec. B	Spec. B	Spec. B	Spec. B
ESC X	Spec. A	Spec. A	Spec. A	Spec. A	Spec. A	Spec. A	Spec. B	Spec. B	Spec. B	Spec. B	Spec. B	Spec. B
ESC FS q	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
ESC FS p	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
ESC RS L	NO	NO	NO	NO	NO	NO	Spec. A for V. 1.2 or earier; Spec. B for V. 1.3 or later	Spec. B	Spec. B	Spec. B	Spec. B	Spec. B

Commands	Model Name											
	TSP800	TSP700	TSP600	TUP900	TSP1000	TSP800L	TSP700II	TSP650	TUP500	TSP800II	FVP10	TSP650II
ESC b	Spec. A	Spec. A	Spec. A	Spec. B	Spec. B	Spec. B	Spec. B	Spec. B	Spec. B	Spec. B	Spec. B	Spec. B V. 1.2 or earier; Spec. C for V. 2.0 or lat
ESC d	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
ESC BEL	OK	OK	OK	NO	NO	NO	NO	OK	NO	OK	OK	OK
BEL	OK	OK	OK	NO	NO	NO	NO	OK	NO	OK	OK	OK
FS	OK	OK	OK	NO	NO	NO	NO	OK	NO	OK	OK	OK
SUB	OK	OK	OK	NO	NO	NO	NO	OK	NO	OK	OK	OK
EM	OK	OK	OK	NO	NO	NO	NO	OK	NO	OK	OK	OK
ESC GS BEL	NO	Ver. 5.0 or later	NO	NO	OK	NO	NO	OK	NO	OK	OK	OK
ESC GS EM DC1	NO	NO	NO	NO	NO	NO	After Ver. 1.3	OK	NO	OK	OK	OK
ESC GS EM DC2	NO	NO	NO	NO	NO	NO	After Ver. 1.3	OK	NO	OK	OK	OK
ESC RS d	Spec. A	Spec. A	Spec. A	Spec. A	Spec. A	Spec. A	Spec. A Ver. 3.0 or earlier Spec. B Ver. 3. or later	Spec. A Ver. 3.0 or earlier Spec. B Ver. 3. or later	Spec. A Ver. 3.0 or earlier Spec. B Ver. 3. or later	Spec. B	Spec. B	Spec. B
ESC RS r	Spec. A	Spec. A	Spec. A	Spec. A	Spec. A	Spec. A	Spec. A	Spec. A	Spec. B	Spec. A	Spec. A	Spec. A
ESC RS a	Spec. A	Spec. A	Spec. A	Spec. A Ver. 1.2 or earlier Spec. B Ver. 1.2 or later	Spec. B	Spec. B	Spec. B Ver. 2.0 or earlier Spec. C Ver. 2. or later	Spec. B Ver. 2.0 or earlier Spec. C Ver. 2. or later	Spec. C	Spec. C	Spec. C	Spec. C
ESC ACK SOH	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
ENQ	OK	OK	OK	OK	OK	OK	Spec. A Ver. 2.0 or earlier Spec. B Ver. 2. or later	Spec. A Ver. 2.0 or earlier Spec. B Ver. 2. or later	Spec. A Ver. 2.0 or earlier Spec. B Ver. 2. or later	Spec. B	Spec. B	Spec. B
EOT	OK	OK	OK	OK	OK	OK	Spec. A Ver. 2.0 or earlier Spec. B Ver. 2. or later	Spec. A Ver. 2.0 or earlier Spec. B Ver. 2. or later	Spec. A Ver. 2.0 or earlier Spec. B Ver. 2. or later	Spec. B	Spec. B	Spec. B
ESC ACK CAN	No	No	No	No	No	NO	OK	OK	OK	OK	OK	OK
ETB	Spec. A	Spec. A	Spec. A	Spec. B	Spec. B	Spec. B	Spec. B	Spec. B	Spec. B	Spec. B	Spec. B	Spec. B
ESC RS E	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
ESC GS ETX	NO	NO	NO	Spec.B Ver.5.0 or later	NO	NO	Spec. A Ver. 2.0 or earlier Spec. B Ver. 3.0 or later	Spec. A Ver. 2.0 or earlier Spec. B Ver. 3.0 or later	Spec. A Ver. 3.1 or earlier Spec. B Ver. 4.0 or later	OK	OK	Spec. B
ESC p	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
ESC q	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
ESC $	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
ESC s	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
ESC t	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
ESC r	Spec. A	Spec. A	Spec. A	Spec. B	Spec. B	Spec. B	Spec. B	Spec. B	Spec. B	Spec. B	Spec. B	Spec. B
CAN	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
ESC @	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
ESC GS # m	Spec. A VER. 3.0 OR LATER	Spec. A	Spec. A	Spec. B	Spec. B	Spec. B	Spec. B	Spec. B	Spec. B	Spec. C	Spec. C	Spec. C
ESC ?	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK

• Raster Commands

Commands	Model Name											
	TSP800	TSP700	TSP600	TUP900	TSP1000	TSP800L	TSP700II	TSP650	TUP500	TSP800II	FVP10	TSP650II
ESC * r R	NO	NO	NO	NO	OK	OK	OK	OK	OK	OK	OK	OK
ESC * r A	NO	NO	NO	NO	OK	OK	OK	OK	OK	OK	OK	OK
ESC * r B	NO	NO	NO	NO	OK	OK	OK	OK	OK	OK	OK	OK
ESC * r C	NO	NO	NO	NO	OK	OK	OK	OK	OK	OK	OK	OK
ESC * r D	NO	NO	NO	NO	OK	OK	OK	OK	OK	OK	OK	OK
ESC * r E	NO	NO	NO	NO	OK	OK	OK	OK	OK	OK	OK	OK
ESC * r F	NO	NO	NO	NO	OK	OK	OK	OK	OK	OK	OK	OK
ESC * r P	NO	NO	NO	NO	OK	OK	OK	OK	OK	OK	OK	OK
ESC * r Q	NO	NO	NO	NO	OK	OK	OK	OK	OK	OK	OK	OK
ESC * r m l	NO	NO	NO	NO	OK	OK	OK	OK	OK	OK	OK	OK
ESC * r m r	NO	NO	NO	NO	OK	OK	OK	OK	OK	OK	OK	OK
ESC * r T	NO	NO	NO	NO	OK	OK	OK	OK	OK	OK	OK	OK
ESC * r K	NO	NO	NO	NO	OK	OK	OK	OK	OK	OK	OK	OK
b n1 n2 d1...dk	NO	NO	NO	NO	OK	OK	OK	OK	OK	OK	OK	OK
k n1 n2 d1...dk	NO	NO	NO	NO	OK	OK	OK	OK	OK	OK	OK	OK
ESC * r Y	NO	NO	NO	NO	OK	OK	OK	OK	OK	OK	OK	OK
ESC FF NUL	NO	NO	NO	NO	OK	OK	OK	OK	OK	OK	OK	OK
ESC FF EOT	NO	NO	NO	NO	OK	OK	OK	OK	OK	OK	OK	OK
ESC * r N	NO	NO	NO	NO	NO	NO	Ver. 1.3 or later	OK	OK	OK	OK	OK
ESC * r V	NO	NO	NO	NO	NO	NO	Ver. 1.3 or later	OK	OK	OK	OK	OK
ESC * r e	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	OK	NO
ESC * r S	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	OK	NO
ESC * r s 0	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	OK	NO
ESC * r s 1	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	OK	NO
ESC * r s 2	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	OK	NO
ESC * r s 3	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	OK	NO

• Black Mark Related Commands

Commands	Model Name											
	TSP800	TSP700	TSP600	TUP900	TSP1000	TSP800L	TSP700II	TSP650	TUP500	TSP800II	FVP10	TSP650II
ESC d	OK	OK	OK	OK	OK	OK	OK	NO	OK	OK	OK	NO
FF	OK	OK	OK	OK	OK	OK	OK	NO	OK	OK	OK	NO
ESC C	OK	OK	OK	OK	OK	OK	OK	NO	OK	OK	OK	NO
ESC C 0	OK	OK	OK	OK	OK	OK	OK	NO	OK	OK	OK	NO
VT	OK	OK	OK	OK	OK	OK	OK	NO	OK	OK	OK	NO
ESC B	OK	OK	OK	OK	OK	OK	NO	NO	OK	OK	OK	NO

• 2-Color Printing Related Commands

Commands	Model Name											
	TSP800	TSP700	TSP600	TUP900	TSP1000	TSP800L	TSP700II	TSP650	TUP500	TSP800II	FVP10	TSP650II
ESC RS c	Ver. 4.0 or later	Ver. 2.0 or later	Ver. 2.0 or later	OK	OK	OK	OK	OK	OK	OK	OK	OK
ESC RS C	Spec. A Ver. 4.0 or later	Spec. A Ver. 2.0 or later	Spec. A Ver. 2.0 or later	Spec. B	Spec. B	Spec. B	Spec. C	Spec. A	Spec. C	Spec. C	Spec. C	Spec. A
ESC 4 (Not Recommended)	Ver. 4.0 or later	Ver. 2.0 or later	Ver. 2.0 or later	NO	NO	NO	NO	OK	NO	OK	NO	OK
ESC 5 (Not Recommended)	Ver. 4.0 or later	Ver. 2.0 or later	Ver. 2.0 or later	NO	NO	NO	NO	OK	NO	OK	NO	OK
ESC FS q	Ver. 4.0 or later	Ver. 2.0 or later	Ver. 2.0 or later	OK	OK	OK	OK	OK	OK	OK	OK	OK
ESC FS p	Ver. 4.0 or later	Ver. 2.0 or later	Ver. 2.0 or later	OK	OK	OK	OK	OK	OK	OK	OK	OK

• Presenter Related Commands

Commands	Model Name											
	TSP800	TSP700	TSP600	TUP900	TSP1000	TSP800L	TSP700II	TSP650	TUP500	TP800II	FVP10	TSP650II
ESC SYN 0	NO	NO	NO	OK	NO	NO	NO	NO	OK	NO	NO	NO
ESC SYN 1	NO	NO	NO	OK	NO	NO	NO	NO	OK	NO	NO	NO
ESC SYN 3	NO	NO	NO	OK	NO	NO	NO	NO	OK	NO	NO	NO
ESC SYN 4	NO	NO	NO	OK	NO	NO	NO	NO	OK	NO	NO	NO
ESC GS SUB DC1	NO	NO	NO	NO	NO	NO	NO	NO	OK	NO	NO	NO
ESC GS SUB DC2	NO	NO	NO	NO	NO	NO	NO	NO	OK	NO	NO	NO
ESC GS SUB DC3	NO	NO	NO	NO	NO	NO	NO	NO	OK	NO	NO	NO

• Mark Commands

Commands	Model Name											
	TSP800	TSP700	TSP600	TUP900	TSP1000	TSP800L	TSP700II	TSP650	TUP500	TSP800II	FVP10	TSP650II
ESC GS * 0	NO	Ver. 4.0 or later	NO	Ver. 3.0 or later	OK	OK	OK	OK	OK	OK	OK	OK
ESC GS * 1	NO	Ver. 4.0 or later	NO	Ver. 3.0 or later	OK	OK	OK	OK	OK	OK	OK	OK
ESC GS * 2	NO	Ver. 4.0 or later	NO	Ver. 3.0 or later	OK	OK	OK	OK	OK	OK	OK	OK
ESC GS * W	NO	Ver. 4.0 or later	NO	Ver. 3.0 or later	OK	OK	OK	OK	OK	OK	OK	OK
ESC GS * C	NO	Ver. 4.0 or later	NO	Ver. 3.0 or later	OK	OK	OK	OK	OK	OK	OK	OK

• Auto Logo Commands

Commands	Model Name											
	TSP800	TSP700	TSP600	TUP900	TSP1000	TSP800L	TSP700II	TSP650	TUP500	TSP800II	FVP10	TSP650II
ESC GS / W	NO	Ver. 4.0 or later	NO	NO	NO	NO	OK	OK	NO	OK	OK	OK
ESC GS / C	NO	Ver. 4.0 or later	NO	NO	NO	NO	OK	OK	NO	OK	OK	OK
ESC GS / 1	NO	Ver. 4.0 or later	NO	NO	NO	NO	OK	OK	NO	OK	OK	OK
ESC GS / 2	NO	Ver. 4.0 or later	NO	NO	NO	NO	OK	OK	NO	OK	OK	OK
ESC GS / 3	NO	Ver. 4.0 or later	NO	NO	NO	NO	OK	OK	NO	OK	OK	OK
ESC GS / 4	NO	Ver. 4.0 or later	NO	NO	NO	NO	OK	OK	NO	OK	OK	OK
ESC GS / 5	NO	Ver. 4.0 or later	NO	NO	NO	NO	OK	OK	NO	OK	OK	OK
ESC GS / 6	NO	Ver. 4.0 or later	NO	NO	NO	NO	OK	OK	NO	OK	OK	OK

• PDF417 Commands

Commands	Model Name											
	TSP800	TSP700	TSP600	TUP900	TSP1000	TSP800L	TSP700II	TSP650	TUP500	TSP800II	FVP10	TSP650II
ESC GS x S 0	NO	NO	NO	Ver. 3.1 or later	OK	OK	OK	NO	OK	OK	OK	OK
ESC GS x S 1	NO	NO	NO	Ver. 3.1 or later	OK	OK	OK	NO	OK	OK	OK	OK
ESC GS x S 2	NO	NO	NO	Ver. 3.1 or later	OK	OK	OK	NO	OK	OK	OK	OK
ESC GS x S 3	NO	NO	NO	Ver. 3.1 or later	OK	OK	OK	NO	OK	OK	OK	OK
ESC GS x D	NO	NO	NO	Ver. 3.1 or later	OK	OK	OK	NO	OK	OK	OK	OK
ESC GS x P	NO	NO	NO	Ver. 3.1 or later	OK	OK	OK	NO	OK	OK	OK	OK
ESC GS x I	NO	NO	NO	Ver. 3.1 or later	OK	OK	OK	NO	OK	OK	OK	OK V. 1.2 or earier; NO V. 2.0 or later

• Print Start Trigger Control Commands

Commands	Model Name											
	TSP800	TSP700	TSP600	TUP900	TSP1000	TSP800L	TSP700II	TSP650	TUP500	TSP800II	FVP10	TSP650II
ESC GS g 0	NO	NO	NO	NO	Ver. 1.1 or later	OK	OK	OK	OK	OK	OK	OK
ESC GS g 1	NO	NO	NO	NO	Ver. 1.1 or later	OK	OK	OK	OK	OK	OK	OK

• QR Commands

Commands	Model Name											
	TSP800	TSP700	TSP600	TUP900	TSP1000	TSP800L	TSP700II	TSP650	TUP500	TSP800II	FVP10	TSP650II
ESC GS y S 0	NO	NO	NO	NO	Ver. 1.2 or later	OK	OK	NO	OK	OK	OK	OK
ESC GS y S 1	NO	NO	NO	NO	Ver. 1.2 or later	OK	OK	NO	OK	OK	OK	OK
ESC GS y S 2	NO	NO	NO	NO	Ver. 1.2 or later	OK	OK	NO	OK	OK	OK	OK
ESC GS y D 1	NO	NO	NO	NO	Ver. 1.2 or later	OK	OK	NO	OK	OK	OK	OK
ESC GS y D 2	NO	NO	NO	NO	Ver. 1.2 or later	OK	OK	NO	OK	OK	OK	OK
ESC GS y P	NO	NO	NO	NO	Ver. 1.2 or later	OK	OK	NO	OK	OK	OK	OK
ESC GS y I	NO	NO	NO	NO	Ver. 1.2 or later	OK	OK	NO	OK	OK	OK	OK Ver. 1.2 or earlier NO Ver. 2.0 or later

• 2D GS1 code, Compound symbol Commands

Commands	Model Name											
	TSP800	TSP700	TSP600	TUP900	TSP1000	TSP800L	TSP700II	TSP650	TUP500	TSP800II	FVP10	TSP650II
ESC GS (k(cn=51,fn=67)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	Ver. 2.0 or later
ESC GS (k(cn=51,fn=71)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	Ver. 2.0 or later
ESC GS (k(cn=51,fn=80)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	Ver. 2.0 or later
ESC GS (k(cn=51,fn=81)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	Ver. 2.0 or later
ESC GS (k(cn=52,fn=67)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	Ver. 2.0 or later
ESC GS (k(cn=52,fn=71)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	Ver. 2.0 or later
ESC GS (k(cn=52,fn=72)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	Ver. 2.0 or later
ESC GS (k(cn=52,fn=80)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	Ver. 2.0 or later
ESC GS (k(cn=52,fn=81)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO

• Page Function Commands

Commands	Model Name											
	TSP800	TSP700	TSP600	TUP900	TSP1000	TSP800L	TSP700II	TSP650	TUP500	TSP800II	FVP10	TSP650II
ESC GS h 0	NO	NO	NO	NO	NO	NO	OK	NO	OK	OK	OK	OK
ESC GS h 1	NO	NO	NO	NO	NO	NO	OK	NO	OK	OK	OK	OK

• Reduced Printing Function Commands

Commands	Model Name											
	TSP800	TSP700	TSP600	TUP900	TSP1000	TSP800L	TSP700II	TSP650	TUP500	TSP800II	FVP10	TSP650II
ESC GS c	No	No	No	No	No	No	No	No	No	No	OK	OK

• Page Mode Commands

Commands	Model Name											
	TSP800	TSP700	TSP600	TUP900	TSP1000	TSP800L	TSP700II	TSP650	TUP500	TSP800II	FVP10	TSP650II
ESC GS P 0	No	No	No	No	No	No	No	No	No	No	OK	OK
ESC GS P 1	No	No	No	No	No	No	No	No	No	No	OK	OK
ESC GS P 2	No	No	No	No	No	No	No	No	No	No	OK	OK
ESC GS P 3	No	No	No	No	No	No	No	No	No	No	OK	OK
ESC GS P 4	No	No	No	No	No	No	No	No	No	No	OK	OK
ESC GS P 5	No	No	No	No	No	No	No	No	No	No	OK	OK
ESC GS P 6	No	No	No	No	No	No	No	No	No	No	OK	OK
ESC GS P 7	No	No	No	No	No	No	No	No	No	No	OK	OK
ESC GS P 8	No	No	No	No	No	No	No	No	No	No	OK	OK

• Text Search Commands

Commands	Model Name											
	TSP800	TSP700	TSP600	TUP900	TSP1000	TSP800L	TSP700II	TSP650	TUP500	TSP800II	FVP10	TSP650II
ESC GS) B (fn = 48)	No	No	No	No	No	No	No	No	No	No	OK	OK
ESC GS) B (fn = 49)	No	No	No	No	No	No	No	No	No	No	OK	OK
ESC GS) B (fn = 50)	No	No	No	No	No	No	No	No	No	No	OK	OK
ESC GS) B (fn = 64)	No	No	No	No	No	No	No	No	No	No	OK	OK
ESC GS) B (fn = 65)	No	No	No	No	No	No	No	No	No	No	OK	OK
ESC GS) B (fn=66)	No	No	No	No	No	No	No	No	No	No	No	OK
ESC GS) B (fn = 80)	No	No	No	No	No	No	No	No	No	No	OK	OK
ESC GS) B (fn = 81)	No	No	No	No	No	No	No	No	No	No	OK	OK
ESC GS) B (fn = 96)	No	No	No	No	No	No	No	No	No	No	OK	OK
ESC GS) B (fn = 97)	No	No	No	No	No	No	No	No	No	No	OK	OK

• Audio Commands

Commands	Model Name											
	TSP800	TSP700	TSP600	TUP900	TSP1000	TSP800L	TSP700II	TSP650	TUP500	TSP800II	FVP10	TSP650II
ESC GS s O	No	No	No	No	No	No	No	No	No	No	Yes	No
ESC GS s P	No	No	No	No	No	No	No	No	No	No	Yes	No
ESC GS s R	No	No	No	No	No	No	No	No	No	No	Yes	No
ESC GS s I	No	No	No	No	No	No	No	No	No	No	Yes	No
ESC GS s U	No	No	No	No	No	No	No	No	No	No	Yes	No
ESC GS s T	No	No	No	No	No	No	No	No	No	No	Yes	No

• Graphics Data Command

Commands	Model Name											
	TSP800	TSP700	TSP600	TUP900	TSP1000	TSP800L	TSP700II	TSP650	TUP500	TSP800II	FVP10	TSP650II
ESC GS (K (fn=49)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	OK
ESC GS (K (fn=50)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	OK
ESC GS (L (fn=48)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	OK
ESC GS (L (fn=51)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	OK
ESC GS (L (fn=64)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	OK
ESC GS (L (fn=65)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	OK
ESC GS (L (fn=66)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	OK
ESC GS (L (fn=67)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	OK
ESC GS (L (fn=69)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	OK
ESC GS (L (fn=112)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	OK
ESC GS 8 L (fn=48)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	OK
ESC GS 8 L (fn=51)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	OK
ESC GS 8 L (fn=64)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	OK
ESC GS 8 L (fn=65)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	OK
ESC GS 8 L (fn=66)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	OK
ESC GS 8 L (fn=67)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	OK
ESC GS 8 L (fn=69)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	OK
ESC GS 8 L (fn=112)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	OK

• Individual Logo Command

Commands	Model Name											
	TSP800	TSP700	TSP600	TUP900	TSP1000	TSP800L	TSP700II	TSP650	TUP500	TSP800II	FVP10	TSP650II
ESC GS) L (fn=48)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	OK
ESC GS) L (fn=49)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	OK
ESC GS) L (fn=50)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	OK

• Printer Information Transmission Command

Commands	Model Name											
	TSP800	TSP700	TSP600	TUP900	TSP1000	TSP800L	TSP700II	TSP650	TUP500	TSP800II	FVP10	TSP650II
ESC GS) I (fn=48)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	OK

6.2. Parallel I/F • USB I/F (Ver2.0) • Powered USB I/F

• Standard Commands

Commands	Model Name											
	TSP800	TSP700	TSP600	TUP900	TSP1000	TSP800L	TSP700II	TSP650	TUP500	TSP800II	FVP10	TSP650II
ESC RS F	NO	NO	NO	NO	OK	OK	OK	OK	OK	OK	OK	OK
ESC GS t	Spec. A	Spec. A	Spec. A	Spec. A	Spec. A	Spec. A	Spec. A Before Ver.4.0 Spec.C Ver.4.1 Or later	Spec. A Before Ver.3.1 Spec.B Ver.3.2 Or later	Spec. A	Spec. A Before Ver.1.5 Spec.C Ver.1.6 Or later	Spec. A Before Ver.1.4 Spec.C Ver.1.5 Or later	Spec. B Before Ver.1.1 Spec.D Ver.1.2 Or later
ESC GS =	Spec. A Rev.3.0 or later	Spec. A	Spec. A	Spec. A	Spec. A	Spec. A	Spec. B	Spec. B	Spec. B	Spec. B	Spec. B	Spec. B
ESC R	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
ESC /	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
ESC SP	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
ESC M	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
ESC P	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
ESC :	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
ESC p (Not recommended)	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
ESC g	Spec. A	Spec. A	Spec. A	Spec. B	Spec. B	Spec. B	Spec. A	Spec. A	Spec. B	Spec. A	Spec. A	Spec. A
ESC i	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
ESC W	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
ESC h	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
SO	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
DC4	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
ESC SO	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
ESC DC4	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
ESC E	Spec. A	Spec. A	Spec. A	Spec. A V. 4.4 or earlier Spec. B V. 5.0 or later	Spec. A	Spec. A	Spec. A V. 1.4 or earlier Spec. B V. 2.0 or later	Spec. A V. 1.4 or earlier Spec. B V. 2.0 or later	Spec. A V. 1.4 or earlier Spec. B V. 2.0 or later	Spec. B	Spec. B	Spec. B
ESC F	Spec. A	Spec. A	Spec. A	Spec. A	Spec. A	Spec. A	Spec. A V. 1.4 or earlier Spec. B V. 2.0 or later	Spec. A V. 1.4 or earlier Spec. B V. 2.0 or later	Spec. A V. 1.0 or earlier Spec. B V. 2.0 or later	Spec. A	Spec. A	Spec. B
ESC -	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
ESC _	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
ESC 4	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
ESC 5	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
SI	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
DC2	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
ESC GS b	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	OK
LF	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
CR	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
ESC a	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
ESC z	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
ESC 0	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
ESC J	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
ESC I	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
FF	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
ESC C	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
ESC C 0	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
VT	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
ESC B	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
ESC I	Spec. A	Spec. A	Spec. A	Spec. B	Spec. B	Spec. B	Spec. A	Spec. A	Spec. B	Spec. A	Spec. A	Spec. A
ESC Q	Spec. A	Spec. A	Spec. A	Spec. B	Spec. B	Spec. B	Spec. A	Spec. A	Spec. B	Spec. A	Spec. A	Spec. A
HT	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
ESC D	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
ESC GS A	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
ESC GS R	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
ESC GS a	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
ESC &	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
ESC %	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
ESC K	Spec. A	Spec. A	Spec. A	Spec. A	Spec. A	Spec. A	Spec. B	Spec. B	Spec. B	Spec. B	Spec. B	Spec. B
ESC L	Spec. A	Spec. A	Spec. A	Spec. A	Spec. A	Spec. A	Spec. B	Spec. B	Spec. B	Spec. B	Spec. B	Spec. B
ESC k	Spec. A	Spec. A	Spec. A	Spec. A	Spec. A	Spec. A	Spec. B	Spec. B	Spec. B	Spec. B	Spec. B	Spec. B
ESC X	Spec. A	Spec. A	Spec. A	Spec. A	Spec. A	Spec. A	Spec. B	Spec. B	Spec. B	Spec. B	Spec. B	Spec. B
ESC FS q	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
ESC FS p	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
ESC RS L	NO	NO	NO	NO	NO	NO	Spec. A V. 1.2 or earlier Spec. B V. 1.3 or later.	Spec. B	Spec. B	Spec. B	Spec. B	Spec. B

Commands	Model Name											
	TSP800	TSP700	TSP600	TUP900	TSP1000	TSP800L	TSP700II	TSP650	TUP500	TSP800II	FVP10	TSP650II
ESC b	Spec. A	Spec. A	Spec. A	Spec. B	Spec. B	Spec. B	Spec. B	Spec. B	Spec. B	Spec. B	Spec. B	Spec. B Ver. 1.2 or earlier Spec. C Ver. 2.0 or later
ESC d	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
ESC BEL	OK	OK	OK	NO	NO	NO	OK	OK	NO	OK	OK	OK
BEL	OK	OK	OK	NO	NO	NO	OK	OK	NO	OK	OK	OK
FS	OK	OK	OK	NO	NO	NO	OK	OK	NO	OK	OK	OK
SUB	OK	OK	OK	NO	NO	NO	OK	OK	NO	OK	OK	OK
EM	OK	OK	OK	NO	NO	NO	OK	OK	NO	OK	OK	OK
ESC GS BEL	NO	Ver. 5.0 or later	NO	NO	OK	NO	OK	OK	NO	OK	OK	OK
ESC GS EM DC1	NO	NO	NO	NO	NO	NO	Ver. 1.3 or later	OK	NO	OK	OK	OK
ESC GS EM DC2	NO	NO	NO	NO	NO	NO	Ver. 1.3 or later	OK	NO	OK	OK	OK
ESC RS d	Spec. A	Spec. A	Spec. A	Spec. A	Spec. A	Spec. A	Spec. A Ver. 3.0 or earlier Spec. B Ver. 3. or later	Spec. A Ver. 3.0 or earlier Spec. B Ver. 3. or later	Spec. A Ver. 3.0 or earlier Spec. B Ver. 3. or later	Spec. B	Spec. B	Spec. B
ESC RS r	Spec. A	Spec. A	Spec. A	Spec. A	Spec. A	Spec. A	Spec. A	Spec. A	Spec. B	Spec. A	Spec. A	Spec. A
ESC RS a	Spec. A	Spec. A	Spec. A	Spec. A Ver. 1.2 or earlier Spec. B Ver. 1.2 or later	Spec. B	Spec. B	Spec. B Ver. 2.0 or earlier Spec. C Ver. 2. or later	Spec. B Ver. 2.0 or earlier Spec. C Ver. 2. or later	Spec. C	Spec. C	Spec. C	Spec. C
ESC ACK SOH	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
ENQ	OK	OK	OK	OK	OK	OK	Spec. A Ver. 2.0 or earlier Spec. B Ver. 2. or later	Spec. A Ver. 2.0 or earlier Spec. B Ver. 2. or later	Spec. A Ver. 2.0 or earlier Spec. B Ver. 2. or later	Spec. B	Spec. B	Spec. B
EOT	OK	OK	OK	OK	OK	OK	Spec. A Ver. 2.0 or earlier Spec. B Ver. 2. or later	Spec. A Ver. 2.0 or earlier Spec. B Ver. 2. or later	Spec. A Ver. 2.0 or earlier Spec. B Ver. 2. or later	Spec. B	Spec. B	Spec. B
ESC ASK CAN	NO	NO	NO	NO	NO	NO	OK	OK	OK	OK	OK	OK
ETB	Spec. A	Spec. A	Spec. A	Spec. B	Spec. B	Spec. B	Spec. B	Spec. B	Spec. B	Spec. B	Spec. B	Spec. B
ESC RS E	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
ESC GS ETX	NO	NO	NO	Spec.B Ver.5.0 or later	NO	NO	Spec. A Ver. 2.0 or earlier Spec. B Ver. 3. or later	Spec. A Ver. 2.0 or earlier Spec. B Ver. 3. or later	Spec. A Ver. 3.1 or earlier Spec. B Ver. 4.0. or later	OK	OK	Spec. B
ESC p	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
ESC q	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
ESC $	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
ESC s	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
ESC t	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
ESC r	Spec. A	Spec. A	Spec. A	Spec. B	Spec. B	Spec. B	Spec. B	Spec. B	Spec. B	Spec. B	Spec. B	Spec. B
CAN	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
ESC @	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
ESC GS # m	Spec. A Ver. 3.0 or later	Spec. A	Spec. A	Spec. B	Spec. B	Spec. B	Spec. B	Spec. B	Spec. B	Spec. B	Spec. B	Spec. C
ESC ?	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK

• Raster Related Commands

Commands	Model Name											
	TSP800	TSP700	TSP600	TUP900	TSP1000	TSP800L	TSP700II	TSP650	TUP500	TSP800II	FVP10	TSP650II
ESC * r R	Ver. 2.0 or later	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
ESC * r A	Ver. 2.0 or later	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
ESC * r B	Ver. 2.0 or later	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
ESC * r C	Ver. 2.0 or later	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
ESC * r D	Ver. 2.0 or later	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
ESC * r E	Spec. A Ver. 2.0 or later	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
ESC * r F	Spec. A Ver. 2.0 or later	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
ESC * r P	Ver. 2.0 or later	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
ESC * r Q	Ver. 2.0 or later	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
ESC * r m l	Ver. 2.0 or later	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
ESC * r m r	Ver. 2.0 or later	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
ESC * r T	Ver. 2.0 or later	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
ESC * r K	Ver. 2.0 or later	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
b n1 n2 d1...dk	Ver. 2.0 or later	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
k n1 n2 d1...dk	Ver. 2.0 or later	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
ESC * r Y	Ver. 2.0 or later	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
ESC FF NUL	Ver. 2.0 or later	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
ESC FF EOT	Ver. 2.0 or later	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
ESC * r N	NO	NO	NO	NO	NO	NO	Ver. 1.3 or later	OK	OK	OK	OK	OK
ESC * r V	NO	NO	NO	NO	NO	NO	Ver. 1.3 or later	OK	OK	OK	OK	OK
ESC * r e	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	OK	NO
ESC * r S	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	OK	NO
ESC * r s 0	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	OK	NO
ESC * r s 1	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	OK	NO
ESC * r s 2	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	OK	NO
ESC * r s 3	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	OK	NO

• Black Mark Related Commands

Commands	Model Name											
	TSP800	TSP700	TSP600	TUP900	TSP1000	TSP800L	TSP700II	TSP650	TUP500	TSP800II	FVP10	TSP650II
ESC d	OK	OK	OK	OK	OK	OK	OK	NO	OK	OK	OK	NO
FF	OK	OK	OK	OK	OK	OK	OK	NO	OK	OK	OK	NO
ESC C	OK	OK	OK	OK	OK	OK	OK	NO	OK	OK	OK	NO
ESC C 0	OK	OK	OK	OK	OK	OK	OK	NO	OK	OK	OK	NO
VT	OK	OK	OK	OK	OK	OK	OK	NO	OK	OK	OK	NO
ESC B	OK	OK	OK	OK	OK	OK	OK	NO	OK	OK	OK	NO

• 2-Color Printing Related Commands

Commands	Model Name											
	TSP800	TSP700	TSP600	TUP900	TSP1000	TSP800L	TSP700II	TSP650	TUP500	TSP800II	FVP10	TSP650II
ESC RS c	Ver. 4.0 or later	Ver. 2.0 or later	Ver. 2.0 or later	OK	OK	OK	OK	OK	OK	OK	OK	OK
ESC RS C	Spec. A Ver. 4.0 or later	Spec. A Ver. 2.0 or later	Spec. A Ver. 2.0 or later	Spec. B	Spec. B	Spec. B	Spec. C	Spec. A	Spec. C	Spec. C	Spec. C	Spec. A
ESC 4 (Not Recommended)	Ver. 4.0 or later	Ver. 2.0 or later	Ver. 2.0 or later	NO	NO	NO	NO	OK	NO	OK	NO	OK
ESC 5 (Not Recommended)	Ver. 4.0 or later	Ver. 2.0 or later	Ver. 2.0 or later	NO	NO	NO	NO	OK	NO	OK	NO	OK
ESC FS q	Ver. 4.0 or later	Ver. 2.0 or later	Ver. 2.0 or later	OK	OK	OK	OK	OK	OK	OK	OK	OK
ESC FS p	Ver. 4.0 or later	Ver. 2.0 or later	Ver. 2.0 or later	OK	OK	OK	OK	OK	OK	OK	OK	OK

• Presenter Related Commands

Commands	Model Name											
	TSP800	TSP700	TSP600	TUP900	TSP1000	TSP800L	TSP700II	TSP650	TUP500	TSP800II	FVP10	TSP650II
ESC SYN 0	NO	NO	NO	OK	NO	NO	NO	NO	OK	NO	NO	NO
ESC SYN 1	NO	NO	NO	OK	NO	NO	NO	NO	OK	NO	NO	NO
ESC SYN 3	NO	NO	NO	OK	NO	NO	NO	NO	OK	NO	NO	NO
ESC SYN 4	NO	NO	NO	OK	NO	NO	NO	NO	OK	NO	NO	NO
ESC GS SUB DC1	NO	NO	NO	NO	NO	NO	NO	NO	OK	NO	NO	NO
ESC GS SUB DC2	NO	NO	NO	NO	NO	NO	NO	NO	OK	NO	NO	NO
ESC GS SUB DC3	NO	NO	NO	NO	NO	NO	NO	NO	OK	NO	NO	NO

• Mark Commands

Commands	Model Name											
	TSP800	TSP700	TSP600	TUP900	TSP1000	TSP800L	TSP700II	TSP650	TUP500	TSP800II	FVP10	TSP650II
ESC GS * 0	NO	Ver. 4.0 or later	NO	Ver. 3.0 or later	OK	OK	OK	OK	OK	OK	OK	OK
ESC GS * 1	NO	Ver. 4.0 or later	NO	Ver. 3.0 or later	OK	OK	OK	OK	OK	OK	OK	OK
ESC GS * 2	NO	Ver. 4.0 or later	NO	Ver. 3.0 or later	OK	OK	OK	OK	OK	OK	OK	OK
ESC GS * W	NO	Ver. 4.0 or later	NO	Ver. 3.0 or later	OK	OK	OK	OK	OK	OK	OK	OK
ESC GS * C	NO	Ver. 4.0 or later	NO	Ver. 3.0 or later	OK	OK	OK	OK	OK	OK	OK	OK

• Auto Logo Commands

Commands	Model Name											
	TSP800	TSP700	TSP600	TUP900	TSP1000	TSP800L	TSP700II	TSP650	TUP500	TSP800II	FVP10	TSP650II
ESC GS / W	NO	Ver. 4.0 or later	NO	NO	NO	NO	OK	OK	NO	OK	OK	OK
ESC GS / C	NO	Ver. 4.0 or later	NO	NO	NO	NO	OK	OK	NO	OK	OK	OK
ESC GS / 1	NO	Ver. 4.0 or later	NO	NO	NO	NO	OK	OK	NO	OK	OK	OK
ESC GS / 2	NO	Ver. 4.0 or later	NO	NO	NO	NO	OK	OK	NO	OK	OK	OK
ESC GS / 3	NO	Ver. 4.0 or later	NO	NO	NO	NO	OK	OK	NO	OK	OK	OK
ESC GS / 4	NO	Ver. 4.0 or later	NO	NO	NO	NO	OK	OK	NO	OK	OK	OK
ESC GS / 5	NO	Ver. 4.0 or later	NO	NO	NO	NO	OK	OK	NO	OK	OK	OK
ESC GS / 6	NO	Ver. 4.0 or later	NO	NO	NO	NO	OK	OK	NO	OK	OK	OK

• PDF417 Commands

Commands	Model Name											
	TSP800	TSP700	TSP600	TUP900	TSP1000	TSP800L	TSP700II	TSP650	TUP500	TSP800II	FVP10	TSP650II
ESC GS x S 0	NO	NO	NO	Ver. 3.1 or later	OK	OK	OK	NO	OK	OK	OK	OK
ESC GS x S 1	NO	NO	NO	Ver. 3.1 or later	OK	OK	OK	NO	OK	OK	OK	OK
ESC GS x S 2	NO	NO	NO	Ver. 3.1 or later	OK	OK	OK	NO	OK	OK	OK	OK
ESC GS x S 3	NO	NO	NO	Ver. 3.1 or later	OK	OK	OK	NO	OK	OK	OK	OK
ESC GS x D	NO	NO	NO	Ver. 3.1 or later	OK	OK	OK	NO	OK	OK	OK	OK
ESC GS x P	NO	NO	NO	Ver. 3.1 or later	OK	OK	OK	NO	OK	OK	OK	OK
ESC GS x I	NO	NO	NO	Ver. 3.1 or later	OK	OK	OK	NO	OK	OK	OK	OK Ver. 1.2 or earlier NO Ver. 2.0 or later

• Print Start Trigger Control Commands

Commands	Model Name											
	TSP800	TSP700	TSP600	TUP900	TSP1000	TSP800L	TSP700II	TSP650	TUP500	TSP800II	FVP10	TSP650II
ESC GS g 0	NO	NO	NO	NO	Ver. 1.1 or later	OK	OK	OK	OK	OK	OK	OK
ESC GS g 1	NO	NO	NO	NO	Ver. 1.1 or later	OK	OK	OK	OK	OK	OK	OK

• QR Commands

Commands	Model Name											
	TSP800	TSP700	TSP600	TUP900	TSP1000	TSP800L	TSP700II	TSP650	TUP500	TSP800II	FVP10	TSP650II
ESC GS y S 0	NO	NO	NO	NO	Ver. 1.2 or later	OK	OK	NO	OK	OK	OK	OK
ESC GS y S 1	NO	NO	NO	NO	Ver. 1.2 or later	OK	OK	NO	OK	OK	OK	OK
ESC GS y S 2	NO	NO	NO	NO	Ver. 1.2 or later	OK	OK	NO	OK	OK	OK	OK
ESC GS y D 1	NO	NO	NO	NO	Ver. 1.2 or later	OK	OK	NO	OK	OK	OK	OK
ESC GS y D 2	NO	NO	NO	NO	Ver. 1.2 or later	OK	OK	NO	OK	OK	OK	OK
ESC GS y P	NO	NO	NO	NO	Ver. 1.2 or later	OK	OK	NO	OK	OK	OK	OK
ESC GS y I	NO	NO	NO	NO	Ver. 1.2 or later	OK	OK	NO	OK	OK	OK	OK Ver. 1.2 or earlier NO Ver. 2.0 or later

• 2D GS1 code, Compound symbol Commands

Commands	Model Name											
	TSP800	TSP700	TSP600	TUP900	TSP1000	TSP800L	TSP700II	TSP650	TUP500	TSP800II	FVP10	TSP650II
ESC GS (k(cn=51,fn=67)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	Ver. 2.0 or later
ESC GS (k(cn=51,fn=71)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	Ver. 2.0 or later
ESC GS (k(cn=51,fn=80)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	Ver. 2.0 or later
ESC GS (k(cn=51,fn=81)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	Ver. 2.0 or later
ESC GS (k(cn=52,fn=67)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	Ver. 2.0 or later
ESC GS (k(cn=52,fn=71)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	Ver. 2.0 or later
ESC GS (k(cn=52,fn=72)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	Ver. 2.0 or later
ESC GS (k(cn=52,fn=80)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	Ver. 2.0 or later
ESC GS (k(cn=52,fn=81)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO

• Page Function Commands

Commands	Model Name											
	TSP800	TSP700	TSP600	TUP900	TSP1000	TSP800L	TSP700II	TSP650	TUP500	TSP800II	FVP10	TSP650II
ESC GS h 0	NO	NO	NO	NO	NO	NO	OK	NO	OK	OK	OK	OK
ESC GS h 1	NO	NO	NO	NO	NO	NO	OK	NO	OK	OK	OK	OK

• Reduced Printing Function Commands

Commands	Model Name											
	TSP800	TSP700	TSP600	TUP900	TSP1000	TSP800L	TSP700II	TSP650	TUP500	TSP800II	FVP10	TSP650II
ESC GS c	No	No	No	No	No	No	No	No	No	No	Yes	OK

• Page Mode Commands

Commands	Model Name											
	TSP800	TSP700	TSP600	TUP900	TSP1000	TSP800L	TSP700II	TSP650	TUP500	TSP800II	FVP10	TSP650II
ESC GS P 0	No	No	No	No	No	No	No	No	No	No	OK	OK
ESC GS P 1	No	No	No	No	No	No	No	No	No	No	OK	OK
ESC GS P 2	No	No	No	No	No	No	No	No	No	No	OK	OK
ESC GS P 3	No	No	No	No	No	No	No	No	No	No	OK	OK
ESC GS P 4	No	No	No	No	No	No	No	No	No	No	OK	OK
ESC GS P 5	No	No	No	No	No	No	No	No	No	No	OK	OK
ESC GS P 6	No	No	No	No	No	No	No	No	No	No	OK	OK
ESC GS P 7	No	No	No	No	No	No	No	No	No	No	OK	OK
ESC GS P 8	No	No	No	No	No	No	No	No	No	No	OK	OK

• Text Search Commands

Commands	Model Name											
	TSP800	TSP700	TSP600	TUP900	TSP1000	TSP800L	TSP700II	TSP650	TUP500	TSP800II	FVP10	TSP650II
ESC GS) B (fn = 48)	No	No	No	No	No	No	No	No	No	No	OK	OK
ESC GS) B (fn = 49)	No	No	No	No	No	No	No	No	No	No	OK	OK
ESC GS) B (fn = 50)	No	No	No	No	No	No	No	No	No	No	OK	OK
ESC GS) B (fn = 64)	No	No	No	No	No	No	No	No	No	No	OK	OK
ESC GS) B (fn = 65)	No	No	No	No	No	No	No	No	No	No	OK	OK
ESC GS) B (fn=66)	No	No	No	No	No	No	No	No	No	No	OK	OK
ESC GS) B (fn = 80)	No	No	No	No	No	No	No	No	No	No	OK	OK
ESC GS) B (fn = 81)	No	No	No	No	No	No	No	No	No	No	OK	OK
ESC GS) B (fn = 96)	No	No	No	No	No	No	No	No	No	No	OK	OK
ESC GS) B (fn = 97)	No	No	No	No	No	No	No	No	No	No	OK	OK

• Audio Commands

Commands	Model Name											
	TSP800	TSP700	TSP600	TUP900	TSP1000	TSP800L	TSP700II	TSP650	TUP500	TSP800II	FVP10	TSP650II
ESC GS s O	No	No	No	No	No	No	No	No	No	No	OK	NO
ESC GS s P	No	No	No	No	No	No	No	No	No	No	OK	NO
ESC GS s R	No	No	No	No	No	No	No	No	No	No	OK	NO
ESC GS s I	No	No	No	No	No	No	No	No	No	No	OK	NO
ESC GS s U	No	No	No	No	No	No	No	No	No	No	OK	NO
ESC GS s T	No	No	No	No	No	No	No	No	No	No	OK	NO

• Graphics Data Command

Commands	Model Name											
	TSP800	TSP700	TSP600	TUP900	TSP1000	TSP800L	TSP700II	TSP650	TUP500	TSP800II	FVP10	TSP650II
ESC GS (K (fn=49)	No	No	No	No	No	No	No	No	No	No	No	OK
ESC GS (K (fn=50)	No	No	No	No	No	No	No	No	No	No	No	OK
ESC GS (L (fn=48)	No	No	No	No	No	No	No	No	No	No	No	OK
ESC GS (L (fn=51)	No	No	No	No	No	No	No	No	No	No	No	OK
ESC GS (L (fn=64)	No	No	No	No	No	No	No	No	No	No	No	OK
ESC GS (L (fn=65)	No	No	No	No	No	No	No	No	No	No	No	OK
ESC GS (L (fn=66)	No	No	No	No	No	No	No	No	No	No	No	OK
ESC GS (L (fn=67)	No	No	No	No	No	No	No	No	No	No	No	OK
ESC GS (L (fn=69)	No	No	No	No	No	No	No	No	No	No	No	OK
ESC GS (L (fn=112)	No	No	No	No	No	No	No	No	No	No	No	OK
ESC GS 8 L (fn=48)	No	No	No	No	No	No	No	No	No	No	No	OK
ESC GS 8 L (fn=51)	No	No	No	No	No	No	No	No	No	No	No	OK
ESC GS 8 L (fn=64)	No	No	No	No	No	No	No	No	No	No	No	OK
ESC GS 8 L (fn=65)	No	No	No	No	No	No	No	No	No	No	No	OK
ESC GS 8 L (fn=66)	No	No	No	No	No	No	No	No	No	No	No	OK
ESC GS 8 L (fn=67)	No	No	No	No	No	No	No	No	No	No	No	OK
ESC GS 8 L (fn=69)	No	No	No	No	No	No	No	No	No	No	No	OK
ESC GS 8 L (fn=112)	No	No	No	No	No	No	No	No	No	No	No	OK

• Individual Logo Command

Commands	Model Name											
	TSP800	TSP700	TSP600	TUP900	TSP1000	TSP800L	TSP700II	TSP650	TUP500	TSP800II	FVP10	TSP650II
ESC GS) L (fn=48)	No	No	No	No	No	No	No	No	No	No	No	OK
ESC GS) L (fn=49)	No	No	No	No	No	No	No	No	No	No	No	OK
ESC GS) L (fn=50)	No	No	No	No	No	No	No	No	No	No	No	OK

• Printer Information Transmission Command

Commands	Model Name											
	TSP800	TSP700	TSP600	TUP900	TSP1000	TSP800L	TSP700II	TSP650	TUP500	TSP800II	FVP10	TSP650II
ESC GS) I (fn=48)	No	No	No	No	No	No	No	No	No	No	No	OK

* In USB printer class, the status request command is ignored for the following models.
• TSP800, TSP700, TSP600, TUP900, TSP1000, TSP828L, TSP700II, TSP650,TSP650II

6.3. USB I/F (Ver1.0) • Ethernet I/F (Silex Ver1.0)

• Standard Commands

Commands	Model Name											
	TSP800	TSP700	TSP600	TUP900	TSP1000	TSP800L	TSP700II	TSP650	TUP500	TSP800II	FVP10	TSP650II
ESC RS F	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS t	Spec. A	Spec. A	Spec. A	Spec. A	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS =	Ver. 3.0 or later (*)	Spec. A (*)	Spec. A (*)	Spec. A (*)	NO	NO	NO	NO	NO	NO	NO	NO
ESC R	OK	OK	OK	OK	NO	NO	NO	NO	NO	NO	NO	NO
ESC /	OK	OK	OK	OK	NO	NO	NO	NO	NO	NO	NO	NO
ESC SP	OK	OK	OK	OK	NO	NO	NO	NO	NO	NO	NO	NO
ESC M	OK	OK	OK	OK	NO	NO	NO	NO	NO	NO	NO	NO
ESC P	OK	OK	OK	OK	NO	NO	NO	NO	NO	NO	NO	NO
ESC :	OK	OK	OK	OK	NO	NO	NO	NO	NO	NO	NO	NO
ESC p (Not recommended)	OK	OK	OK	OK	NO	NO	NO	NO	NO	NO	NO	NO
ESC g	Spec. A	Spec. A	Spec. A	Spec. B	NO	NO	NO	NO	NO	NO	NO	NO
ESC i	OK	OK	OK	OK	NO	NO	NO	NO	NO	NO	NO	NO
ESC W	OK	OK	OK	OK	NO	NO	NO	NO	NO	NO	NO	NO
ESC h	OK	OK	OK	OK	NO	NO	NO	NO	NO	NO	NO	NO
SO	OK	OK	OK	OK	NO	NO	NO	NO	NO	NO	NO	NO
DC4	OK	OK	OK	OK	NO	NO	NO	NO	NO	NO	NO	NO
ESC SO	OK	OK	OK	OK	NO	NO	NO	NO	NO	NO	NO	NO
ESC DC4	OK	OK	OK	OK	NO	NO	NO	NO	NO	NO	NO	NO
ESC E	Spec. A	Spec. A	Spec. A	Spec. A Ver. 4.4 or earlier Spec. B Ver. 5.0. or later	NO	NO	NO	NO	NO	NO	NO	NO
ESC F	Spec. A	Spec. A	Spec. A	Spec. A	NO	NO	NO	NO	NO	NO	NO	NO
ESC -	OK	OK	OK	OK	NO	NO	NO	NO	NO	NO	NO	NO
ESC _	OK	OK	OK	OK	NO	NO	NO	NO	NO	NO	NO	NO
ESC 4	OK	OK	OK	OK	NO	NO	NO	NO	NO	NO	NO	NO
ESC 5	OK	OK	OK	OK	NO	NO	NO	NO	NO	NO	NO	NO
SI	OK	OK	OK	OK	NO	NO	NO	NO	NO	NO	NO	NO
DC2	OK	OK	OK	OK	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS b	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
LF	OK	OK	OK	OK	NO	NO	NO	NO	NO	NO	NO	NO
CR	OK	OK	OK	OK	NO	NO	NO	NO	NO	NO	NO	NO
ESC a	OK	OK	OK	OK	NO	NO	NO	NO	NO	NO	NO	NO
ESC z	OK	OK	OK	OK	NO	NO	NO	NO	NO	NO	NO	NO
ESC 0	OK	OK	OK	OK	NO	NO	NO	NO	NO	NO	NO	NO
ESC J	OK	OK	OK	OK	NO	NO	NO	NO	NO	NO	NO	NO
ESC I	OK	OK	OK	OK	NO	NO	NO	NO	NO	NO	NO	NO
FF	OK	OK	OK	OK	NO	NO	NO	NO	NO	NO	NO	NO
ESC C	OK	OK	OK	OK	NO	NO	NO	NO	NO	NO	NO	NO
ESC C 0	OK	OK	OK	OK	NO	NO	NO	NO	NO	NO	NO	NO
VT	OK	OK	OK	OK	NO	NO	NO	NO	NO	NO	NO	NO
ESC B	OK	OK	OK	OK	NO	NO	NO	NO	NO	NO	NO	NO
ESC l	Spec. A	Spec. A	Spec. A	Spec. B	NO	NO	NO	NO	NO	NO	NO	NO
ESC Q	Spec. A	Spec. A	Spec. A	Spec. B	NO	NO	NO	NO	NO	NO	NO	NO
HT	OK	OK	OK	OK	NO	NO	NO	NO	NO	NO	NO	NO
ESC D	OK	OK	OK	OK	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS A	OK	OK	OK	OK	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS R	OK	OK	OK	OK	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS a	OK	OK	OK	OK	NO	NO	NO	NO	NO	NO	NO	NO
ESC &	OK	OK	OK	OK	NO	NO	NO	NO	NO	NO	NO	NO
ESC %	OK	OK	OK	OK	NO	NO	NO	NO	NO	NO	NO	NO
ESC K	Spec. A	Spec. A	Spec. A	Spec. A	NO	NO	NO	NO	NO	NO	NO	NO
ESC L	Spec. A	Spec. A	Spec. A	Spec. A	NO	NO	NO	NO	NO	NO	NO	NO
ESC k	Spec. A	Spec. A	Spec. A	Spec. A	NO	NO	NO	NO	NO	NO	NO	NO
ESC X	Spec. A	Spec. A	Spec. A	Spec. A	NO	NO	NO	NO	NO	NO	NO	NO
ESC FS q	OK	OK	OK(*)	OK(*)	NO	NO	NO	NO	NO	NO	NO	NO
ESC FS p	OK	OK	OK	OK	NO	NO	NO	NO	NO	NO	NO	NO
ESC RS L	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC b	Spec. A	Spec. A	Spec. A	Spec. B	NO	NO	NO	NO	NO	NO	NO	NO
ESC d	OK	OK	OK	OK	NO	NO	NO	NO	NO	NO	NO	NO

Commands	Model Name											
	TSP800	TSP700	TSP600	TUP900	TSP1000	TSP800L	TSP700II	TSP650	TUP500	TSP800II	FVP10	TSP650II
ESC BEL	OK	OK	OK	NO	NO	NO	NO	NO	NO	NO	NO	NO
BEL	OK	OK	OK	NO	NO	NO	NO	NO	NO	NO	NO	NO
FS	OK	OK	OK	NO	NO	NO	NO	NO	NO	NO	NO	NO
SUB	OK	OK	OK	NO	NO	NO	NO	NO	NO	NO	NO	NO
EM	OK	OK	OK	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS BEL	NO	Ver. 5.0 or later	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS EM DC1	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS EM DC2	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
EM	OK	OK	OK	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC RS r	Spec. A	Spec. A	Spec. A	Spec. A	NO	NO	NO	NO	NO	NO	NO	NO
ESC RS a	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC ACK SOH	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ENQ	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
EOT	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC ACK CAN	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ETB	Spec. A	Spec. A	Spec. A	Spec. B	NO	NO	NO	NO	NO	NO	NO	NO
ESC RS E	OK	OK	OK	OK	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS ETX	NO	NO	NO	Spec.B Ver.5.0 or later								
ESC p	OK	OK	OK	OK	NO	NO	NO	NO	NO	NO	NO	NO
ESC q	OK	OK	OK	OK	NO	NO	NO	NO	NO	NO	NO	NO
ESC $	OK	OK	OK	OK	NO	NO	NO	NO	NO	NO	NO	NO
ESC s	OK	OK	OK	OK	NO	NO	NO	NO	NO	NO	NO	NO
ESC t	OK	OK	OK	OK	NO	NO	NO	NO	NO	NO	NO	NO
ESC r	Spec. A	Spec. A	Spec. A	Spec. B	NO	NO	NO	NO	NO	NO	NO	NO
CAN	OK	OK	OK	OK	NO	NO	NO	NO	NO	NO	NO	NO
ESC @	OK	OK	OK	OK	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS # m	Spec. A (*) Ver. 3.0 or later	Spec. A (*)	Spec. A (*)	Spec. B (*)	NO	NO	NO	NO	NO	NO	NO	NO
ESC ?	OK(*)	OK(*)	OK(*)	OK(*)	NO	NO	NO	NO	NO	NO	NO	NO

• Raster Related Commands

Commands	Model Name											
	TSP800	TSP700	TSP600	TUP900	TSP1000	TSP800L	TSP700II	TSP650	TUP500	TSP800II	FVP10	TSP650II
ESC * r R	Ver. 2.0 or later	OK	OK	OK	NO	NO	NO	NO	NO	NO	NO	NO
ESC * r A	Ver. 2.0 or later	OK	OK	OK	NO	NO	NO	NO	NO	NO	NO	NO
ESC * r B	Ver. 2.0 or later	OK	OK	OK	NO	NO	NO	NO	NO	NO	NO	NO
ESC * r C	Ver. 2.0 or later	OK	OK	OK	NO	NO	NO	NO	NO	NO	NO	NO
ESC * r D	Ver. 2.0 or later	OK	OK	OK	NO	NO	NO	NO	NO	NO	NO	NO
ESC * r E	Spec. A Ver. 2.0 or later	OK	OK	OK	NO	NO	NO	NO	NO	NO	NO	NO
ESC * r F	Spec. A Ver. 2.0 or later	OK	OK	OK	NO	NO	NO	NO	NO	NO	NO	NO
ESC * r P	Ver. 2.0 or later	OK	OK	OK	NO	NO	NO	NO	NO	NO	NO	NO
ESC * r Q	Ver. 2.0 or later	OK	OK	OK	NO	NO	NO	NO	NO	NO	NO	NO
ESC * r m l	Ver. 2.0 or later	OK	OK	OK	NO	NO	NO	NO	NO	NO	NO	NO
ESC * r m r	Ver. 2.0 or later	OK	OK	OK	NO	NO	NO	NO	NO	NO	NO	NO
ESC * r T	Ver. 2.0 or later	OK	OK	OK	NO	NO	NO	NO	NO	NO	NO	NO
ESC * r K	Ver. 2.0 or later	OK	OK	OK	NO	NO	NO	NO	NO	NO	NO	NO
b n1 n2 d1...dk	Ver. 2.0 or later	OK	OK	OK	NO	NO	NO	NO	NO	NO	NO	NO
k n1 n2 d1...dk	Ver. 2.0 or later	OK	OK	OK	NO	NO	NO	NO	NO	NO	NO	NO
ESC * r Y	Ver. 2.0 or later	OK	OK	OK	NO	NO	NO	NO	NO	NO	NO	NO
ESC FF NUL	Ver. 2.0 or later	OK	OK	OK	NO	NO	NO	NO	NO	NO	NO	NO
ESC FF EOT	Ver. 2.0 or later	OK	OK	OK	NO	NO	NO	NO	NO	NO	NO	NO
ESC * r N	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC * r V	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC * r e	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC * r S	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC * r s 0	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC * r s 1	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC * r s 2	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC * r s 3	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO

• Black Mark Related Commands

Commands	Model Name											
	TSP800	TSP700	TSP600	TUP900	TSP1000	TSP800L	TSP700II	TSP650	TUP500	TSP800II	FVP10	TSP650II
ESC d	OK	OK	OK	OK	NO	NO	NO	NO	NO	NO	NO	NO
FF	OK	OK	OK	OK	NO	NO	NO	NO	NO	NO	NO	NO
ESC C	OK	OK	OK	OK	NO	NO	NO	NO	NO	NO	NO	NO
ESC C 0	OK	OK	OK	OK	NO	NO	NO	NO	NO	NO	NO	NO
VT	OK	OK	OK	OK	NO	NO	NO	NO	NO	NO	NO	NO
ESC B	OK	OK	OK	OK	NO	NO	NO	NO	NO	NO	NO	NO

• 2-Color Printing Related Commands

Commands	Model Name											
	TSP800	TSP700	TSP600	TUP900	TSP1000	TSP800L	TSP700II	TSP650	TUP500	TSP800II	FVP10	TSP650II
ESC RS c	Ver. 4.0 or later	Ver. 2.0 or later	Ver. 2.0 or later	OK	NO	NO	NO	NO	NO	NO	NO	NO
ESC RS C	Spec. A Ver. 4.0 or later	Spec. A Ver. 2.0 or later	Spec. A Ver. 2.0 or later	Spec. B	NO	NO	NO	NO	NO	NO	NO	NO
ESC 4 (Not recommended)	Ver. 4.0 or later	Ver. 2.0 or later	Ver. 2.0 or later	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC 5 (Not recommended)	Ver. 4.0 or later	Ver. 2.0 or later	Ver. 2.0 or later	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC FS q	Ver. 4.0 or later	Ver. 2.0 or later	Ver. 2.0 or later (*)	OK (*)	NO	NO	NO	NO	NO	NO	NO	NO
ESC FS p	Ver. 4.0 or later	Ver. 2.0 or later	Ver. 2.0 or later	OK	NO	NO	NO	NO	NO	NO	NO	NO

• Presenter Related Commands

Commands	Model Name											
	TSP800	TSP700	TSP600	TUP900	TSP1000	TSP800L	TSP700II	TSP650	TUP500	TSP800II	FVP10	TSP650II
ESC SYN 0	NO	NO	NO	OK	NO	NO	NO	NO	NO	NO	NO	NO
ESC SYN 1	NO	NO	NO	OK	NO	NO	NO	NO	NO	NO	NO	NO
ESC SYN 3	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC SYN 4	NO	NO	NO	OK	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS SUB DC1	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS SUB DC2	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS SUB DC3	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO

• Mark Commands

Commands	Model Name											
	TSP800	TSP700	TSP600	TUP900	TSP1000	TSP800L	TSP700II	TSP650	TUP500	TSP800II	FVP10	TSP650II
ESC GS * 0	NO	Ver. 4.0 or later	NO	Ver. 3.0 or later	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS * 1	NO	Ver. 4.0 or later	NO	Ver. 3.0 or later	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS * 2	NO	Ver. 4.0 or later	NO	Ver. 3.0 or later	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS * W	NO	Ver. 4.0 or later	NO	Ver. 3.0 or later	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS * C	NO	Ver. 4.0 or later	NO	Ver. 3.0 or later	NO	NO	NO	NO	NO	NO	NO	NO

• Auto Logo Commands

Commands	Model Name											
	TSP800	TSP700	TSP600	TUP900	TSP1000	TSP800L	TSP700II	TSP650	TUP500	TS{800II	FVP10	TSP650II
ESC GS / W	NO	Ver. 4.0 or later	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS / C	NO	Ver. 4.0 or later	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS / 1	NO	Ver. 4.0 or later	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS / 2	NO	Ver. 4.0 or later	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS / 3	NO	Ver. 4.0 or later	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS / 4	NO	Ver. 4.0 or later	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS / 5	NO	Ver. 4.0 or later	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS / 6	NO	Ver. 4.0 or later	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO

• PDF417 Commands

Commands	Model Name											
	TSP800	TSP700	TSP600	TUP900	TSP1000	TSP800L	TSP700II	TSP650	TUP500	TSP800II	FVP10	TSP650II
ESC GS x S 0	NO	NO	NO	Ver. 3.1 or later	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS x S 1	NO	NO	NO	Ver. 3.1 or later	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS x S 2	NO	NO	NO	Ver. 3.1 or later	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS x S 3	NO	NO	NO	Ver. 3.1 or later	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS x D	NO	NO	NO	Ver. 3.1 or later	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS x P	NO	NO	NO	Ver. 3.1 or later	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS x I	NO	NO	NO	Ver. 3.1 or later	NO	NO	NO	NO	NO	NO	NO	NO

• Print Start Trigger Control Commands

Commands	Model Name											
	TSP800	TSP700	TSP600	TUP900	TSP1000	TSP800L	TSP700II	TSP650	TUP500	TSP800II	FVP10	TSP650II
ESC GS g 0	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS g 1	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO

• QR Commands

Commands	Model Name											
	TSP800	TSP700	TSP600	TUP900	TSP1000	TSP800L	TSP700II	TSP650	TUP500	TSP800II	FVP10	TSP650II
ESC GS y S 0	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS y S 1	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS y S 2	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS y D 1	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS y D 2	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS y P	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS y I	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO

• 2D GS1 code, Compound symbol Commands

Commands	Model Name											
	TSP800	TSP700	TSP600	TUP900	TSP1000	TSP800L	TSP700II	TSP650	TUP500	TSP800II	FVP10	TSP650II
ESC GS (k(cn=51,fn=67)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS (k(cn=51,fn=71)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS (k(cn=51,fn=80)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS (k(cn=51,fn=81)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS (k(cn=52,fn=67)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS (k(cn=52,fn=71)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS (k(cn=52,fn=72)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS (k(cn=52,fn=80)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS (k(cn=52,fn=81)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO

• Page Function Commands

Commands	Model Name											
	TSP800	TSP700	TSP600	TUP900	TSP1000	TSP800L	TSP700II	TSP650	TUP500	TSP800II	FVP10	TSP650II
ESC GS h 0	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS h 1	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO

• Reduced Printing Function Commands

Commands	Model Name											
	TSP800	TSP700	TSP600	TUP900	TSP1000	TSP800L	TSP700II	TSP650	TUP500	TSP800II	FVP10	TSP650II
ESC GS c	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	OK	NO

• Page Mode Commands

Commands	Model Name											
	TSP800	TSP700	TSP600	TUP900	TSP1000	TSP800L	TSP700II	TSP650	TUP500	TSP800II	FVP10	TSP650II
ESC GS P 0	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	OK	NO
ESC GS P 1	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	OK	NO
ESC GS P 2	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	OK	NO
ESC GS P 3	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	OK	NO
ESC GS P 4	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	OK	NO
ESC GS P 5	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	OK	NO
ESC GS P 6	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	OK	NO
ESC GS P 7	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	OK	NO
ESC GS P 8	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	OK	NO

• Text Search Commands

Commands	Model Name											
	TSP800	TSP700	TSP600	TUP900	TSP1000	TSP800L	TSP700II	TSP650	TUP500	TSP800II	FVP10	TSP650II
ESC GS) B (fn = 48)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS) B (fn = 49)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS) B (fn = 50)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS) B (fn = 64)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS) B (fn = 65)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS) B (fn=66)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS) B (fn = 80)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS) B (fn = 81)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS) B (fn = 96)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS) B (fn = 97)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO

• Audio Commands

Commands	Model Name											
	TSP800	TSP700	TSP600	TUP900	TSP1000	TSP800L	TSP700II	TSP650	TUP500	TSP800II	FVP10	TSP650II
ESC GS s O	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS s P	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS s R	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS s I	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS s U	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS s T	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO

• Graphics Data Command

Commands	Model Name											
	TSP800	TSP700	TSP600	TUP900	TSP1000	TSP800L	TSP700II	TSP650	TUP500	TSP800II	FVP10	TSP650II
ESC GS (K (fn=49)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS (K (fn=50)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS (L (fn=48)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS (L (fn=51)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS (L (fn=64)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS (L (fn=65)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS (L (fn=66)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS (L (fn=67)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS (L (fn=69)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS (L (fn=112)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS 8 L (fn=48)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS 8 L (fn=51)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS 8 L (fn=64)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS 8 L (fn=65)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS 8 L (fn=66)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS 8 L (fn=67)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS 8 L (fn=69)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS 8 L (fn=112)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO

• Individual Logo Command

Commands	Model Name											
	TSP800	TSP700	TSP600	TUP900	TSP1000	TSP800L	TSP700II	TSP650	TUP500	TSP800II	FVP10	TSP650II
ESC GS) L (fn=48)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS) L (fn=49)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS) L (fn=50)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO

• Printer Information Transmission Command

Commands	Model Name											
	TSP800	TSP700	TSP600	TUP900	TSP1000	TSP800L	TSP700II	TSP650	TUP500	TSP800II	FVP10	TSP650II
ESC GS) I (fn=48)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO

(*) It is necessary to turn the printer from off to on, because the printer hangs up after resetting the printer.

6.4. Ethernet I/F

• Standard Commands

Commands	Model Name											
	TSP800	TSP700	TSP600	TUP900	TSP1000	TSP800L	TSP700II	TSP650	TUP500	TSP800II	FVP10	TSP650II
ESC RS F	NO	NO	NO	NO	OK	OK	OK	OK	OK	OK	OK	OK
ESC GS t	Spec. A	Spec. A	Spec. A	NO	Spec. A	Spec. A	Spec. A Before Ver.4.0 Spec.C Ver.4.1 Or later	Spec.A Before Ver.3.1 Spec.B Ver.3.2 Or later	Spec. A	Spec. A Before Ver.1.5 Spec.C Ver.1.6 Or later	Spec. A Before Ver.1.4 Spec.C Ver.1.5 Or later	Spec. B Before Ver.1.1 Spec.D Ver.1.2 Or later
ESC GS =	Spec. A Ver.3.0 or later	Spec. A	Spec. A	NO	Spec. A	Spec. A	Spec. B	Spec. B	Spec. B	Spec. B	Spec. B	Spec. B
ESC R	OK	OK	OK	NO	OK	OK	OK	OK	OK	OK	OK	OK
ESC /	OK	OK	OK	NO	OK	OK	OK	OK	OK	OK	OK	OK
ESC SP	OK	OK	OK	NO	OK	OK	OK	OK	OK	OK	OK	OK
ESC M	OK	OK	OK	NO	OK	OK	OK	OK	OK	OK	OK	OK
ESC P	OK	OK	OK	NO	OK	OK	OK	OK	OK	OK	OK	OK
ESC :	OK	OK	OK	NO	OK	OK	OK	OK	OK	OK	OK	OK
ESC p (Not recommended)	OK	OK	OK	NO	OK	OK	OK	OK	OK	OK	OK	OK
ESC g	Spec. A	Spec. A	Spec. A	NO	Spec. B	Spec. B	Spec. A	Spec. A	Spec. B	Spec. A	Spec. A	Spec. A
ESC i	OK	OK	OK	NO	OK	OK	OK	OK	OK	OK	OK	OK
ESC W	OK	OK	OK	NO	OK	OK	OK	OK	OK	OK	OK	OK
ESC h	OK	OK	OK	NO	OK	OK	OK	OK	OK	OK	OK	OK
SO	OK	OK	OK	NO	OK	OK	OK	OK	OK	OK	OK	OK
DC4	OK	OK	OK	NO	OK	OK	OK	OK	OK	OK	OK	OK
ESC SO	OK	OK	OK	NO	OK	OK	OK	OK	OK	OK	OK	OK
ESC DC4	OK	OK	OK	NO	OK	OK	OK	OK	OK	OK	OK	OK
ESC E	Spec. A	Spec. A	Spec. A	NO	Spec. A	Spec. A	Spec. A V. 1.4 or earlier Spec. B V. 2.0 or later	Spec. A V. 1.4 or earlier Spec. B V. 2.0 or later	Spec. A V. 1.0 or earlier Spec. B V. 2.0 or later	Spec. B	Spec. B	Spec. B
ESC F	Spec. A	Spec. A	Spec. A	NO	Spec. A	Spec. A	Spec. A V. 1.4 or earlier Spec. B V. 2.0 or later	Spec. A V. 1.4 or earlier Spec. B V. 2.0 or later	Spec. A V. 1.0 or earlier Spec. B V. 2.0 or later	Spec. B	Spec. B	Spec. B
ESC -	OK	OK	OK	NO	OK	OK	OK	OK	OK	OK	OK	Spec. B
ESC _	OK	OK	OK	NO	OK	OK	OK	OK	OK	OK	OK	Spec. B
ESC 4	OK	OK	OK	NO	OK	OK	OK	OK	OK	OK	OK	OK
ESC 5	OK	OK	OK	NO	OK	OK	OK	OK	OK	OK	OK	OK
SI	OK	OK	OK	NO	OK	OK	OK	OK	OK	OK	OK	OK
DC2	OK	OK	OK	NO	OK	OK	OK	OK	OK	OK	OK	OK
ESC GS b	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	OK
LF	OK	OK	OK	NO	OK	OK	OK	OK	OK	OK	OK	OK
CR	OK	OK	OK	NO	OK	OK	OK	OK	OK	OK	OK	OK
ESC a	OK	OK	OK	NO	OK	OK	OK	OK	OK	OK	OK	OK
ESC z	OK	OK	OK	NO	OK	OK	OK	OK	OK	OK	OK	OK
ESC 0	OK	OK	OK	NO	OK	OK	OK	OK	OK	OK	OK	OK
ESC J	OK	OK	OK	NO	OK	OK	OK	OK	OK	OK	OK	OK
ESC I	OK	OK	OK	NO	OK	OK	OK	OK	OK	OK	OK	OK
FF	OK	OK	OK	NO	OK	OK	OK	OK	OK	OK	OK	OK
ESC C	OK	OK	OK	NO	OK	OK	OK	OK	OK	OK	OK	OK
ESC C 0	OK	OK	OK	NO	OK	OK	OK	OK	OK	OK	OK	OK
VT	OK	OK	OK	NO	OK	OK	OK	OK	OK	OK	OK	OK
ESC B	OK	OK	OK	NO	OK	OK	OK	OK	OK	OK	OK	OK
ESC l	Spec. A	Spec. A	Spec. A	NO	Spec. B	Spec. B	Spec. A	Spec. A	Spec. B	Spec. A	Spec. A	Spec. A
ESC Q	Spec. A	Spec. A	Spec. A	NO	Spec. B	Spec. B	Spec. A	Spec. A	Spec. B	OK	OK	Spec. A
HT	OK	OK	OK	NO	OK	OK	OK	OK	OK	OK	OK	OK
ESC D	OK	OK	OK	NO	OK	OK	OK	OK	OK	OK	OK	OK
ESC GS A	OK	OK	OK	NO	OK	OK	OK	OK	OK	OK	OK	OK
ESC GS R	OK	OK	OK	NO	OK	OK	OK	OK	OK	OK	OK	OK
ESC GS a	OK	OK	OK	NO	OK	OK	OK	OK	OK	OK	OK	OK
ESC &	OK	OK	OK	NO	OK	OK	OK	OK	OK	OK	OK	OK
ESC %	OK	OK	OK	NO	OK	OK	OK	OK	OK	OK	OK	OK
ESC K	OK	OK	OK	NO	OK	OK	OK	OK	OK	OK	OK	Spec. B
ESC L	OK	OK	OK	NO	OK	OK	OK	OK	OK	OK	OK	Spec. B
ESC k	OK	OK	OK	NO	OK	OK	OK	OK	OK	OK	OK	Spec. B
ESC X	OK	OK	OK	NO	OK	OK	OK	OK	OK	OK	OK	Spec. B
ESC FS q	OK	OK	OK	NO	OK	OK	OK	OK	OK	OK	OK	OK
ESC FS p	OK	OK	OK	NO	OK	OK	OK	OK	OK			OK
ESC RS L	NO	NO	NO	NO	NO	NO	Ver. 1.2 or later Spec. A Ver. 1.3 or later Spec. B	Spec. B	Spec. B	Spec. B	Spec. B	Spec. B

Commands	Model Name											
	TSP800	TSP700	TSP600	TUP900	TSP1000	TSP800L	TSP700II	TSP650	TUP500	TSP800II	FVP10	TSP650II
ESC b	Spec. A	Spec. A	Spec. A	NO	Spec. B	Spec. B	Spec. B	Spec. B	Spec. B	Spec. B	Spec. B	Spec. B Before Ver.1.2 Spec.C Ver.2.0 Or later
ESC d	OK	OK	OK	NO	OK	OK	OK	OK	OK	OK	OK	OK
ESC BEL	OK	OK	OK	NO	NO	NO	OK	OK	NO	NO	NO	OK
BEL	OK	OK	OK	NO	NO	NO	OK	OK	NO	NO	NO	OK
FS	OK	OK	OK	NO	NO	NO	OK	OK	NO	NO	NO	OK
SUB	OK	OK	OK	NO	NO	NO	OK	OK	NO	NO	NO	Spec. B
EM	OK	OK	OK	NO	NO	NO	OK	OK	NO	NO	NO	Spec. A
ESC GS BEL	NO	Ver. 5.0 or later	NO	NO	OK	NO	OK	OK	NO	OK	OK	Spec. C
ESC GS EM DC1	NO	NO	NO	NO	NO	NO	Ver. 1.3 or later	OK	NO	OK	OK	OK
ESC GS EM DC2	NO	NO	NO	NO	NO	NO	Ver. 1.3 or later	OK	NO			Spec. B
ESC RS d	Spec. A	Spec. A	Spec. A	NO	Spec. A	Spec. A	Spec. A Ver. 3.0 or earlier Spec. B Ver. 3. or later r	Spec. A Ver. 3.0 or earlier Spec. B Ver. 3. or later r	Spec. A Ver. 3.0 or earlier Spec. B Ver. 3. or later r	Spec. B	Spec. B	Spec. B
ESC RS r	Spec. A	Spec. A	Spec. A	NO	Spec. A	Spec. A	Spec. A	Spec. A	Spec. B	Spec. A	Spec. A	OK
ESC RS a	NO	NO	NO	NO	NO	NO	Spec. C V. 2.0 or later	Spec. C V. 2.0 or later	Spec. C V. 2.0 or later	Spec. C	Spec. C	Spec. B
ESC ACK SOH	OK	OK	OK	NO	OK	OK	OK	OK	OK	OK	OK	OK
ENQ	OK	OK	OK	NO	OK	OK	Spec. A Ver. 2.0 or earlier Spec. B Ver. 2. or later	Spec. A Ver. 2.0 or earlier Spec. B Ver. 2. or later	Spec. A Ver. 2.0 or earlier Spec. B Ver. 2. or later	Spec. B	Spec. B	Spec. B
EOT	OK	OK	OK	NO	OK	OK	Spec. A Ver. 2.0 or earlier Spec. B Ver. 2. or later	Spec. A Ver. 2.0 or earlier Spec. B Ver. 2. or later	Spec. A Ver. 2.0 or earlier Spec. B Ver. 2. or later	Spec. B	Spec. B	OK
ESC ACK CAN	OK	OK	OK	NO	OK	OK	OK	OK	OK	OK	OK	OK
ETB	Spec. A	Spec. A	Spec. A	NO	Spec. B	Spec. B	Spec. B	Spec. B	Spec. B	Spec. B	Spec. B	OK
ESC RS E	OK	OK	OK	NO	OK	OK	OK	OK	OK	OK	OK	OK
ESC GS ETX	NO	NO	NO	NO	NO	NO	Spec. A Ver. 2.0 or earlier Spec. B Ver. 3. or later r	Spec. A Ver. 2.0 or earlier Spec. B Ver. 3. or later r	Spec. A Ver. 2.0 or earlier Spec. B Ver. 4. or later r	OK	OK	OK
ESC p	OK	OK	OK	NO	OK	OK	OK	OK	OK	OK	OK	Spec. B
ESC q	OK	OK	OK	NO	OK	OK	OK	OK	OK	OK	OK	OK
ESC $	OK	OK	OK	NO	OK	OK	OK	OK	OK	OK	OK	OK
ESC s	OK	OK	OK	NO	OK	OK	OK	OK	OK	OK	OK	OK
ESC t	OK	OK	OK	NO	OK	OK	OK	OK	OK	OK	OK	OK
ESC r	Spec. A	Spec. A	Spec. A	NO	Spec. B	Spec. B	Spec. B	Spec. B	Spec. B	Spec. B	Spec. B	Spec. B
CAN	OK	OK	OK	NO	OK	OK	OK	OK	OK	OK	OK	OK
ESC @	OK	OK	OK	NO	OK	OK	OK	OK	OK	OK	OK	OK
ESC GS # m	Spec. A VER. 3.0 OR LATER	Spec. A	Spec. A	NO	Spec. B	Spec. B	Spec. B	Spec. B	Spec. B	Spec. C	Spec. C	Spec. C
ESC ?	OK	OK	OK	NO	OK	OK	OK	OK	OK	OK	OK	OK

• Raster Related Commands

Commands	Model Name											
	TSP800	TSP700	TSP600	TUP900	TSP1000	TSP800L	TSP700II	TSP650	TUP500	TSP800II	FVP10	TSP650II
ESC * r R	Ver. 2.0 or later	OK	OK	NO	OK	OK	OK	OK	OK	OK	OK	OK
ESC * r A	Ver. 2.0 or later	OK	OK	NO	OK	OK	OK	OK	OK	OK	OK	OK
ESC * r B	Ver. 2.0 or later	OK	OK	NO	OK	OK	OK	OK	OK	OK	OK	OK
ESC * r C	Ver. 2.0 or later	OK	OK	NO	OK	OK	OK	OK	OK	OK	OK	OK
ESC * r D	Ver. 2.0 or later	OK	OK	NO	OK	OK	OK	OK	OK	OK	OK	OK
ESC * r E	Spec. A Ver. 2.0 or later	OK	OK	NO	OK	OK	OK	OK	OK	OK	OK	OK
ESC * r F	Spec. A Ver. 2.0 or later	OK	OK	NO	OK	OK	OK	OK	OK	OK	OK	OK
ESC * r P	Ver. 2.0 or later	OK	OK	NO	OK	OK	OK	OK	OK	OK	OK	OK
ESC * r Q	Ver. 2.0 or later	OK	OK	NO	OK	OK	OK	OK	OK	OK	OK	OK
ESC * r m l	Ver. 2.0 or later	OK	OK	NO	OK	OK	OK	OK	OK	OK	OK	OK
ESC * r m r	Ver. 2.0 or later	OK	OK	NO	OK	OK	OK	OK	OK	OK	OK	OK
ESC * r T	Ver. 2.0 or later	OK	OK	NO	OK	OK	OK	OK	OK	OK	OK	OK
ESC * r K	Ver. 2.0 or later	OK	OK	NO	OK	OK	OK	OK	OK	OK	OK	OK
b n1 n2 d1...dk	Ver. 2.0 or later	OK	OK	NO	OK	OK	OK	OK	OK	OK	OK	OK
k n1 n2 d1...dk	Ver. 2.0 or later	OK	OK	NO	OK	OK	OK	OK	OK	OK	OK	OK
ESC * r Y	Ver. 2.0 or later	OK	OK	NO	OK	OK	OK	OK	OK	OK	OK	OK
ESC FF NUL	Ver. 2.0 or later	OK	OK	NO	OK	OK	OK	OK	OK	OK	OK	OK
ESC FF EOT	Ver. 2.0 or later	OK	OK	NO	OK	OK	OK	OK	OK	OK	OK	OK
ESC * r N	NO	NO	NO	NO	NO	NO	Ver. 1.3 or later	OK	OK	OK	OK	OK
ESC * r V	NO	NO	NO	NO	NO	NO	Ver. 1.3 or later	OK	OK	OK	OK	OK
ESC * r e	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	OK	NO
ESC * r S	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	OK	NO
ESC * r s 0	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	OK	NO
ESC * r s 1	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	OK	NO
ESC * r s 2	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	OK	NO
ESC * r s 3	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	OK	NO

• Black Mark Related Commands

Commands	Model Name											
	TSP800	TSP700	TSP600	TUP900	TSP1000	TSP800L	TSP700II	TSP650	TUP500	TSP800II	FVP10	TSP650II
ESC d	OK	OK	OK	NO	OK	OK	OK	NO	OK	OK	OK	NO
FF	OK	OK	OK	NO	OK	OK	OK	NO	OK	OK	OK	NO
ESC C	OK	OK	OK	NO	OK	OK	OK	NO	OK	OK	OK	NO
ESC C 0	OK	OK	OK	NO	OK	OK	OK	NO	OK	OK	OK	NO
VT	OK	OK	OK	NO	OK	OK	OK	NO	OK	OK	OK	NO
ESC B	OK	OK	OK	NO	OK	OK	OK	NO	OK	OK	OK	NO

• 2-Color Printing Related Commands

Commands	Model Name											
	TSP800	TSP700	TSP600	TUP900	TSP1000	TSP800L	TSP700II	TSP650	TUP500	TSP800II	FVP10	TSP650II
ESC RS c	Ver. 4.0 or later	Ver. 2.0 or later	Ver. 2.0 or later	NO	OK	OK	OK	OK	OK	OK	OK	OK
ESC RS C	Spec. A Ver. 4.0 or later	Spec. A Ver. 2.0 or later	Spec. A Ver. 2.0 or later	NO	Spec. B	Spec. B	Spec. C	Spec. A	Spec. C	Spec. C	Spec. C	Spec. A
ESC 4 (Not recommended)	Ver. 4.0 or later	Ver. 2.0 or later	Ver. 2.0 or later	NO	NO	NO	NO	OK	NO	OK	NO	OK
ESC 5 (Not recommended)	Ver. 4.0 or later	Ver. 2.0 or later	Ver. 2.0 or later	NO	NO	NO	NO	OK	NO	OK	NO	OK
ESC FS q	Ver. 4.0 or later	Ver. 2.0 or later	Ver. 2.0 or later	NO	OK	OK	OK	OK	OK	OK	OK	OK
ESC FS p	Ver. 4.0 or later	Ver. 2.0 or later	Ver. 2.0 or later	NO	OK	OK	OK	OK	OK	OK	OK	OK

• Presenter Related Commands

Commands	Model Name											
	TSP800	TSP700	TSP600	TUP900	TSP1000	TSP800L	TSP700II	TSP650	TUP500	TSP800II	FVP10	TSP650II
ESC SYN 0	NO	NO	NO	NO	NO	NO	NO	NO	OK	NO	NO	NO
ESC SYN 1	NO	NO	NO	NO	NO	NO	NO	NO	OK	NO	NO	NO
ESC SYN 3	NO	NO	NO	NO	NO	NO	NO	NO	OK	NO	NO	NO
ESC SYN 4	NO	NO	NO	NO	NO	NO	NO	NO	OK	NO	NO	NO
ECS GS SUB DC1	NO	NO	NO	NO	NO	NO	NO	NO	OK	NO	NO	NO
ECS GS SUB DC2	NO	NO	NO	NO	NO	NO	NO	NO	OK	NO	NO	NO
ECS GS SUB DC3	NO	NO	NO	NO	NO	NO	NO	NO	OK	NO	NO	NO

• Mark Commands

Commands	Model Name											
	TSP800	TSP700	TSP600	TUP900	TSP1000	TSP800L	TSP700II	TSP650	TUP500	TSP800II	FVP10	TSP650II
ESC GS * 0	NO	Ver. 4.0 or later	NO	NO	OK	OK	OK	OK	OK	OK	OK	OK
ESC GS * 1	NO	Ver. 4.0 or later	NO	NO	OK	OK	OK	OK	OK	OK	OK	OK
ESC GS * 2	NO	Ver. 4.0 or later	NO	NO	OK	OK	OK	OK	OK	OK	OK	OK
ESC GS * W	NO	Ver. 4.0 or later	NO	NO	OK	OK	OK	OK	OK	OK	OK	OK
ESC GS * C	NO	Ver. 4.0 or later	NO	NO	OK	OK	OK	OK	OK	OK	OK	OK

• Auto Logo Commands

Commands	Model Name											
	TSP800	TSP700	TSP600	TUP900	TSP1000	TSP800L	TSP700II	TSP650	TUP500	TSP800II	FVP10	TSP650II
ESC GS / W	NO	Ver. 4.0 or later	NO	NO	NO	NO	OK	OK	NO	OK	OK	OK
ESC GS / C	NO	Ver. 4.0 or later	NO	NO	NO	NO	OK	OK	NO	OK	OK	OK
ESC GS / 1	NO	Ver. 4.0 or later	NO	NO	NO	NO	OK	OK	NO	OK	OK	OK
ESC GS / 2	NO	Ver. 4.0 or later	NO	NO	NO	NO	OK	OK	NO	OK	OK	OK
ESC GS / 3	NO	Ver. 4.0 or later	NO	NO	NO	NO	OK	OK	NO	OK	OK	OK
ESC GS / 4	NO	Ver. 4.0 or later	NO	NO	NO	NO	OK	OK	NO	OK	OK	OK
ESC GS / 5	NO	Ver. 4.0 or later	NO	NO	NO	NO	OK	OK	NO	OK	OK	OK
ESC GS / 6	NO	Ver. 4.0 or later	NO	NO	NO	NO	OK	OK	NO	OK	OK	OK

• PDF417 Commands

Commands	Model Name											
	TSP800	TSP700	TSP600	TUP900	TSP1000	TSP800L	TSP700II	TSP650	TUP500	TSP800II	FVP10	TSP650II
ESC GS x S 0	NO	NO	NO	NO	OK	OK	OK	NO	OK	OK	OK	OK
ESC GS x S 1	NO	NO	NO	NO	OK	OK	OK	NO	OK	OK	OK	OK
ESC GS x S 2	NO	NO	NO	NO	OK	OK	OK	NO	OK	OK	OK	OK
ESC GS x S 3	NO	NO	NO	NO	OK	OK	OK	NO	OK	OK	OK	OK
ESC GS x D	NO	NO	NO	NO	OK	OK	OK	NO	OK	OK	OK	OK
ESC GS x P	NO	NO	NO	NO	OK	OK	OK	NO	OK	OK	OK	OK
ESC GS x I	NO	NO	NO	NO	OK	OK	OK	NO	OK	OK	OK	OK Before Ver.1.2 NO Ver.2.0 Or later

• Print Start Trigger Control Commands

Commands	Model Name											
	TSP800	TSP700	TSP600	TUP900	TSP1000	TSP800L	TSP700II	TSP650	TUP500	TSP800II	FVP10	TSP650II
ESC GS g 0	NO	NO	NO	NO	Ver. 1.1 or later	OK	OK	OK	OK	OK	OK	OK
ESC GS g 1	NO	NO	NO	NO	Ver. 1.1 or later	OK	OK	OK	OK	OK	OK	OK

• QR Commands

Commands	Model Name											
	TSP800	TSP700	TSP600	TUP900	TSP1000	TSP800L	TSP700II	TSP650	TUP500	TSP800II	FVP10	TSP650II
ESC GS y S 0	NO	NO	NO	NO	Ver. 1.2 or later	OK	OK	NO	OK	OK	OK	OK
ESC GS y S 1	NO	NO	NO	NO	Ver. 1.2 or later	OK	OK	NO	OK	OK	OK	OK
ESC GS y S 2	NO	NO	NO	NO	Ver. 1.2 or later	OK	OK	NO	OK	OK	OK	OK
ESC GS y D 1	NO	NO	NO	NO	Ver. 1.2 or later	OK	OK	NO	OK	OK	OK	OK
ESC GS y D 2	NO	NO	NO	NO	Ver. 1.2 or later	OK	OK	NO	OK	OK	OK	OK
ESC GS y P	NO	NO	NO	NO	Ver. 1.2 or later	OK	OK	NO	OK	OK	OK	OK
ESC GS y I	NO	NO	NO	NO	Ver. 1.2 or later	OK	OK	NO	OK	OK	OK	OK Before Ver.1.2 NO Ver.2.0 Or later

• 2D GS1 code, Compound symbol Commands

Commands	Model Name											
	TSP800	TSP700	TSP600	TUP900	TSP1000	TSP800L	TSP700II	TSP650	TUP500	TSP800II	FVP10	TSP650II
ESC GS (k(cn=51,fn=67)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	Ver. 2.0 or later
ESC GS (k(cn=51,fn=71)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	Ver. 2.0 or later
ESC GS (k(cn=51,fn=80)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	Ver. 2.0 or later
ESC GS (k(cn=51,fn=81)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	Ver. 2.0 or later
ESC GS (k(cn=52,fn=67)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	Ver. 2.0 or later
ESC GS (k(cn=52,fn=71)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	Ver. 2.0 or later
ESC GS (k(cn=52,fn=72)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	Ver. 2.0 or later
ESC GS (k(cn=52,fn=80)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	Ver. 2.0 or later
ESC GS (k(cn=52,fn=81)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	Ver. 2.0 or later

• Page Function Commands

Commands	Model Name											
	TSP800	TSP700	TSP600	TUP900	TSP1000	TSP800L	TSP700II	TSP650	TUP500	TSP800II	FVP10	TSP650II
ESC GS h 0	NO	NO	NO	NO	NO	NO	OK	NO	OK	OK	OK	OK
ESC GS h 1	NO	NO	NO	NO	NO	NO	OK	NO	OK	OK	OK	OK

• Reduced Printing Function Commands

Commands	Model Name											
	TSP800	TSP700	TSP600	TUP900	TSP1000	TSP800L	TSP700II	TSP650	TUP500	TSP800II	FVP10	TSP650II
ESC GS c	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	OK	OK

• Page Mode Commands

Commands	Model Name											
	TSP800	TSP700	TSP600	TUP900	TSP1000	TSP800L	TSP700II	TSP650	TUP500	TSP800II	FVP10	TSP650II
ESC GS P 0	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	YES	OK
ESC GS P 1	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	YES	OK
ESC GS P 2	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	YES	OK
ESC GS P 3	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	YES	OK
ESC GS P 4	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	YES	OK
ESC GS P 5	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	YES	OK
ESC GS P 6	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	YES	OK
ESC GS P 7	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	YES	OK
ESC GS P 8	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	YES	OK

• Text Search Commands

Commands	Model Name											
	TSP800	TSP700	TSP600	TUP900	TSP1000	TSP800L	TSP700II	TSP650	TUP500	TSP800II	FVP10	TSP650II
ESC GS) B (fn = 48)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	OK	OK
ESC GS) B (fn = 49)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	OK	OK
ESC GS) B (fn = 50)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	OK	OK
ESC GS) B (fn = 64)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	OK	OK
ESC GS) B (fn = 65)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	OK	OK
ESC GS) B (fn = 66)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	OK
ESC GS) B (fn = 80)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	OK	OK
ESC GS) B (fn = 81)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	OK	OK
ESC GS) B (fn = 96)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	OK	OK
ESC GS) B (fn = 97)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	OK	OK

• Audio Commands

Commands	Model Name											
	TSP800	TSP700	TSP600	TUP900	TSP1000	TSP800L	TSP700II	TSP650	TUP500	TSP800II	FVP10	TSP650II
ESC GS s O	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	OK	NO
ESC GS s P	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	OK	NO
ESC GS s R	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	OK	NO
ESC GS s I	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	OK	NO
ESC GS s U	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	OK	NO
ESC GS s T	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	OK	NO

• Graphics Data Command

Commands	Model Name											
	TSP800	TSP700	TSP600	TUP900	TSP1000	TSP800L	TSP700II	TSP650	TUP500	TSP800II	FVP10	TSP650II
ESC GS (K (fn=49)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	OK
ESC GS (K (fn=50)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	OK
ESC GS (L (fn=48)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	OK
ESC GS (L (fn=51)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	OK
ESC GS (L (fn=64)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	OK
ESC GS (L (fn=65)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	OK
ESC GS (L (fn=66)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	OK
ESC GS (L (fn=67)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	OK
ESC GS (L (fn=69)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	OK
ESC GS (L (fn=112)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	OK
ESC GS 8 L (fn=48)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	OK
ESC GS 8 L (fn=51)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	OK
ESC GS 8 L (fn=64)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	OK
ESC GS 8 L (fn=65)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	OK
ESC GS 8 L (fn=66)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	OK
ESC GS 8 L (fn=67)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	OK
ESC GS 8 L (fn=69)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	OK
ESC GS 8 L (fn=112)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	OK

• Individual Logo Command

Commands	Model Name											
	TSP800	TSP700	TSP600	TUP900	TSP1000	TSP800L	TSP700II	TSP650	TUP500	TSP800II	FVP10	TSP650II
ESC GS) L (fn=48)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	OK
ESC GS) L (fn=49)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	OK
ESC GS) L (fn=50)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	OK

• Printer Information Transmission Command

Commands	Model Name											
	TSP800	TSP700	TSP600	TUP900	TSP1000	TSP800L	TSP700II	TSP650	TUP500	TSP800II	FVP10	TSP650II
ESC GS) I (fn=48)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	OK

6.5. Wireless LAN I/F

• Standard Commands

Commands	Model Name											
	TSP800	TSP700	TSP600	TUP900	TSP1000	TSP800L	TSP700II	TSP650	TUP500	TSP800II	FVP10	TSP650II
ESC RS F	NO	NO	NO	NO	OK	NO	OK	NO	NO	NO	NO	NO
ESC GS t	Spec. A.	Spec. A.	NO	NO	Spec. A.	NO	Spec. A. Before Ver.4.0 Spec.C Ver.4.1 Or later	NO	NO	NO	NO	NO
ESC GS =	Ver. 3.0 or later Spec. A.	Spec. A.	NO	NO	Spec. A.	NO	Spec. B.	NO	NO	NO	NO	NO
ESC R	OK	OK	NO	NO	OK	NO	OK	NO	NO	NO	NO	NO
ESC /	OK	OK	NO	NO	OK	NO	OK	NO	NO	NO	NO	NO
ESC SP	OK	OK	NO	NO	OK	NO	OK	NO	NO	NO	NO	NO
ESC M	OK	OK	NO	NO	OK	NO	OK	NO	NO	NO	NO	NO
ESC P	OK	OK	NO	NO	OK	NO	OK	NO	NO	NO	NO	NO
ESC :	OK	OK	NO	NO	OK	NO	OK	NO	NO	NO	NO	NO
ESC p (Not recommended)	OK	OK	NO	NO	OK	NO	OK	NO	NO	NO	NO	NO
ESC g	Spec. A.	Spec. A.	NO	NO	Spec. B.	NO	Spec. A.	NO	NO	NO	NO	NO
ESC i	OK	OK	NO	NO	OK	NO	OK	NO	NO	NO	NO	NO
ESC W	OK	OK	NO	NO	OK	NO	OK	NO	NO	NO	NO	NO
ESC h	OK	OK	NO	NO	OK	NO	OK	NO	NO	NO	NO	NO
SO	OK	OK	NO	NO	OK	NO	OK	NO	NO	NO	NO	NO
DC4	OK	OK	NO	NO	OK	NO	OK	NO	NO	NO	NO	NO
ESC SO	OK	OK	NO	NO	OK	NO	OK	NO	NO	NO	NO	NO
ESC DC4	OK	OK	NO	NO	OK	NO	OK	NO	NO	NO	NO	NO
ESC E	Spec. A.	Spec. A.	NO	NO	Spec. A.	NO	Spec. A. Ver. 1.4 or earlier Spec. B. Ver. 2.0 or later	NO	NO	NO	NO	NO
ESC F	Spec. A.	Spec. A.	NO	NO	Spec. A.	NO	Spec. A. Ver. 1.4 or earlier Spec. B. Ver. 2.0 or later	NO	NO	NO	NO	NO
ESC -	OK	OK	NO	NO	OK	NO	OK	NO	NO	NO	NO	NO
ESC _	OK	OK	NO	NO	OK	NO	OK	NO	NO	NO	NO	NO
ESC 4	OK	OK	NO	NO	OK	NO	OK	NO	NO	NO	NO	NO
ESC 5	OK	OK	NO	NO	OK	NO	OK	NO	NO	NO	NO	NO
SI	OK	OK	NO	NO	OK	NO	OK	NO	NO	NO	NO	NO
DC2	OK	OK	NO	NO	OK	NO	OK	NO	NO	NO	NO	NO
ESC GS b	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
LF	OK	OK	NO	NO	OK	NO	OK	NO	NO	NO	NO	NO
CR	OK	OK	NO	NO	OK	NO	OK	NO	NO	NO	NO	NO
ESC a	OK	OK	NO	NO	OK	NO	OK	NO	NO	NO	NO	NO
ESC z	OK	OK	NO	NO	OK	NO	OK	NO	NO	NO	NO	NO
ESC 0	OK	OK	NO	NO	OK	NO	OK	NO	NO	NO	NO	NO
ESC J	OK	OK	NO	NO	OK	NO	OK	NO	NO	NO	NO	NO
ESC I	OK	OK	NO	NO	OK	NO	OK	NO	NO	NO	NO	NO
FF	OK	OK	NO	NO	OK	NO	OK	NO	NO	NO	NO	NO
ESC C	OK	OK	NO	NO	OK	NO	OK	NO	NO	NO	NO	NO
ESC C 0	OK	OK	NO	NO	OK	NO	OK	NO	NO	NO	NO	NO
VT	OK	OK	NO	NO	OK	NO	OK	NO	NO	NO	NO	NO
ESC B	OK	OK	NO	NO	OK	NO	OK	NO	NO	NO	NO	NO

Commands	Model Name											
	TSP800	TSP700	TSP600	TUP900	TSP1000	TSP800L	TSP700II	TSP650	TUP500	TSP800II	FVP10	TSP650II
ESC I	Spec. A.	Spec. A.	NO	NO	Spec. B.	NO	Spec. A.	NO	NO	NO	NO	NO
ESC Q	Spec. A.	Spec. A.	NO	NO	Spec. B.	NO	Spec. A.	NO	NO	NO	NO	NO
HT	OK	OK	NO	NO	OK	NO	OK	NO	NO	NO	NO	NO
ESC D	OK	OK	NO	NO	OK	NO	OK	NO	NO	NO	NO	NO
ESC GS A	OK	OK	NO	NO	OK	NO	OK	NO	NO	NO	NO	NO
ESC GS R	OK	OK	NO	NO	OK	NO	OK	NO	NO	NO	NO	NO
ESC GS a	OK	OK	NO	NO	OK	NO	OK	NO	NO	NO	NO	NO
ESC &	OK	OK	NO	NO	OK	NO	OK	NO	NO	NO	NO	NO
ESC %	OK	OK	NO	NO	OK	NO	OK	NO	NO	NO	NO	NO
ESC K	Spec. A.	Spec. A.	NO	NO	Spec. A.	NO	Spec. B.	NO	NO	NO	NO	NO
ESC L	Spec. A.	Spec. A.	NO	NO	Spec. A.	NO	Spec. B.	NO	NO	NO	NO	NO
ESC k	Spec. A.	Spec. A.	NO	NO	Spec. A.	NO	Spec. B.	NO	NO	NO	NO	NO
ESC X	Spec. A.	Spec. A.	NO	NO	Spec. A.	NO	Spec. B.	NO	NO	NO	NO	NO
ESC FS q	OK	OK	NO	NO	OK	NO	OK	NO	NO	NO	NO	NO
ESC FS p	OK	OK	NO	NO	OK	NO	OK	NO	NO	NO	NO	NO
ESC RS L	NO	NO	NO	NO	NO	NO	Ver. 1.2 or earlier Spec. A. Ver. 1.3 or later Spec. B.	NO	NO	NO	NO	NO
ESC b	Spec. A.	Spec. A.	NO	NO	Spec. B.	NO	Spec. B.	NO	NO	NO	NO	NO
ESC d	OK	OK	NO	NO	OK	NO	OK	NO	NO	NO	NO	NO
ESC BEL	OK	OK	NO	NO	NO	NO	OK	NO	NO	NO	NO	NO
BEL	OK	OK	NO	NO	NO	NO	OK	NO	NO	NO	NO	NO
FS	OK	OK	NO	NO	NO	NO	OK	NO	NO	NO	NO	NO
SUB	OK	OK	NO	NO	NO	NO	OK	NO	NO	NO	NO	NO
EM	OK	OK	NO	NO	NO	NO	OK	NO	NO	NO	NO	NO
ESC GS BEL	NO	Ver. 5.0 or later	NO	NO	OK	NO	OK	NO	NO	NO	NO	NO
ESC GS EM DC1	NO	NO	NO	NO	NO	NO	Ver. 1.3 or later	NO	NO	NO	NO	NO
ESC GS EM DC2	NO	NO	NO	NO	NO	NO	Ver. 1.3 or later	NO	NO	NO	NO	NO
ESC RS d	Spec. A.	Spec. A.	NO	NO	Spec. A.	NO	Spec. A Ver. 3.0 or earlier Spec. B Ver. 3. or later.	NO	NO	NO	NO	NO
ESC RS r	Spec. A.	Spec. A.	NO	NO	Spec. A.	NO	Spec. A.	NO	NO	NO	NO	NO
ESC RS a	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC ACK SOH	OK	OK	NO	NO	OK	NO	OK	NO	NO	NO	NO	NO
ENQ	OK	OK	NO	NO	OK	NO	Spec. A Ver. 1.4 or earlier Spec. B Ver. 2. or later	NO	NO	NO	NO	NO
EOT	OK	OK	NO	NO	OK	NO	Spec. A Ver. 1.4 or earlier Spec. B Ver. 2. or later	NO	NO	NO	NO	NO
ESC ACK CAN	NO	NO	NO	NO	NO	NO	OK	NO	NO	NO	NO	NO
ETB	Spec. A.	Spec. A.	NO	NO	Spec. B.	NO	Spec. B.	NO	NO	NO	NO	NO
ESC RS E	OK	OK	NO	NO	OK	NO	OK	NO	NO	NO	NO	NO
ESC GS ETX	NO	NO	NO	NO	NO	NO	Spec. A Ver. 2.0 or earlier Spec. B Ver. 3. or later	NO	NO	NO	NO	NO
ESC p	OK	OK	NO	NO	OK	NO	OK	NO	NO	NO	NO	NO
ESC q	OK	OK	NO	NO	OK	NO	OK	NO	NO	NO	NO	NO
ESC $	OK	OK	NO	NO	OK	NO	OK	NO	NO	NO	NO	NO
ESC s	OK	OK	NO	NO	OK	NO	OK	NO	NO	NO	NO	NO
ESC t	OK	OK	NO	NO	OK	NO	OK	NO	NO	NO	NO	NO
ESC r	Spec. A.	Spec. A.	NO	NO	Spec. B.	NO	Spec. B.	NO	NO	NO	NO	NO
CAN	OK	OK	NO	NO	OK	NO	OK	NO	NO	NO	NO	NO
ESC @	OK	OK	NO	NO	OK	NO	OK	NO	NO	NO	NO	NO
ESC GS # m	Spec. A. Ver. 3.0 or later	Spec. A.	NO	NO	Spec. B.	NO	Spec. B.	NO	NO	NO	NO	NO
ESC ?	OK	OK	NO	NO	OK	NO	OK	NO	NO	NO	NO	NO

• Raster related commands

Commands	Model Name											
	TSP800	TSP700	TSP600	TUP900	TSP1000	TSP828L	TSP700II	TSP650	TUP500	TSP800II	FVP10	TSP650II
ESC * r R	Ver. 2.0 or later	OK	NO	NO	OK	NO	OK	NO	NO	NO	NO	NO
ESC * r A	Ver. 2.0 or later	OK	NO	NO	OK	NO	OK	NO	NO	NO	NO	NO
ESC * r B	Ver. 2.0 or later	OK	NO	NO	OK	NO	OK	NO	NO	NO	NO	NO
ESC * r C	Ver. 2.0 or later	OK	NO	NO	OK	NO	OK	NO	NO	NO	NO	NO
ESC * r D	Ver. 2.0 or later	OK	NO	NO	OK	NO	OK	NO	NO	NO	NO	NO
ESC * r E	Spec. A. Ver. 2.0 or later	OK	NO	NO	OK	NO	OK	NO	NO	NO	NO	NO
ESC * r F	Spec. A. Ver. 2.0 or later	OK	NO	NO	OK	NO	OK	NO	NO	NO	NO	NO
ESC * r P	Ver. 2.0 or later	OK	NO	NO	OK	NO	OK	NO	NO	NO	NO	NO
ESC * r Q	Ver. 2.0 or later	OK	NO	NO	OK	NO	OK	NO	NO	NO	NO	NO
ESC * r m l	Ver. 2.0 or later	OK	NO	NO	OK	NO	OK	NO	NO	NO	NO	NO
ESC * r m r	Ver. 2.0 or later	OK	NO	NO	OK	NO	OK	NO	NO	NO	NO	NO
ESC * r T	Ver. 2.0 or later	OK	NO	NO	OK	NO	OK	NO	NO	NO	NO	NO
ESC * r K	Ver. 2.0 or later	OK	NO	NO	OK	NO	OK	NO	NO	NO	NO	NO
b n1 n2 d1...dk	Ver. 2.0 or later	OK	NO	NO	OK	NO	OK	NO	NO	NO	NO	NO
k n1 n2 d1...dk	Ver. 2.0 or later	OK	NO	NO	OK	NO	OK	NO	NO	NO	NO	NO
ESC * r Y	Ver. 2.0 or later	OK	NO	NO	OK	NO	OK	NO	NO	NO	NO	NO
ESC FF NUL	Ver. 2.0 or later	OK	NO	NO	OK	NO	OK	NO	NO	NO	NO	NO
ESC FF EOT	Ver. 2.0 or later	OK	NO	NO	OK	NO	OK	NO	NO	NO	NO	NO
ESC * r N	NO	NO	NO	NO	NO	NO	Ver. 1.3 or later	NO	NO	NO	NO	NO
ESC * r V	NO	NO	NO	NO	NO	NO	Ver. 1.3 or later	NO	NO	NO	NO	NO
ESC * r e	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC * r S	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC * r s 0	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC * r s 1	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC * r s 2	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC * r s 3	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO

• Black mark related commands

Commands	Model Name											
	TSP800	TSP700	TSP600	TUP900	TSP1000	TSP800L	TSP700II	TSP650	TUP500	TSP800II	FVP10	TSP650II
ESC d	OK	OK	NO	NO	OK	NO	OK	NO	NO	NO	NO	NO
FF	OK	OK	NO	NO	OK	NO	OK	NO	NO	NO	NO	NO
ESC C	OK	OK	NO	NO	OK	NO	OK	NO	NO	NO	NO	NO
ESC C 0	OK	OK	NO	NO	OK	NO	OK	NO	NO	NO	NO	NO
VT	OK	OK	NO	NO	OK	NO	OK	NO	NO	NO	NO	NO
ESC B	OK	OK	NO	NO	OK	NO	OK	NO	NO	NO	NO	NO

• 2-Color Printing Related Commands

Commands	Model Name											
	TSP800	TSP700	TSP600	TUP900	TSP1000	TSP800L	TSP700II	TSP650	TUP500	TSP800II	FVP10	TSP650II
ESC RS c	Ver. 4.0 or later	Ver. 2.0 or later	NO	NO	OK	NO	OK	NO	NO	NO	NO	NO
ESC RS C	Spec. A. Ver. 4.0 or later	Spec. A. Ver. 2.0 or later	NO	NO	Spec. B.	NO	Spec. C.	NO	NO	NO	NO	NO
ESC 4 (Not recommended)	Ver. 4.0 or later	Ver. 2.0 or later	NO	NO	x	NO	OK	NO	NO	NO	NO	NO
ESC 5 (Not recommended)	Ver. 4.0 or later	Ver. 2.0 or later	NO	NO	x	NO	OK	NO	NO	NO	NO	NO
ESC FS q	Ver. 4.0 or later	Ver. 2.0 or later	NO	NO	OK	NO	OK	NO	NO	NO	NO	NO
ESC FS p	Ver. 4.0 or later	Ver. 2.0 or later	NO	NO	OK	NO	OK	NO	NO	NO	NO	NO

• Presenter Related Commands

Commands	Model Name											
	TSP800	TSP700	TSP600	TUP900	TSP1000	TSP800L	TSP700II	TSP650	TUP500	TSP800II	FVP10	TSP650II
ESC SYN 0	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC SYN 1	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC SYN 3	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC SYN 4	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS SUB DC1	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS SUB DC2	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS SUB DC3	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO

• Mark Commands

Commands	Model Name											
	TSP800	TSP700	TSP600	TUP900	TSP1000	TSP800L	TSP700II	TSP650	TUP500	TSP800II	FVP10	TSP650II
ESC GS * 0	NO	Ver. 4.0 or later	NO	NO	OK	NO	OK	NO	NO	NO	NO	NO
ESC GS * 1	NO	Ver. 4.0 or later	NO	NO	OK	NO	OK	NO	NO	NO	NO	NO
ESC GS * 2	NO	Ver. 4.0 or later	NO	NO	OK	NO	OK	NO	NO	NO	NO	NO
ESC GS * W	NO	Ver. 4.0 or later	NO	NO	OK	NO	OK	NO	NO	NO	NO	NO
ESC GS * C	NO	Ver. 4.0 or later	NO	NO	OK	NO	OK	NO	NO	NO	NO	NO

• Auto Logo Commands

Commands	Model Name											
	TSP800	TSP700	TSP600	TUP900	TSP1000	TSP800L	TSP700II	TSP650	TUP500	TSP800II	FVP10	TSP650II
ESC GS / W	NO	Ver. 4.0 or later	NO	NO	NO	NO	OK	NO	NO	NO	NO	NO
ESC GS / C	NO	Ver. 4.0 or later	NO	NO	NO	NO	OK	NO	NO	NO	NO	NO
ESC GS / 1	NO	Ver. 4.0 or later	NO	NO	NO	NO	OK	NO	NO	NO	NO	NO
ESC GS / 2	NO	Ver. 4.0 or later	NO	NO	NO	NO	OK	NO	NO	NO	NO	NO
ESC GS / 3	NO	Ver. 4.0 or later	NO	NO	NO	NO	OK	NO	NO	NO	NO	NO
ESC GS / 4	NO	Ver. 4.0 or later	NO	NO	NO	NO	OK	NO	NO	NO	NO	NO
ESC GS / 5	NO	Ver. 4.0 or later	NO	NO	NO	NO	OK	NO	NO	NO	NO	NO
ESC GS / 6	NO	Ver. 4.0 or later	NO	NO	NO	NO	OK	NO	NO	NO	NO	NO

• PDF417 Commands

Commands	Model Name											
	TSP800	TSP700	TSP600	TUP900	TSP1000	TSP800L	TSP700II	TSP650	TUP500	TSP800II	FVP10	TSP650II
ESC GS x S 0	NO	NO	NO	NO	OK	NO	OK	NO	NO	NO	NO	NO
ESC GS x S 1	NO	NO	NO	NO	OK	NO	OK	NO	NO	NO	NO	NO
ESC GS x S 2	NO	NO	NO	NO	OK	NO	OK	NO	NO	NO	NO	NO
ESC GS x S 3	NO	NO	NO	NO	OK	NO	OK	NO	NO	NO	NO	NO
ESC GS x D	NO	NO	NO	NO	OK	NO	OK	NO	NO	NO	NO	NO
ESC GS x P	NO	NO	NO	NO	OK	NO	OK	NO	NO	NO	NO	NO
ESC GS x I	NO	NO	NO	NO	OK	NO	OK	NO	NO	NO	NO	NO

• Print Start Trigger Control Commands

Commands	Model Name											
	TSP800	TSP700	TSP600	TUP900	TSP1000	TSP800L	TSP700II	TSP650	TUP500	TSP800II	FVP10	TSP650II
ESC GS g 0	NO	NO	NO	NO	Ver. 1.1 or later	NO	OK	NO	NO	NO	NO	NO
ESC GS g 1	NO	NO	NO	NO	Ver. 1.1 or later	NO	OK	NO	NO	NO	NO	NO

• QR Code Commands

Commands	Model Name											
	TSP800	TSP700	TSP600	TUP900	TSP1000	TSP800L	TSP700II	TSP650	TUP500	TSP800II	FVP10	TSP650II
ESC GS y S 0	NO	NO	NO	NO	Ver. 1.2 or later	NO	OK	NO	NO	NO	NO	NO
ESC GS y S 1	NO	NO	NO	NO	Ver. 1.2 or later	NO	OK	NO	NO	NO	NO	NO
ESC GS y S 2	NO	NO	NO	NO	Ver. 1.2 or later	NO	OK	NO	NO	NO	NO	NO
ESC GS y D 1	NO	NO	NO	NO	Ver. 1.2 or later	NO	OK	NO	NO	NO	NO	NO
ESC GS y D 2	NO	NO	NO	NO	Ver. 1.2 or later	NO	OK	NO	NO	NO	NO	NO
ESC GS y P	NO	NO	NO	NO	Ver. 1.2 or later	NO	OK	NO	NO	NO	NO	NO
ESC GS y I	NO	NO	NO	NO	Ver. 1.2 or later	NO	OK	NO	NO	NO	NO	NO

• 2D GS1 code, Compound symbol Commands

Commands	Model Name											
	TSP800	TSP700	TSP600	TUP900	TSP1000	TSP800L	TSP700II	TSP650	TUP500	TSP800II	FVP10	TSP650II
ESC GS (k(cn=51,fn=67)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS (k(cn=51,fn=71)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS (k(cn=51,fn=80)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS (k(cn=51,fn=81)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS (k(cn=52,fn=67)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS (k(cn=52,fn=71)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS (k(cn=52,fn=72)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS (k(cn=52,fn=80)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS (k(cn=52,fn=81)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO

• Page Function Commands

Commands	Model Name											
	TSP800	TSP700	TSP600	TUP900	TSP1000	TSP800L	TSP700II	TSP650	TUP500	TSP800II	FVP10	TSP650II
ESC GS h 0	NO	NO	NO	NO	NO	NO	OK	NO	NO	NO	NO	NO
ESC GS h 1	NO	NO	NO	NO	NO	NO	OK	NO	NO	NO	NO	NO

• Reduced Printing Function Commands

Commands	Model Name											
	TSP800	TSP700	TSP600	TUP900	TSP1000	TSP800L	TSP700II	TSP650	TUP500	TSP800II	FVP10	TSP650II
ESC GS c	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO

• Page Mode Commands

Commands	Model Name											
	TSP800	TSP700	TSP600	TUP900	TSP1000	TSP800L	TSP700II	TSP650	TUP500	TSP800II	FVP10	TSP650II
ESC GS P 0	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS P 1	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS P 2	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS P 3	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS P 4	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS P 5	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS P 6	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS P 7	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS P 8	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO

• Text Search Commands

Commands	Model Name											
	TSP800	TSP700	TSP600	TUP900	TSP1000	TSP800L	TSP700II	TSP650	TUP500	TSP800II	FVP10	TSP650II
ESC GS) B (fn = 48)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS) B (fn = 49)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS) B (fn = 50)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS) B (fn = 64)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS) B (fn = 65)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS) B (fn=66)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS) B (fn = 80)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS) B (fn = 81)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS) B (fn = 96)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS) B (fn = 97)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO

• Audio Commands

Commands	Model Name											
	TSP800	TSP700	TSP600	TUP900	TSP1000	TSP800L	TSP700II	TSP650	TUP500	TSP800II	FVP10	TSP650II
ESC GS s O	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS s P	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS s R	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS s I	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS s U	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS s T	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO

• Graphics Data Command

Commands	Model Name											
	TSP800	TSP700	TSP600	TUP900	TSP1000	TSP800L	TSP700II	TSP650	TUP500	TSP800II	FVP10	TSP650II
ESC GS (K (fn=49)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS (K (fn=50)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS (L (fn=48)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS (L (fn=51)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS (L (fn=64)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS (L (fn=65)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS (L (fn=66)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS (L (fn=67)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS (L (fn=69)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS (L (fn=112)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS 8 L (fn=48)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS 8 L (fn=51)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS 8 L (fn=64)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS 8 L (fn=65)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS 8 L (fn=66)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS 8 L (fn=67)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS 8 L (fn=69)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS 8 L (fn=112)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO

• Individual Logo Command

Commands	Model Name											
	TSP800	TSP700	TSP600	TUP900	TSP1000	TSP800L	TSP700II	TSP650	TUP500	TSP800II	FVP10	TSP650II
ESC GS) L (fn=48)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS) L (fn=49)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS) L (fn=50)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO

• Printer Information Transmission Command

Commands	Model Name											
	TSP800	TSP700	TSP600	TUP900	TSP1000	TSP800L	TSP700II	TSP650	TUP500	TSP800II	FVP10	TSP650II
ESC GS) I (fn=48)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO

6.6. Bluetooth I/F

• Standard Commands

Commands	Model Name											
	TSP800	TSP700	TSP600	TUP900	TSP1000	TSP800L	TSP700II	TSP650	TUP500	TSP800II	FVP10	TSP650II
ESC RS F	NO	NO	NO	NO	NO	NO	Ver.5.0 or later	NO	NO	Ver.2.0 or later	NO	OK
ESC GS t	NO	NO	NO	NO	NO	NO	Spec.C Ver.5.0 or later	NO	NO	Spec.C Ver.2.0 or later	NO	Spec. B Before Ver.1.1 Spec.D Ver.1.2 Or later
ESC GS =	NO	NO	NO	NO	NO	NO	Spec.B Ver.5.0 or later	NO	NO	Spec.B Ver.2.0 or later	NO	Spec. B
ESC R	NO	NO	NO	NO	NO	NO	Ver.5.0 or later	NO	NO	Ver.2.0 or later	NO	OK
ESC /	NO	NO	NO	NO	NO	NO	Ver.5.0 or later	NO	NO	Ver.2.0 or later	NO	OK
ESC SP	NO	NO	NO	NO	NO	NO	Ver.5.0 or later	NO	NO	Ver.2.0 or later	NO	OK
ESC M	NO	NO	NO	NO	NO	NO	Ver.5.0 or later	NO	NO	Ver.2.0 or later	NO	OK
ESC P	NO	NO	NO	NO	NO	NO	Ver.5.0 or later	NO	NO	Ver.2.0 or later	NO	OK
ESC :	NO	NO	NO	NO	NO	NO	Ver.5.0 or later	NO	NO	Ver.2.0 or later	NO	OK
ESC p (Not recommended)	NO	NO	NO	NO	NO	NO	Ver.5.0 or later	NO	NO	Ver.2.0 or later	NO	OK
ESC g	NO	NO	NO	NO	NO	NO	Spec.A Ver.5.0 or later	NO	NO	Spec.A Ver.2.0 or later	NO	Spec. A
ESC i	NO	NO	NO	NO	NO	NO	Ver.5.0 or later	NO	NO	Ver.2.0 or later	NO	OK
ESC W	NO	NO	NO	NO	NO	NO	Ver.5.0 or later	NO	NO	Ver.2.0 or later	NO	OK
ESC h	NO	NO	NO	NO	NO	NO	Ver.5.0 or later	NO	NO	Ver.2.0 or later	NO	OK
SO	NO	NO	NO	NO	NO	NO	Ver.5.0 or later	NO	NO	Ver.2.0 or later	NO	OK
DC4	NO	NO	NO	NO	NO	NO	Ver.5.0 or later	NO	NO	Ver.2.0 or later	NO	OK
ESC SO	NO	NO	NO	NO	NO	NO	Ver.5.0 or later	NO	NO	Ver.2.0 or later	NO	OK
ESC DC4	NO	NO	NO	NO	NO	NO	Ver.5.0 or later	NO	NO	Ver.2.0 or later	NO	OK
ESC E	NO	NO	NO	NO	NO	NO	Spec.B Ver.5.0 or later	NO	NO	Spec.B Ver.2.0 or later	NO	Spec. B
ESC F	NO	NO	NO	NO	NO	NO	Spec.B Ver.5.0 or later	NO	NO	Spec.B Ver.2.0 or later	NO	Spec. B
ESC -	NO	NO	NO	NO	NO	NO	Ver.5.0 or later	NO	NO	Ver.2.0 or later	NO	OK
ESC _	NO	NO	NO	NO	NO	NO	Ver.5.0 or later	NO	NO	Ver.2.0 or later	NO	OK
ESC 4	NO	NO	NO	NO	NO	NO	Ver.5.0 or later	NO	NO	Ver.2.0 or later	NO	OK
ESC 5	NO	NO	NO	NO	NO	NO	Ver.5.0 or later	NO	NO	Ver.2.0 or later	NO	OK
SI	NO	NO	NO	NO	NO	NO	Ver.5.0 or later	NO	NO	Ver.2.0 or later	NO	OK
DC2	NO	NO	NO	NO	NO	NO	Ver.5.0 or later	NO	NO	Ver.2.0 or later	NO	OK
ESC GS b	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	OK
LF	NO	NO	NO	NO	NO	NO	Ver.5.0 or later	NO	NO	Ver.2.0 or later	NO	OK
CR	NO	NO	NO	NO	NO	NO	Ver.5.0 or later	NO	NO	Ver.2.0 or later	NO	OK
ESC a	NO	NO	NO	NO	NO	NO	Ver.5.0 or later	NO	NO	Ver.2.0 or later	NO	OK
ESC z	NO	NO	NO	NO	NO	NO	Ver.5.0 or later	NO	NO	Ver.2.0 or later	NO	OK
ESC 0	NO	NO	NO	NO	NO	NO	Ver.5.0 or later	NO	NO	Ver.2.0 or later	NO	OK
ESC J	NO	NO	NO	NO	NO	NO	Ver.5.0 or later	NO	NO	Ver.2.0 or later	NO	OK
ESC I	NO	NO	NO	NO	NO	NO	Ver.5.0 or later	NO	NO	Ver.2.0 or later	NO	OK
FF	NO	NO	NO	NO	NO	NO	Ver.5.0 or later	NO	NO	Ver.2.0 or later	NO	OK
ESC C	NO	NO	NO	NO	NO	NO	Ver.5.0 or later	NO	NO	Ver.2.0 or later	NO	OK
ESC C 0	NO	NO	NO	NO	NO	NO	Ver.5.0 or later	NO	NO	Ver.2.0 or later	NO	OK
VT	NO	NO	NO	NO	NO	NO	Ver.5.0 or later	NO	NO	Ver.2.0 or later	NO	OK
ESC B	NO	NO	NO	NO	NO	NO	Ver.5.0 or later	NO	NO	Ver.2.0 or later	NO	OK
ESC l	NO	NO	NO	NO	NO	NO	Spec.A Ver.5.0 or later	NO	NO	Spec.A Ver.2.0 or later	NO	Spec. A

Commands	Model Name											
	TSP800	TSP700	TSP600	TUP900	TSP1000	TSP800L	TSP700II	TSP650	TUP500	TSP800II	FVP10	TSP650II
ESC Q	NO	NO	NO	NO	NO	NO	Spec.A Ver.5.0 or later	NO	NO	Spec.A Ver.2.0 or later	NO	Spec. A
HT	NO	NO	NO	NO	NO	NO	Ver.5.0 or later	NO	NO	Ver.2.0 or later	NO	OK
ESC D	NO	NO	NO	NO	NO	NO	Ver.5.0 or later	NO	NO	Ver.2.0 or later	NO	OK
ESC GS A	NO	NO	NO	NO	NO	NO	Ver.5.0 or later	NO	NO	Ver.2.0 or later	NO	OK
ESC GS R	NO	NO	NO	NO	NO	NO	Ver.5.0 or later	NO	NO	Ver.2.0 or later	NO	OK
ESC GS a	NO	NO	NO	NO	NO	NO	Ver.5.0 or later	NO	NO	Ver.2.0 or later	NO	OK
ESC &	NO	NO	NO	NO	NO	NO	Ver.5.0 or later	NO	NO	Ver.2.0 or later	NO	OK
ESC %	NO	NO	NO	NO	NO	NO	Ver.5.0 or later	NO	NO	Ver.2.0 or later	NO	OK
ESC K	NO	NO	NO	NO	NO	NO	Spec.B Ver.5.0 or later	NO	NO	Spec.B Ver.2.0 or later	NO	Spec. B
ESC L	NO	NO	NO	NO	NO	NO	Spec.B Ver.5.0 or later	NO	NO	Spec.B Ver.2.0 or later	NO	Spec. B
ESC k	NO	NO	NO	NO	NO	NO	Spec.B Ver.5.0 or later	NO	NO	Spec.B Ver.2.0 or later	NO	Spec. B
ESC X	NO	NO	NO	NO	NO	NO	Spec.B Ver.5.0 or later	NO	NO	Spec.B Ver.2.0 or later	NO	Spec. B
ESC FS q	NO	NO	NO	NO	NO	NO	Ver.5.0 or later	NO	NO	Ver.2.0 or later	NO	OK
ESC FS p	NO	NO	NO	NO	NO	NO	Ver.5.0 or later	NO	NO	Ver.2.0 or later	NO	OK
ESC RS L	NO	NO	NO	NO	NO	NO	Spec.B Ver.5.0 or later	NO	NO	Spec.B Ver.2.0 or later	NO	Spec. B
ESC b	NO	NO	NO	NO	NO	NO	Spec.B Ver.5.0 or later	NO	NO	Spec.B Ver.2.0 or later	NO	Spec. B Before Ver.1.2 Spec.C Ver.2.0 Or later
ESC d	NO	NO	NO	NO	NO	NO	Ver.5.0 or later	NO	NO	Ver.2.0 or later	NO	OK
ESC BEL	NO	NO	NO	NO	NO	NO	Ver.5.0 or later	NO	NO	Ver.2.0 or later	NO	OK
BEL	NO	NO	NO	NO	NO	NO	Ver.5.0 or later	NO	NO	Ver.2.0 or later	NO	OK
FS	NO	NO	NO	NO	NO	NO	Ver.5.0 or later	NO	NO	Ver.2.0 or later	NO	OK
SUB	NO	NO	NO	NO	NO	NO	Ver.5.0 or later	NO	NO	Ver.2.0 or later	NO	OK
EM	NO	NO	NO	NO	NO	NO	Ver.5.0 or later	NO	NO	Ver.2.0 or later	NO	OK
ESC GS BEL	NO	NO	NO	NO	NO	NO	Ver.5.0 or later	NO	NO	Ver.2.0 or later	NO	OK
ESC GS EM DC1	NO	NO	NO	NO	NO	NO	Ver.5.0 or later	NO	NO	Ver.2.0 or later	NO	OK
ESC GS EM DC2	NO	NO	NO	NO	NO	NO	Ver.5.0 or later	NO	NO	Ver.2.0 or later	NO	OK
ESC RS d	NO	NO	NO	NO	NO	NO	Spec.B Ver.5.0 or later	NO	NO	Spec.B Ver.2.0 or later	NO	Spec. B
ESC RS r	NO	NO	NO	NO	NO	NO	Spec.A Ver.5.0 or later	NO	NO	Spec.A Ver.2.0 or later	NO	Spec. A
ESC RS a	NO	NO	NO	NO	NO	NO	Spec.C Ver.5.0 or later	NO	NO	Spec.C Ver.2.0 or later	NO	Spec. C
ESC ACK SOH	NO	NO	NO	NO	NO	NO	Ver.5.0 or later	NO	NO	Ver.2.0 or later	NO	OK
ENQ	NO	NO	NO	NO	NO	NO	Spec.B Ver.5.0 or later	NO	NO	Spec.B Ver.2.0 or later	NO	Spec. B

Commands	Model Name											
	TSP800	TSP700	TSP600	TUP900	TSP1000	TSP800L	TSP700II	TSP650	TUP500	TSP800II	FVP10	TSP650II
EOT	NO	NO	NO	NO	NO	NO	Spec.B Ver.5.0 or later	NO	NO	Spec.B Ver.2.0 or later	NO	Spec. B
ESC ACK CAN	NO	NO	NO	NO	NO	NO	Ver.5.0 or later	NO	NO	Ver.2.0 or later	NO	OK
ETB	NO	NO	NO	NO	NO	NO	Spec.B Ver.5.0 or later	NO	NO	Spec.B Ver.2.0 or later	NO	Spec. B
ESC RS E	NO	NO	NO	NO	NO	NO	Ver.5.0 or later	NO	NO	Ver.2.0 or later	NO	OK
ESC GS ETX	NO	NO	NO	NO	NO	NO	Spec.C Ver.5.0 or later	NO	NO	Spec.C Ver.2.0 or later	NO	Spec. B Before Ver.1.2 Spec.C Ver.2.0 Or later
ESC p	NO	NO	NO	NO	NO	NO	Ver.5.0 or later	NO	NO	Ver.2.0 or later	NO	OK
ESC q	NO	NO	NO	NO	NO	NO	Ver.5.0 or later	NO	NO	Ver.2.0 or later	NO	OK
ESC $	NO	NO	NO	NO	NO	NO	Ver.5.0 or later	NO	NO	Ver.2.0 or later	NO	OK
ESC s	NO	NO	NO	NO	NO	NO	Ver.5.0 or later	NO	NO	Ver.2.0 or later	NO	OK
ESC t	NO	NO	NO	NO	NO	NO	Ver.5.0 or later	NO	NO	Ver.2.0 or later	NO	OK
ESC r	NO	NO	NO	NO	NO	NO	Spec.B Ver.5.0 or later	NO	NO	Spec.B Ver.2.0 or later	NO	Spec. B
CAN	NO	NO	NO	NO	NO	NO	Ver.5.0 or later	NO	NO	Ver.2.0 or later	NO	OK
ESC @	NO	NO	NO	NO	NO	NO	Ver.5.0 or later	NO	NO	Ver.2.0 or later	NO	OK
ESC GS # m	NO	NO	NO	NO	NO	NO	Spec.B Ver.5.0 or later	NO	NO	Spec.B Ver.2.0 or later	NO	Spec. C
ESC ?	NO	NO	NO	NO	NO	NO	Ver.5.0 or later	NO	NO	Ver.2.0 or later	NO	OK

• Raster Commands

Commands	Model Name											
	TSP800	TSP700	TSP600	TUP900	TSP1000	TSP800L	TSP700II	TSP650	TUP500	TSP800II	FVP10	TSP650II
ESC * r R	NO	NO	NO	NO	NO	NO	Ver.5.0 or later	NO	NO	Ver.2.0 or later	NO	OK
ESC * r A	NO	NO	NO	NO	NO	NO	Ver.5.0 or later	NO	NO	Ver.2.0 or later	NO	OK
ESC * r B	NO	NO	NO	NO	NO	NO	Ver.5.0 or later	NO	NO	Ver.2.0 or later	NO	OK
ESC * r C	NO	NO	NO	NO	NO	NO	Ver.5.0 or later	NO	NO	Ver.2.0 or later	NO	OK
ESC * r D	NO	NO	NO	NO	NO	NO	Ver.5.0 or later	NO	NO	Ver.2.0 or later	NO	OK
ESC * r E	NO	NO	NO	NO	NO	NO	Ver.5.0 or later	NO	NO	Ver.2.0 or later	NO	OK
ESC * r F	NO	NO	NO	NO	NO	NO	Ver.5.0 or later	NO	NO	Ver.2.0 or later	NO	OK
ESC * r P	NO	NO	NO	NO	NO	NO	Ver.5.0 or later	NO	NO	Ver.2.0 or later	NO	OK
ESC * r Q	NO	NO	NO	NO	NO	NO	Ver.5.0 or later	NO	NO	Ver.2.0 or later	NO	OK
ESC * r m l	NO	NO	NO	NO	NO	NO	Ver.5.0 or later	NO	NO	Ver.2.0 or later	NO	OK
ESC * r m r	NO	NO	NO	NO	NO	NO	Ver.5.0 or later	NO	NO	Ver.2.0 or later	NO	OK
ESC * r T	NO	NO	NO	NO	NO	NO	Ver.5.0 or later	NO	NO	Ver.2.0 or later	NO	OK
ESC * r K	NO	NO	NO	NO	NO	NO	Ver.5.0 or later	NO	NO	Ver.2.0 or later	NO	OK
b n1 n2 d1...dk	NO	NO	NO	NO	NO	NO	Ver.5.0 or later	NO	NO	Ver.2.0 or later	NO	OK
k n1 n2 d1...dk	NO	NO	NO	NO	NO	NO	Ver.5.0 or later	NO	NO	Ver.2.0 or later	NO	OK
ESC * r Y	NO	NO	NO	NO	NO	NO	Ver.5.0 or later	NO	NO	Ver.2.0 or later	NO	OK
ESC FF NUL	NO	NO	NO	NO	NO	NO	Ver.5.0 or later	NO	NO	Ver.2.0 or later	NO	OK
ESC FF EOT	NO	NO	NO	NO	NO	NO	Ver.5.0 or later	NO	NO	Ver.2.0 or later	NO	OK
ESC * r N	NO	NO	NO	NO	NO	NO	Ver.5.0 or later	NO	NO	Ver.2.0 or later	NO	OK
ESC * r V	NO	NO	NO	NO	NO	NO	Ver.5.0 or later	NO	NO	Ver.2.0 or later	NO	OK
ESC * r e	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC * r S	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC * r s 0	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC * r s 1	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC * r s 2	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC * r s 3	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO

• Black Mark Related Commands

Commands	Model Name											
	TSP800	TSP700	TSP600	TUP900	TSP1000	TSP800L	TSP700II	TSP650	TUP500	TSP800II	FVP10	TSP650II
ESC d	NO	NO	NO	NO	NO	NO	Ver.5.0 or later	NO	NO	Ver.2.0 or later	NO	NO
FF	NO	NO	NO	NO	NO	NO	Ver.5.0 or later	NO	NO	Ver.2.0 or later	NO	NO
ESC C	NO	NO	NO	NO	NO	NO	Ver.5.0 or later	NO	NO	Ver.2.0 or later	NO	NO
ESC C 0	NO	NO	NO	NO	NO	NO	Ver.5.0 or later	NO	NO	Ver.2.0 or later	NO	NO
VT	NO	NO	NO	NO	NO	NO	Ver.5.0 or later	NO	NO	Ver.2.0 or later	NO	NO
ESC B	NO	NO	NO	NO	NO	NO	Ver.5.0 or later	NO	NO	Ver.2.0 or later	NO	NO

• 2-Color Printing Related Commands

Commands	Model Name											
	TSP800	TSP700	TSP600	TUP900	TSP1000	TSP800L	TSP700II	TSP650	TUP500	TSP800II	FVP10	TSP650II
ESC RS c	NO	NO	NO	NO	NO	NO	Ver.5.0 or later	NO	NO	Ver.2.0 or later	NO	OK
ESC RS C	NO	NO	NO	NO	NO	NO	Spec.C Ver.5.0 or later	NO	NO	Spec.C Ver.2.0 or later	NO	Spec. A
ESC 4 (Not recommended)	NO	NO	NO	NO	NO	NO	Ver.5.0 or later	NO	NO	Ver.2.0 or later	NO	OK
ESC 5 (Not recommended)	NO	NO	NO	NO	NO	NO	Ver.5.0 or later	NO	NO	Ver.2.0 or later	NO	OK
ESC FS q	NO	NO	NO	NO	NO	NO	Ver.5.0 or later	NO	NO	Ver.2.0 or later	NO	OK
ESC FS p	NO	NO	NO	NO	NO	NO	Ver.5.0 or later	NO	NO	Ver.2.0 or later	NO	OK

• Presenter Related Commands

Commands	Model Name											
	TSP800	TSP700	TSP600	TUP900	TSP1000	TSP800L	TSP700II	TSP650	TUP500	TSP800II	FVP10	TSP650II
ESC SYN 0	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC SYN 1	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC SYN 3	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC SYN 4	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS SUB DC1	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS SUB DC2	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS SUB DC3	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO

• Mark Commands

Commands	Model Name											
	TSP800	TSP700	TSP600	TUP900	TSP1000	TSP800L	TSP700II	TSP650	TUP500	TSP800II	FVP10	TSP650II
ESC GS * 0	NO	NO	NO	NO	NO	NO	Ver.5.0 or later	NO	NO	Ver.2.0 or later	NO	OK
ESC GS * 1	NO	NO	NO	NO	NO	NO	Ver.5.0 or later	NO	NO	Ver.2.0 or later	NO	OK
ESC GS * 2	NO	NO	NO	NO	NO	NO	Ver.5.0 or later	NO	NO	Ver.2.0 or later	NO	OK
ESC GS * W	NO	NO	NO	NO	NO	NO	Ver.5.0 or later	NO	NO	Ver.2.0 or later	NO	OK
ESC GS * C	NO	NO	NO	NO	NO	NO	Ver.5.0 or later	NO	NO	Ver.2.0 or later	NO	OK

• Auto Logo Commands

Commands	Model Name											
	TSP800	TSP700	TSP600	TUP900	TSP1000	TSP800L	TSP700II	TSP650	TUP500	TSP800II	FVP10	TSP650II
ESC GS / W	NO	NO	NO	NO	NO	NO	Ver.5.0 or later	NO	NO	Ver.2.0 or later	NO	OK
ESC GS / C	NO	NO	NO	NO	NO	NO	Ver.5.0 or later	NO	NO	Ver.2.0 or later	NO	OK
ESC GS / 1	NO	NO	NO	NO	NO	NO	Ver.5.0 or later	NO	NO	Ver.2.0 or later	NO	OK
ESC GS / 2	NO	NO	NO	NO	NO	NO	Ver.5.0 or later	NO	NO	Ver.2.0 or later	NO	OK
ESC GS / 3	NO	NO	NO	NO	NO	NO	Ver.5.0 or later	NO	NO	Ver.2.0 or later	NO	OK
ESC GS / 4	NO	NO	NO	NO	NO	NO	Ver.5.0 or later	NO	NO	Ver.2.0 or later	NO	OK
ESC GS / 5	NO	NO	NO	NO	NO	NO	Ver.5.0 or later	NO	NO	Ver.2.0 or later	NO	OK
ESC GS / 6	NO	NO	NO	NO	NO	NO	Ver.5.0 or later	NO	NO	Ver.2.0 or later	NO	OK

• PDF417 Commands

Commands	Model Name											
	TSP800	TSP700	TSP600	TUP900	TSP1000	TSP800L	TSP700II	TSP650	TUP500	TSP800II	FVP10	TSP650II
ESC GS x S 0	NO	NO	NO	NO	NO	NO	Ver.5.0 or later	NO	NO	Ver.2.0 or later	NO	OK
ESC GS x S 1	NO	NO	NO	NO	NO	NO	Ver.5.0 or later	NO	NO	Ver.2.0 or later	NO	OK
ESC GS x S 2	NO	NO	NO	NO	NO	NO	Ver.5.0 or later	NO	NO	Ver.2.0 or later	NO	OK
ESC GS x S 3	NO	NO	NO	NO	NO	NO	Ver.5.0 or later	NO	NO	Ver.2.0 or later	NO	OK
ESC GS x D	NO	NO	NO	NO	NO	NO	Ver.5.0 or later	NO	NO	Ver.2.0 or later	NO	OK
ESC GS x P	NO	NO	NO	NO	NO	NO	Ver.5.0 or later	NO	NO	Ver.2.0 or later	NO	OK
ESC GS x I	NO	NO	NO	NO	NO	NO	Ver.5.0 or later	NO	NO	Ver.2.0 or later	NO	OK Before Ver.1.2 NO Ver.2.0 Or later

• Print Start Trigger Control Commands

Commands	Model Name											
	TSP800	TSP700	TSP600	TUP900	TSP1000	TSP800L	TSP700II	TSP650	TUP500	TSP800II	FVP10	TSP650II
ESC GS g 0	NO	NO	NO	NO	NO	NO	Ver.5.0 or later	NO	NO	Ver.2.0 or later	NO	OK
ESC GS g 1	NO	NO	NO	NO	NO	NO	Ver.5.0 or later	NO	NO	Ver.2.0 or later	NO	OK

• QR Commands

Commands	Model Name											
	TSP800	TSP700	TSP600	TUP900	TSP1000	TSP800L	TSP700II	TSP650	TUP500	TSP800II	FVP10	TSP650II
ESC GS y S 0	NO	NO	NO	NO	NO	NO	Ver.5.0 or later	NO	NO	Ver.2.0 or later	NO	OK
ESC GS y S 1	NO	NO	NO	NO	NO	NO	Ver.5.0 or later	NO	NO	Ver.2.0 or later	NO	OK
ESC GS y S 2	NO	NO	NO	NO	NO	NO	Ver.5.0 or later	NO	NO	Ver.2.0 or later	NO	OK
ESC GS y D 1	NO	NO	NO	NO	NO	NO	Ver.5.0 or later	NO	NO	Ver.2.0 or later	NO	OK
ESC GS y D 2	NO	NO	NO	NO	NO	NO	Ver.5.0 or later	NO	NO	Ver.2.0 or later	NO	OK
ESC GS y P	NO	NO	NO	NO	NO	NO	Ver.5.0 or later	NO	NO	Ver.2.0 or later	NO	OK
ESC GS y I	NO	NO	NO	NO	NO	NO	Ver.5.0 or later	NO	NO	Ver.2.0 or later	NO	OK Before Ver.1.2 NO Ver.2.0 Or later

• 2D GS1 code, Compound symbol Commands

Commands	Model Name											
	TSP800	TSP700	TSP600	TUP900	TSP1000	TSP800L	TSP700II	TSP650	TUP500	TSP800II	FVP10	TSP650II
ESC GS (k(cn=51,fn=67)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	Ver. 2.0 or later
ESC GS (k(cn=51,fn=71)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	Ver. 2.0 or later
ESC GS (k(cn=51,fn=80)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	Ver. 2.0 or later
ESC GS (k(cn=51,fn=81)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	Ver. 2.0 or later
ESC GS (k(cn=52,fn=67)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	Ver. 2.0 or later
ESC GS (k(cn=52,fn=71)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	Ver. 2.0 or later
ESC GS (k(cn=52,fn=72)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	Ver. 2.0 or later
ESC GS (k(cn=52,fn=80)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	Ver. 2.0 or later
ESC GS (k(cn=52,fn=81)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	Ver. 2.0 or later

• Page Function Commands

Commands	Model Name											
	TSP800	TSP700	TSP600	TUP900	TSP1000	TSP800L	TSP700II	TSP650	TUP500	TSP800II	FVP10	TSP650II
ESC GS h 0	NO	NO	NO	NO	NO	NO	Ver.5.0 or later	NO	NO	Ver.2.0 or later	NO	OK
ESC GS h 1	NO	NO	NO	NO	NO	NO	Ver.5.0 or later	NO	NO	Ver.2.0 or later	NO	OK

• Reduced Printing Function Commands

Commands	Model Name											
	TSP800	TSP700	TSP600	TUP900	TSP1000	TSP800L	TSP700II	TSP650	TUP500	TSP800II	FVP10	TSP650II
ESC GS c	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	OK

• Page Mode Commands

Commands	Model Name											
	TSP800	TSP700	TSP600	TUP900	TSP1000	TSP800L	TSP700II	TSP650	TUP500	TSP800II	FVP10	TSP650II
ESC GS P 0	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	OK
ESC GS P 1	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	OK
ESC GS P 2	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	OK
ESC GS P 3	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	OK
ESC GS P 4	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	OK
ESC GS P 5	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	OK
ESC GS P 6	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	OK
ESC GS P 7	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	OK
ESC GS P 8	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	OK

• Text Search Commands

Commands	Model Name											
	TSP800	TSP700	TSP600	TUP900	TSP1000	TSP800L	TSP700II	TSP650	TUP500	TSP800II	FVP10	TSP650II
ESC GS) B (fn=48)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	OK
ESC GS) B (fn=49)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	OK
ESC GS) B (fn=50)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	OK
ESC GS) B (fn=64)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	OK
ESC GS) B (fn=65)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	OK
ESC GS) B (fn=66)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	OK
ESC GS) B (fn=80)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	OK
ESC GS) B (fn=81)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	OK
ESC GS) B (fn=96)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	OK
ESC GS) B (fn=97)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	OK

• Audio Commands

Commands	Model Name											
	TSP800	TSP700	TSP600	TUP900	TSP1000	TSP800L	TSP700II	TSP650	TUP500	TSP800II	FVP10	TSP650II
ESC GS s O	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS s P	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS s R	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS s I	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS s U	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ESC GS s T	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO

• Graphics Data Command

Commands	Model Name											
	TSP800	TSP700	TSP600	TUP900	TSP1000	TSP800L	TSP700II	TSP650	TUP500	TSP800II	FVP10	TSP650II
ESC GS (K (fn=49)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	OK
ESC GS (K (fn=50)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	OK
ESC GS (L (fn=48)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	OK
ESC GS (L (fn=51)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	OK
ESC GS (L (fn=64)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	OK
ESC GS (L (fn=65)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	OK
ESC GS (L (fn=66)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	OK
ESC GS (L (fn=67)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	OK
ESC GS (L (fn=69)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	OK
ESC GS (L (fn=112)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	OK
ESC GS 8 L (fn=48)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	OK
ESC GS 8 L (fn=51)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	OK
ESC GS 8 L (fn=64)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	OK
ESC GS 8 L (fn=65)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	OK
ESC GS 8 L (fn=66)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	OK
ESC GS 8 L (fn=67)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	OK
ESC GS 8 L (fn=69)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	OK
ESC GS 8 L (fn=112)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	OK

• Individual Logo Command

Commands	Model Name											
	TSP800	TSP700	TSP600	TUP900	TSP1000	TSP800L	TSP700II	TSP650	TUP500	TSP800II	FVP10	TSP650II
ESC GS) L (fn=48)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	OK
ESC GS) L (fn=49)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	OK
ESC GS) L (fn=50)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	OK

• Printer Information Transmission Command

Commands	Model Name											
	TSP800	TSP700	TSP600	TUP900	TSP1000	TSP800L	TSP700II	TSP650	TUP500	TSP800II	FVP10	TSP650II
ESC GS) I (fn=48)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	OK

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