

TOSHIBA

TOSHIBA Barcode Printer

BX400/BX600 Series

S Mode Specification

0.0 Edition: July, 2024

Table of Contents

1.	SCOPE	1
2.	OVERVIEW	2
3.	S MODE COMMANDS	3
3.1.	BASIC SPECIFICATIONS OF S MODE COMMANDS	3
3.2.	COMMANDS USED FOR DEVICES	4
3.3.	HOW TO READ THE COMMAND MANUAL	6
3.4.	STATUS 3 FORMAT RETURN STATUS	8
3.5.	STATUS 4 FORMAT RETURN STATUS	10
4.	COMMAND LISTS	11
5.	CONTROL COMMAND	18
5.1.	ESC+A: START CODE	18
5.2.	ESC+Z: STOP CODE	19
5.3.	ESC+Q: PRINT QUANTITY	20
5.4.	ESC+ID: JOB ID NUMBER	21
5.5.	ESC+WK: JOB-NAME SPECIFICATION	22
6.	PRINT POSITION COMMAND	23
6.1.	ESC+H: HORIZONTAL PRINT POSITION	23
6.2.	ESC+V: VERTICAL PRINT POSITION	24
7.	MODIFICATION COMMAND	25
7.1.	ESC+P: CHARACTER PITCH	25
7.2.	ESC+L: ENLARGEMENT	26
7.3.	ESC+PS: PROPORTIONAL PITCH	27
7.4.	ESC+PR: RELEASE PROPORTIONAL PITCH	28
7.5.	ESC+%: ROTATION	29
7.6.	ESC+F: SEQUENTIAL NUMBER	31
7.7.	ESC+FW: RULED/GRID LINE PRINT	33
7.8.	ESC+FC: PRINT CIRCLE	35
7.9.	ESC+(: REVERSE COLOR PRINT	37
7.10.	ESC+KC: KANJI CODE	39
7.11.	ESC+0: PARTIAL EDIT	41
7.12.	ESC+RM: MIRROR IMAGE	42
7.13.	ESC+KS: KANJI SET	44
7.14.	ESC+AL: FIELD ALIGNMENT	45
7.15.	ESC+&: FORM OVERLAY REGISTRATION SPECIFICATION	51
7.16.	ESC+/: FORM OVERLAY CALL SPECIFICATION	52
8.	FONT COMMAND	53
8.1.	ESC+X20: X20 FONT	53
8.2.	ESC+X21: X21 FONT	55
8.3.	ESC+X22: X22 FONT	57
8.4.	ESC+X23: X23 FONT	59
8.5.	ESC+X24: X24 FONT	61
8.6.	ESC+XU: XU FONT	63
8.7.	ESC+XS: XS FONT	65
8.8.	ESC+XM: XM FONT	67
8.9.	ESC+XB: XB FONT	69
8.10.	ESC+XL: XL FONT	71
8.11.	ESC+OA: OCR-A FONT	73
8.12.	ESC+OB: OCR-B FONT	75
8.13.	ESC+U: U FONT	77
8.14.	ESC+S: S FONT	79
8.15.	ESC+M: M FONT	81
8.16.	ESC+WB: WB FONT	83
8.17.	ESC+WL: WL FONT	85
8.18.	ESC+ \$: OUTLINE FONT DESIGN	87
8.19.	ESC+ \$=: OUTLINE FONT PRINT	89
8.20.	ESC+ RD: CG FONT	92

8.21.	ESC+ RG: MULTIPLE LANGUAGE	94
8.22.	ESC+ RH: SCALABLE FONT	98
8.23.	ESC+K1: 16×16 dots KANJI IN HORIZONTAL LINE	102
8.24.	ESC+K2: 24×24 dots KANJI IN HORIZONTAL LINE	104
8.25.	ESC+K3: 22×22 dots KANJI IN HORIZONTAL LINE	106
8.26.	ESC+K4: 32×32 dots KANJI IN HORIZONTAL LINE	108
8.27.	ESC+K5: 40×40 dots KANJI IN HORIZONTAL LINE	110
8.28.	ESC+K8: 16×16 dots KANJI IN HORIZONTAL LINE WITH 1-byte CHARACTER	112
8.29.	ESC+K9: 24×24 dots KANJI IN HORIZONTAL LINE WITH 1-byte CHARACTER	114
8.30.	ESC+KA: 22×22 dots KANJI IN HORIZONTAL LINE WITH 1-byte CHARACTER	116
8.31.	ESC+KB: 32×32 dots KANJI IN HORIZONTAL LINE WITH 1-byte CHARACTER	118
8.32.	ESC+KD: 40×40 dots KANJI IN HORIZONTAL LINE WITH 1-byte CHARACTER	120
8.33.	ESC+k1: 16×16 dots KANJI IN VERTICAL LINE	122
8.34.	ESC+k2: 24×24 dots KANJI IN VERTICAL LINE	124
8.35.	ESC+k3: 22×22 dots KANJI IN VERTICAL LINE	126
8.36.	ESC+k4: 32×32 dots KANJI IN VERTICAL LINE	128
8.37.	ESC+k5: 40×40 dots KANJI IN VERTICAL LINE	130
8.38.	ESC+k8: 16×16 dots KANJI IN VERTICAL LINE WITH 1-byte CHARACTER	132
8.39.	ESC+k9: 24×24 dots KANJI IN VERTICAL LINE WITH 1-byte CHARACTER	134
8.40.	ESC+kA: 22×22 dots KANJI IN VERTICAL LINE WITH 1-byte CHARACTER	136
8.41.	ESC+kB: 32×32 dots KANJI IN VERTICAL LINE WITH 1-byte CHARACTER	138
8.42.	ESC+kD: 40×40 dots KANJI IN VERTICAL LINE WITH 1-byte CHARACTER	140
8.43.	ESC+T1: 16×16 dots EXTERNAL FONT REGISTRATION	142
8.44.	ESC+T2: 24×24 dots EXTERNAL FONT REGISTRATION	145
8.45.	ESC+K1(K2): RECALL HORIZONTAL WRITING EXTERNAL CHARACTER	148
8.46.	ESC+k1(k2): RECALL VERTICAL WRITING EXTERNAL CHARACTER	150
9.	BARCODE SPECIFICATION SUMMARY	152
9.1.	ESC+B: BARCODE (RATIO 1:3)	157
9.2.	ESC+D: BARCODE (RATIO 1:2)	160
9.3.	ESC+D~ESC+d: BARCODE (with HRI)	163
9.4.	ESC+BD: BARCODE (RATIO 2:5)	165
9.5.	ESC+BT: BARCODE RATIO REGISTRATION	168
9.6.	ESC+BW: BARCODE PRINT by SPECIFIED RATIO	169
9.7.	ESC+BC: CODE93 BARCODE	173
9.8.	ESC+BF: UPC ADD-on CODE (BOOKLAND)	175
9.9.	ESC+BG: CODE128(128A,128B,128C) BARCODE	177
9.10.	ESC+BI: GS1-128 (UCC/EAN128)	181
9.11.	ESC+BP: POSTNET	184
9.12.	ESC+BS: USPS BARCODE	186
9.13.	ESC+EU: EAN, UCC COMPOSITE SYMBOL	188
9.14.	ESC+BL: UPC-A BARCODE SPECIFICATION (NO HRI)	194
9.15.	ESC+BL~ ESC+d: UPC-A BARCODE SPECIFICATION (HRI SPECIFICATION)	196
9.16.	ESC+BM: UPC-A BARCODE SPECIFICATION (with HRI)	198
9.17.	ESC+BZ: SPECIFY CUSTOMER BARCODE	200
10.	DIMENSION CODE COMMAND	202
10.1.	ESC+2D10: PDF417	202
10.2.	ESC+2D12: MICRO PDF417	205
10.3.	ESC+2D20: MAXI CODE	208
10.4.	ESC+2D30: QR CODE (MODEL 2)	211
10.5.	ESC+2D31: QR CODE (MODEL 1)	216
10.6.	ESC+2D32: MICRO QR CODE	219
10.7.	ESC+2D33: SQR CODE	244
10.8.	ESC+2D50: DATA MATRIX(ECC200)	249
10.9.	ESC+2D51: GS1 DATA MATRIX	253
10.10.	ESC+2D70: Aztec BARCODE	257
10.11.	ESC+BQ: QR FONT SPECIFICATION (COMPATIBLE COMMANDS)	260
10.12.	ESC+BV: MAXI CODE SPECIFICATION (COMPATIBLE COMMAND)	262
10.13.	ESC+BK: PDF417 (COMPATIBLE COMMAND)	264
10.14.	ESC+BX: DATA MATRIX(ECC200) (COMPATIBLE COMMAND)	268

10.15.	ESC+DC: DATA MATRIX(ECC200) DATA SPECIFICATION (COMPATIBLE COMMAND).....	269
10.16.	ESC+FX: DATA MATRIX(ECC200) SEQUENTIAL NUMBER DESIGNATION (COMPATIBLE COMMAND).....	270
11.	GRAPHIC COMMAND	272
11.1.	ESC+G: GRAPHIC PRINTING DESIGNATION	272
11.2.	ESC+GM: BMP FILE PRINTING SPECIFICATION	274
11.3.	ESC+GP: PCX FILE PRINTING SPECIFICATION	275
12.	SYSTEM COMMAND	276
12.1.	ESC+CS: PRINT SPEED SPECIFICATION	276
12.2.	ESC+#F: PRINT DENSITY SPECIFICATION	278
12.3.	ESC+#E: PRINT DENSITY SPECIFICATION (COMPATIBLE COMMAND).....	280
12.4.	ESC+A1: SPECIFY MEDIA SIZE	282
12.5.	ESC+A3: BASE REFERENCE POINT	284
12.6.	ESC+EP: PRINT END POSITION	286
12.7.	ESC+~: MULTIPLE CUT.....	288
12.8.	ESC+CT: CUT NUMBER UNIT	289
12.9.	ESC+NC: EJECT AND CUT	290
12.10.	ESC+~A: CUT NUMBER UNIT	291
12.11.	ESC+~B: EJECT AND CUT	292
12.12.	ESC+*: MEMORY CLEAR	293
12.13.	ESC+C: REPRINT	295
12.14.	ESC+E: AUTO LINE FEED.....	296
12.15.	ESC+PO: OFFSET	298
12.16.	ESC+IG: SENSOR TYPE	299
12.17.	ESC+PH: PRINT METHOD	300
12.18.	ESC+PM: PRINT MODE.....	301
12.19.	ESC+KM: MINCHO (KANJI).....	303
12.20.	ESC+KG: GOTHIC (KANJI).....	304
12.21.	ESC+CE: EUROPEAN CODE PAGE.....	305
12.22.	ESC+CL: DELETE CR/LF.....	307
13.	CALENDAR COMMAND.....	308
13.1.	ESC+WT: CALENDAR SETUP	308
13.2.	ESC+WP: CALENDAR ARITHMETIC (ADD).....	309
13.3.	ESC+WA: CALENDAR PRINT	310
14.	MEMORY CARD COMMAND	312
14.1.	ESC+CC: CARD SLOT FOR USE.....	312
14.2.	ESC+FM: MEMORY CARD INITIALIZATION	313
14.3.	ESC+BJF: MEMORY CARD INITIALIZATION	314
14.4.	ESC+FP: MEMORY CARD STATUS PRINTING SPECIFICATION.....	315
14.5.	ESC+BJS: MEMORY CARD STATUS PRINTING SPECIFICATION.....	316
14.6.	ESC+YS: FORMAT REGISTRATION SPECIFICATION	317
14.7.	ESC+/N: FIELD REGISTRATION SPECIFICATION	320
14.8.	ESC+YR: FORMAT CALL SPECIFICATION	322
14.9.	ESC+/D: FIELD PRINTING SPECIFICATION.....	323
14.10.	ESC+GI: GRAPHIC REGISTRATION SPECIFICATION	324
14.11.	ESC+GR: GRAPHIC CALL SPECIFICATION	326
14.12.	ESC+GT: BMP FILE REGISTRATION	327
14.13.	ESC+GC: BMP FILE CALL SPECIFICATION	328
14.14.	ESC+PI: PCX FILE REGISTRATION	329
14.15.	ESC+PY: PCX FILE CALL SPECIFICATION	330
14.16.	ESC+*: CLEAR SPECIFICATION (MEMORY CARD)	331
14.17.	ESC+T1: MEMORY CARD 16x16 dots EXTERNAL FONT REGISTRATION.....	333
14.18.	ESC+T2: MEMORY CARD 24x24 dots EXTERNAL FONT REGISTRATION.....	335
14.19.	ESC+ K1(K2): HORIZONTAL WRITING EXTERNAL FONT CALL	337
14.20.	ESC+ k1(k2): VERTICAL WRITING EXTERNAL FONT CALL	339
14.21.	ESC+&S: REGISTRATION OF FORM OVERLAY TO MEMORY CARD	341
14.22.	ESC+ &R: FORM OVERLAY CALL FROM MEMORY CARD	344
15.	INTELLIGENT COMMAND	345

15.1.	ESC+IK: LABEL FEED CONTROL.....	345
16.	COMMON COMMANDS for ALL LANGUAGES.....	347
16.1.	DC2+PA: PRINTER SETTING.....	348
16.2.	DC2+PB: PRINTER SETTING INFORMATION ACQUISITION	358
16.3.	DC2+PC: PRINTER DEVICE INFORMATION ACQUISITION	361
16.4.	DC2+PD: EACH SENSOR INFORMATION ACQUISITION	365
16.5.	DC2+PG: PRINTER STATUS INFORMATION ACQUISITION	367
16.6.	DC2+PN: REQUEST to RETURN LABEL PITCH SIZE.....	371
16.7.	DC2+DB: INITIALIZATION	373
16.8.	DC2+DC: RESET	375
16.9.	DC2+DE: FILE DOWNLOAD	376
16.10.	DC2+DF: FILE NAME INFORMATION ACQUISITION	378
16.11.	DC2+DG: FILE INFORMATION ACQUISITION.....	380
16.12.	DC2+DH: FILE DELETION	382

1. SCOPE

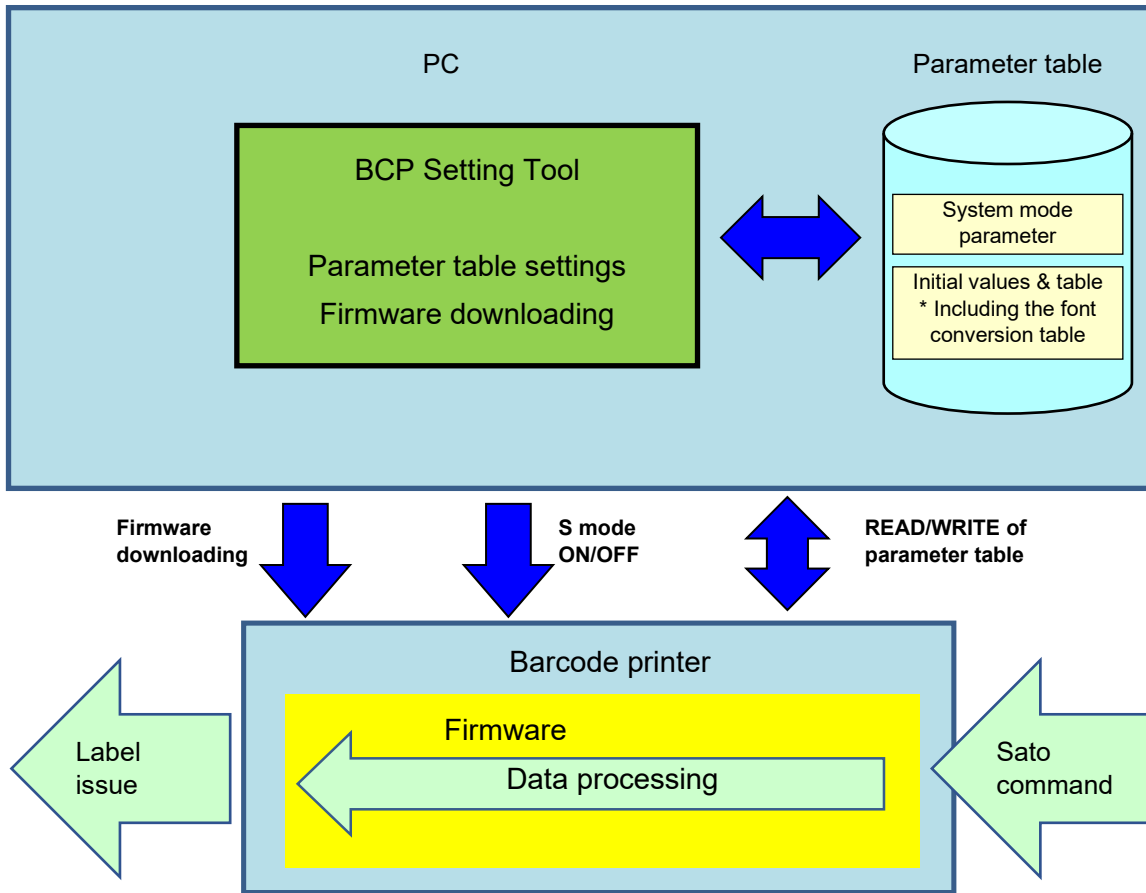
This specification applies to the S Mode for use with the barcode printer of Toshiba Tec Corporation. The target barcode printer is as follows.

- BX400 Series
- BX600 Series

This specification also describes the functions that were not supported in the initial release, but are expected to be supported in the next period.

2. OVERVIEW

SBPL (Sato Barcode Printer Language) is printed by this printer in the following manner.
By using the S Mode function, the command analyzing process to the drawing process is performed.



WLAN, LAN, Bluetooth, USB, serial and parallel interfaces are supported.

The restrictions of the S Mode are shown below. Refer to each command page for restrictions on each command.

- (1) The print result is not exactly the same as when printed by a Sato printer.
- (2) The print position and font size are slightly different due to the use of a pseudo font.
- (3) Differences may occur in the printed image of a two-dimensional barcode.
- (4) The throughput is affected by the printer performance.
- (5) The size of the memory, the number of fields, etc. may be limited due to the printer specifications.
- (6) Some commands are not supported.
- (7) If the drawing object is positioned beyond the maximum print width, it is printed by turning to the left.
- (8) Operation when combined with the expansion I/O feature is out of the specifications.
- (9) Operation when combined with the RFID is out of the specifications.

Refer to "WEB Printer Specification" for the parameter table file and the startup method to use S Mode.

3. S MODE COMMANDS

3.1. BASIC SPECIFICATIONS OF S MODE COMMANDS

S Mode commands shall follow the following basic format:

Format

Command start code	Parameter	Separator code	Parameter	Separator code	Data

Command start code:

The default value is "ESC" (1Bh) or "DC2" (12h).

If it is present in the send command, it becomes the beginning of the next command.

Parameter:

Basically, parameters other than the file name parameter are "A" (41h) to "Z" (5Ah), "a" (61h) to "z" (7Ah), and "0" (30h) to "9" (39h).

Control code (00h to 1Fh) and space (20h) are not supported.

If notified, it will be discarded. (Example 10 [20h] 00 → 1000 will be obtained.)

For other supported codes, refer to the description of each command parameter.

For the file name parameter, refer to the file name in "About Device Use Commands".

Separator code:

See the description of each command.

Data:

See the description of each command. (Some commands have no data part.)

3.2. COMMANDS USED FOR DEVICES

Commands used for devices have the following common specifications

[Common specifications]

Slot designation

If the slot designation is other than a valid slot (RAM, on-board FLASH ROM), the save and read processes are not performed.

Saving function

Saving into or reading from the onboard Flash ROM cannot be performed simultaneously with the PC command saving function of the printer. The operation with the PC command saving function used is not guaranteed.

While a file is being saved, "SAVING (this indication depends on the language)" is displayed on the LCD. During the saving processing, key operation is invalid. However, when the data are stored in a RAM, "SAVING" is not displayed on the LCD.

As the save area needs a minimum of 256 KB for preservation processing, at least this amount should be secured for use.

The number of files that can be saved shall be 500 per drive.

When the number of files exceeds 500, "MEMORY FULL" is displayed on the LCD and the saving is stopped.

Reading operation

If the file name specified for a reading operation does not exist, it is not counted for the printing field. Therefore, when only a call command without a file name is specified for a label, issuing is not performed.

File name

A file name can contain up to 16 characters. If the number of characters in a file name exceeds 16, the overflowing characters are discarded and the file is saved under the name of the first 16 characters.

When a space code (20h) exists in the file name, the characters after the space code are omitted and only the characters right before the space code make up the file name.

A space code (20h) existing before the file name characters shall be excluded.

When a backslash code (5Ch) exists in the file name, it shall be excluded from it.

When a control code (00h, 2Fh"/") exists in a file name, a command is not executed.

E.g.)

When the number of characters in a file name exceeds the maximum:

R:123456789012345678.GRF → R:1234567890123456.GRF

When a file name starts with space codes (20h):

R: 123456789012345678.GRF → R:1234567890123456.GRF

When space codes (20h) exist in a file name string:

R: 12345 67890123456.GRF → R:12345.GRF

Saving in Memory

When RAM/Flash ROM/USB memory becomes full while saving data, "MEMORY FULL" is displayed on the LCD. This message can be displayed in the selected language. Each model displays a key operation specification LCD message.

* When [MEMORY FULL] occurs, release this by pressing [RESTART] to return to the online screen. Moreover, do not reattempt the registration after [MEMORY FULL] is released. This is not guaranteed.

3.3. HOW TO READ THE COMMAND MANUAL

7.3. ESC+PS: PROPORTIONAL PITCH

(1)	Proportional Pitch		(2)	ESC+ PS
(3)	Hexadecimal	ESC	PS	(5) Parameter
	Code	<1B> ₁₆	<50> ₁₆ <53> ₁₆	Nil
(4)	Initial Value	Nil		

(6)	Valid Range and Term of Command	When the power switch is OFF	The set command is not maintained.
		Valid range within items	The set parameter is valid until the next valid setting.
		Valid range between items	The set parameter becomes initial value at the next item <A>.

(7) [Function]
Specifying the proportional pitch.

(8) [Format]
<PS>

(9) [Coding Example]
<A>
<PS>
<V>100<H>200<P>2<L>0202<XM>ABCD
<Q>2
<Z>

- (10) [Supplementary Explanation]
1. The proportional pitch designation is available only for the commands described in the following [valid command] table.
 2. You can set valid or invalid of the proportional pitch specification by PA command [DC2].

(11) [Valid Command]

Font	<XU>	<XS>	<XM>	<XB>	<XL>			
	<X20>	<X21>	<X22>	<X23>	<X24>			
Modification								

- (1) Command name
(2) Command code
(3) Command in hexadecimal code
(4) Initial value of the command
(5) Parameter to be added to the command
(6) Valid range of the command
- When the power is turned off
 1. The set parameters are retained.
 2. The set parameters are not retained.
 3. The set commands are not retained.
 - Scope within the item

1. The set parameters are valid until the next selection is made.
 2. The set parameters become invalid.
 3. The set commands become invalid.
- Scope between items
 1. The set parameters are changed to the initial values in the next item <A>.
 2. The set parameters are valid until the next selection is made.
 3. The set parameters become invalid.
 4. The set commands become invalid.
- (7) Outline of the command function
 - (8) Commands and required parameters
 - (9) Examples of command usage
 - (10) Supplementals for the command function and meaning of the parameter
 - (11) Commands which will be affected due to the use of the command

3.4. STATUS 3 FORMAT RETURN STATUS

In this communication protocol, the printer status and response are sent back to the host as a status. The details of each request command and return status are specified as below.

[Status request command]

By receiving this command, the job ID number of the received data currently being printed, the printer status and the remaining number of sheets to print are returned to the host.

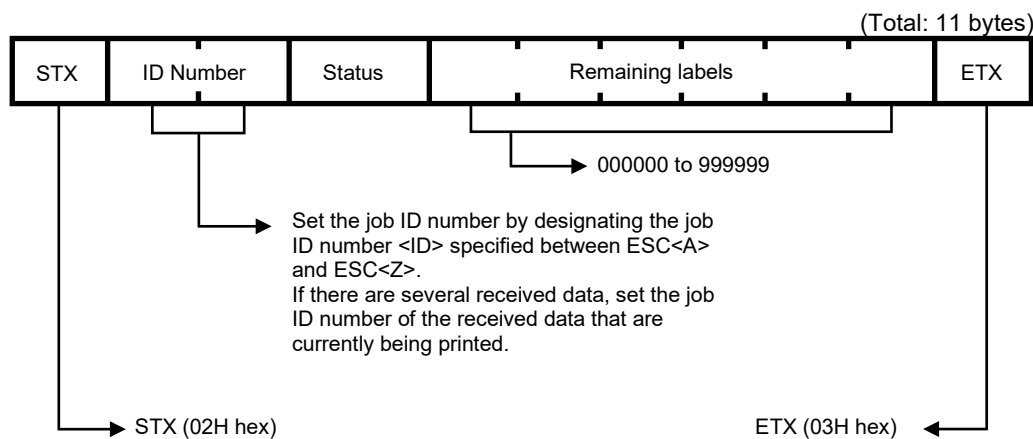
After printing is completed or when there is no received data, the number of sheets to print is sent by all "0" (30H hex).

If the job ID number specification <ID> is not designated, it returns a space (20H hex).

Do not send ENQ (status request) during print data (STX <A> to <Z> ETX) transmission. If you send ENQ, the status cannot be sent back properly, or it may not be printed correctly.

(1) Command ENQ (05H hex)

(2) Return status format



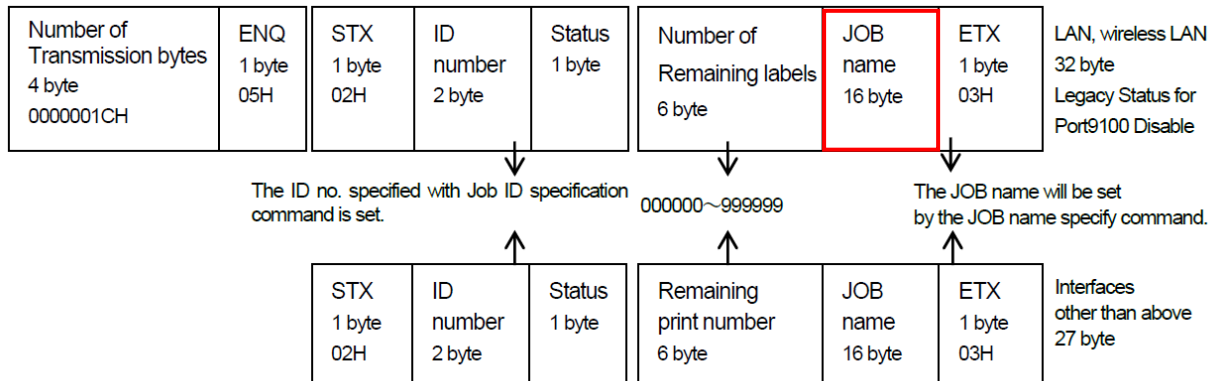
DESCRIPTION			ASCII	HEX	BX Series Support Level
ONLINE STATE	WAIT TO RECEIVE	NO ERROR	A	41	Supported
		RIBBON/LABEL NEAR END	B	42	Supported
		BUFFER NEAR FULL	C	43	Not Supported
		RIBBON/LABEL NEAR END & BUFFER NEAR FULL	D	44	Not Supported
		(NOT USED) BATTERY NEAR END	!	21	Not Supported
		(NOT USED) BATTERY NEAR END & RIBBON/LABEL NEAR END	"	22	Not Supported
		(NOT USED) BATTERY NEAR END & BUFFER NEAR FULL	#	23	Not Supported
		(NOT USED) BATTERY NEAR END & RIBBON/LABEL NEAR END & BUFFER NEAR FULL	\$	24	Not Supported
	PRINTING	NO ERROR	G	47	Supported
		RIBBON/LABEL NEAR END	H	48	Supported
		BUFFER NEAR FULL	I	49	Not Supported
		RIBBON/LABEL NEAR END & BUFFER NEAR FULL	J	4A	Not Supported
		(NOT USED) BATTERY NEAR END	%	25	Not Supported
		(NOT USED) BATTERY NEAR END & RIBBON/LABEL NEAR END	&	26	Not Supported
		(NOT USED) BATTERY NEAR END & BUFFER NEAR FULL	'	27	Not Supported
		(NOT USED) BATTERY NEAR END & RIBBON/LABEL NEAR END & BUFFER NEAR FULL	(	28	Not Supported
	STANDBY (Waiting for strip/cut)	NO ERROR	M	4D	Supported
		RIBBON/LABEL NEAR END	N	4E	Supported
		BUFFER NEAR FULL	O	4F	Not Supported
		RIBBON/LABEL NEAR END & BUFFER NEAR FULL	P	50	Not Supported
		(NOT USED) BATTERY NEAR END	)	29	Not Supported
		(NOT USED) BATTERY NEAR END & RIBBON/LABEL NEAR END	*	2A	Not Supported
		(NOT USED) BATTERY NEAR END & BUFFER NEAR FULL	+	2B	Not Supported
		(NOT USED) BATTERY NEAR END & RIBBON/LABEL NEAR END & BUFFER NEAR FULL	,	2C	Not Supported
	ANALYZING, EDITING	NO ERROR	S	53	Supported
		RIBBON/LABEL NEAR END	T	54	Supported
		BUFFER NEAR FULL	U	55	Not Supported
		RIBBON/LABEL NEAR END & BUFFER NEAR FULL	V	56	Not Supported
		(NOT USED) BATTERY NEAR END	-	2D	Not Supported
		(NOT USED) BATTERY NEAR END & RIBBON/LABEL NEAR END	.	2E	Not Supported
		(NOT USED) BATTERY NEAR END & BUFFER NEAR FULL	/	2F	Not Supported
		(NOT USED) BATTERY NEAR END & RIBBON/LABEL NEAR END & BUFFER NEAR FULL	@	40	Not Supported
ERROR DETECTION	BUFFER OVER		a	61	Not Supported
	HEAD OPEN		b	62	Supported
	PAPER END		c	63	Supported
	RIBBON END		d	64	Supported
	MEDIA ERROR		e	65	Not Supported
	SENSOR ERROR/PAPER JAM ERROR		f	66	Not Supported
	BARCODE READ/MATCHING ERROR		f	66	Not Supported
	BARCODE READER CONNECTION CHECK ERROR		f	66	Not Supported
	HEAD ERROR		g	67	Not Supported
	(NOT USED) COVER OPEN		h	68	Not Supported
	CUTTER OPEN ERROR		h	68	Not Supported
	(NOT USED) RIBBON CORE NON-LOCK ERROR		h	68	Not Supported
	CARD ERROR		i	69	Not Supported
	CUTTER ERROR		j	6A	Not Supported
	OTHER ERROR		k	6B	Not Supported
	(NOT USED) CUTTER SENSOR ERROR		l	6C	Not Supported
	(NOT USED) STACKER OR REWINDER FULL		m	6D	Not Supported
	RFID TAG ERROR		o	6F	Not Supported
	RFID PROTECT ERROR		p	70	Not Supported
	(NOT USED) BATTERY ERROR		q	71	Not Supported

3.5. STATUS 4 FORMAT RETURN STATUS

In this communication protocol, when four different requests and print commands are received, the status and response of the printer is sent back to the host as a status.

As a difference from the status 3 format, the job name is added to the return status.

The format of the return status is described as below.



4. COMMAND LISTS

- The following lists show the supported commands.
- Some operations differ between a Sato printer (hereafter, "Sato") and a printer (including TPCL) (hereafter, "TTEC").
- Only the operation of commands described here is guaranteed.

Control

Command		Function	BX Series	BA400	BV400
ESC+A	<A>	Start Code	Supported	Supported	Supported
ESC+Z	<Z>	Stop Code	Supported	Supported	Supported
ESC+Q	<Q>	Print Quantity	Supported	Supported	Supported
ESC+ID	<ID>	Job ID Number	Supported	Supported	Supported
ESC+WK	<WK>	Job Name	Supported	Supported	Not supported
ESC+CR	<CR>	Status 5 Reply Check Setting	Not supported	Not supported	Not supported

Print Position

Command		Function	BX Series	BA400	BV400
ESC+H	<H>	Horizontal Print Position	Supported	Supported	Supported
ESC+V	<V>	Vertical Print Position	Supported	Supported	Supported

Modification

Command		Function	BX Series	BA400	BV400
ESC+P	<P>	Character Pitch	Supported	Supported	Supported
ESC+L	<L>	Enlargement	Supported	Supported	Supported
ESC+PS	<PS>	Proportional Pitch	Supported	Supported	Supported
ESC+PR	<PR>	Release Proportional Pitch	Supported	Supported	Supported
ESC+%	<%>	Rotation	Supported	Supported	Supported
ESC+F	<F>	Sequential Number	Supported	Supported	Supported
ESC+FW	<FW>	Ruled/Grid Line Print	Supported	Supported	Supported
ESC+FC	<FC>	Print Circle	Supported	Supported	Supported
ESC+FT	<FT>	Print Triangle	Not supported	Not supported	Not supported
ESC+(	<(>	Reverse Color Print	Supported	Supported	Supported
ESC+KC	<KC>	Kanji Code	Supported	Supported	Supported
ESC+&	<&>	Store Form Overlay	Not supported	Not supported	Not supported
ESC+/	</>	Recall Form Overlay	Not supported	Not supported	Not supported
ESC+0	<0>	Partial Edit	Supported	Supported	Supported
ESC+WD	<WD>	Partial Copy	Not supported	Not supported	Not supported
ESC+J	<J>	Journal Print	Not supported	Not supported	Not supported
ESC+RF	<RF>	Recall Font&Logo	Not supported	Not supported	Not supported
ESC+RM	<RM>	Mirror Image	Supported	Supported	Supported
ESC+KS	<KS>	Kanji Set	Supported	Supported	Supported
ESC+AL	<AL>	Field Alignment	Supported	Supported	Supported

Font

Command		Function	BX Series	BA400	BV400
ESC+X20	<X20>	X20 Font (Basic size 5×9 dots)	Supported	Supported	Supported
ESC+X21	<X21>	X21 Font (Basic size 17×17 dots)	Supported	Supported	Supported
ESC+X22	<X22>	X22 Font (Basic size 24×24 dots)	Supported	Supported	Supported
ESC+X23	<X23>	X23 Font (Basic size 48×48 dots)	Supported	Supported	Supported
ESC+X24	<X24>	X24 Font (Basic size 48×48 dots)	Supported	Supported	Supported
ESC+XU	<XU>	XU Font (Basic size 5×9 dots)	Supported	Supported	Supported
ESC+XS	<XS>	XS Font (Basic size 17×17 dots)	Supported	Supported	Supported
ESC+XM	<XM>	XM Font (Basic size 24×24 dots)	Supported	Supported	Supported
ESC+XB	<XB>	XB Font (Basic size 48×48 dots)	Supported	Supported	Supported
ESC+XL	<XL>	XL Font (Basic size 48×48 dots)	Supported	Supported	Supported
ESC+OA	<OA>	OCR-A Font	Supported	Supported	Supported
ESC+OB	<OB>	OCR-B Font	Supported	Supported	Supported
ESC+U	<U>	U Font	Supported	Supported	Supported
ESC+S	<S>	S Font	Supported	Supported	Supported
ESC+M	<M>	M Font	Supported	Supported	Supported
ESC+WB	<WB>	WB Font	Supported	Supported	Supported
ESC+WL	<WL>	WL Font	Supported	Supported	Supported
ESC+\$	<\$>	Outline Font Design	Supported	Supported	Supported
ESC+\$=	<\$=>	Outline Font Print	Supported	Supported	Supported
ESC+RD	<RD>	CG Font	Supported	Supported	Supported
ESC+RG	<RG>	Multiple Language	Supported	Supported	Supported
ESC+RH	<RH>	Scalable Font	Supported	Supported	Supported
ESC+K1	<K1>	16×16dots Kanji in Horizontal Line	Supported	Supported	Supported
ESC+K2	<K2>	24×24dots Kanji in Horizontal Line	Supported	Supported	Supported
ESC+K3	<K3>	22×22dots Kanji in Horizontal Line	Supported	Supported	Supported
ESC+K4	<K4>	32×32dots Kanji in Horizontal Line	Supported	Supported	Supported
ESC+K5	<K5>	40×40dots Kanji in Horizontal Line	Supported	Supported	Supported
ESC+K8	<K8>	16×16dots Kanji in Horizontal Line with 1-byte Character (Only shift JIS and UNICODE can be specified)	Supported	Supported	Supported
ESC+K9	<K9>	24×24dots Kanji in Horizontal Line with 1-byte Character (Only shift JIS and UNICODE can be specified)	Supported	Supported	Supported
ESC+KA	<KA>	22×22dots Kanji in Horizontal Line with 1-byte Character (Only shift JIS and UNICODE can be specified)	Supported	Supported	Supported
ESC+KB	<KB>	32×32dots Kanji in Horizontal Line with 1-byte Character (Only shift JIS and UNICODE can be specified)	Supported	Supported	Supported
ESC+KD	<KD>	40×40dots Kanji in Horizontal Line with 1-byte Character (Only shift JIS and UNICODE can be specified)	Supported	Supported	Supported
ESC+k1	<k1>	16×16dots Kanji in Vertical Line	Supported	Supported	Supported
ESC+k2	<k2>	24×24dots Kanji in Vertical Line	Supported	Supported	Supported

ESC+k3	<k3>	22×22dots Kanji in Vertical Line	Supported	Supported	Supported
ESC+k4	<k4>	32×32dots Kanji in Vertical Line	Supported	Supported	Supported
ESC+k5	<k5>	40×40 dots Kanji in Vertical Line	Supported	Supported	Supported
ESC+k8	<k8>	16×16dots Kanji in vertical Line with 1-byte Character (Only shift JIS and UNICODE can be specified)	Supported	Supported	Supported
ESC+k9	<k9>	24×24dots Kanji in Vertical Line with 1-byte Character (Only shift JIS and UNICODE can be specified)	Supported	Supported	Supported
ESC+kA	<kA>	22×22dots Kanji in Vertical Line with 1-byte Character (Only shift JIS and UNICODE can be specified)	Supported	Supported	Supported
ESC+kB	<kB>	32×32dots Kanji in Vertical Line with 1-byte Character (Only shift JIS and UNICODE can be specified)	Supported	Supported	Supported
ESC+kD	<kD>	40×40dots Kanji in Vertical Line with 1-byte Character (Only shift JIS and UNICODE can be specified)	Supported	Supported	Supported
ESC+T1	<T1>	16×16dots External Font Registration	Supported	Supported	Supported
ESC+T2	<T2>	24×24dots External Font Registration	Supported	Supported	Supported
ESC+K1 (K2)	<K1(K2)>	Recall Horizontal Writing External Character	Supported	Supported	Supported
ESC+k1(k2)	<k1(k2)>	Recall Vertical Writing External Character	Supported	Supported	Supported

Barcode

Command		Function	BX Series	BA400	BV400
ESC+B		Barcode (Ratio 1:3)	Supported	Supported	Supported
ESC+D	<D>	Barcode (Ratio 1:2)	Supported	Supported	Supported
ESC+D to ESC+d	<D>~<d>	Barcode (with HRI)	Supported	Supported	Supported
ESC+BD	<BD>	Barcode (Ratio 2:5)	Supported	Supported	Supported
ESC+BT	<BT>	Barcode Ratio Registration	Supported	Supported	Supported
ESC+BW	<BW>	Print of Barcode by Specified Ratio	Supported	Supported	Supported
ESC+BC	<BC>	CODE93 Barcode	Supported	Supported	Supported
ESC+BF	<BF>	UPC Add-on (Bookland)	Supported	Supported	Supported
ESC+BG	<BG>	CODE128(128A,128B,128C) Barcode	Supported	Supported	Supported
ESC+BI	<BI>	GS1-128(UCC/EAN128) <Standard Carton ID Only>	Supported	Supported	Supported
ESC+BP	<BP>	POSTNET	Supported	Supported	Supported
ESC+BS	<BS>	USPS Barcode	Supported	Supported	Supported
ESC+EU	<EU>	EAN, UCC Composite Symbol	Supported	Supported	Supported
ESC+BL	<BL>	UPC-A Barcode (without HRI)	Supported	Supported	Supported
ESC+BL to ESC+d	<BL>~<d>	UPC-A Barcode (without HRI)	Supported	Supported	Supported
ESC+BM	<BM>	UPC-A Barcode (with HRI)	Supported	Supported	Supported
ESC+BZ	<BZ>	Customer Barcode	Supported	Supported	Supported

2D Barcode

Command		Function	BX Series	BA400	BV400
ESC+2D10	<2D10>	PDF417	Supported	Supported	Supported
ESC+2D12	<2D12>	Micro PDF417	Supported	Supported	Supported
ESC+2D20	<2D20>	MAXI Code	Supported	Supported	Supported
ESC+2D30	<2D30>	QR Code (Model 2)	Supported	Supported	Supported
ESC+2D31	<2D31>	QR Code (Model 1)	Supported	Supported	Supported
ESC+2D32	<2D32>	Micro QR Code	Supported	Supported	Supported
ESC+2D33	<2D33>	SQR Code	Supported	Supported	Supported
ESC+2D50	<2D50>	Datamatrix (ECC200)	Supported	Supported	Supported
ESC+2D51	<2D51>	GS1 Datamatrix	Supported	Supported	Supported
ESC+2D70	<2D70>	Aztec Barcode	Supported	Supported	Supported
ESC+BQ	<BQ>	QR Code (Compatible Commands)	Supported	Supported	Supported
ESC+BV	<BV>	MAXI Code (Compatible Commands)	Supported	Supported	Supported
ESC+BK	<BK>	PDF417	Supported	Supported	Supported
ESC+BX	<BX>	Datamatrix(ECC200)(Compatible Commands)	Supported	Supported	Supported
ESC+DC	<DC>	Datamatrix(ECC200)Data Specify (Compatible Commands)	Supported	Supported	Supported
ESC+FX	<FX>	Datamatrix(ECC200)Sequential Number (Compatible Commands)	Supported	Supported	Supported
ESC+QV	<QV>	QR Code Version	Not supported	Not supported	Not supported

Graphic

Command		Function	BX Series	BA400	BV400
ESC+G	<G>	Graphic Print	Supported	Supported	Supported
ESC+GM	<GM>	BMP File Print	Supported	Supported	Supported
ESC+GP	<GP>	PCX File Print	Supported	Supported	Supported

System

Command		Function	BX Series	BA400	BV400
ESC+CS	<CS>	Print Speed	Supported	Supported	Supported
ESC+#F	<#F>	Print Darkness	Supported	Supported	Supported
ESC+#E	<#E>	Print Darkness (Compatible Commands)	Supported	Supported	Supported
ESC+A1	<A1>	Media Size	Supported	Supported	Supported
ESC+A3	<A3>	Base Reference Point	Supported	Supported	Supported
ESC+EP	<EP>	Print End Position	Supported	Supported	Supported
ESC+~	<~>	Multiple Cut	Supported	Supported	Supported
ESC+CT	<CT>	Cut Number Unit	Supported	Supported	Supported
ESC+NC	<NC>	Eject and Cut	Supported	Supported	Supported
ESC+~A	<~A>	Cut Number Unit	Supported	Supported	Supported
ESC+~B	<~B>	Eject and Cut	Supported	Supported	Supported
ESC+*	<*>	Memory Clear	Supported	Supported	Supported
ESC+@	<@>	Offline	Not supported	Not supported	Not supported

ESC+C	<C>	Reprint	Supported	Supported	Supported
ESC+E	<E>	Auto Line Feed	Supported	Supported	Supported
ESC+PO	<PO>	Offset	Supported	Supported	Supported
ESC+IG	<IG>	Sensor Type	Supported	Supported	Supported
ESC+PH	<PH>	Print Method	Supported	Supported	Supported
ESC+PM	<PM>	Print Mode	Supported	Supported	Supported
ESC+KM	<KM>	Mincho (Kanji)	Supported	Supported	Supported
ESC+KG	<KG>	Gothic (Kanji)	Supported	Supported	Supported
ESC+CE	<CE>	European Code Page	Supported	Supported	Supported
ESC+TK	<TK>	Forced Tear Off	Not supported	Not supported	Not supported
ESC+TW	<TW>	Option Waiting Time	Not supported	Not supported	Not supported
ESC+CL	<CL>	Delete CR/LF	Supported	Supported	Supported

Calendar

Command		Function	BX Series	BA400	BV400
ESC+WT	<WT>	Calendar Setup(*1)	Supported	Supported	Not supported
ESC+WP	<WP>	Calendar Arithmetic (Add)(*1)	Supported	Supported	Not supported
ESC+WA	<WA>	Calendar Print(*1)	Supported	Supported	Not supported

(*1) Option: Calendar IC

Memory Card

Command		Function	BX Series	BA400	BV400
ESC+CC	<CC>	Card Slot for Use	Supported	Supported	Supported
ESC+FM	<FM>	Memory Card Initialization	Supported	Supported	Supported
ESC+BJF	<BJF>	Memory Card Initialization	Supported	Supported	Supported
ESC+FP	<FP>	Memory Card Status Print	Supported	Supported	Supported
ESC+BJS	<BJS>	Memory Card Status Print	Supported	Supported	Supported
ESC+&S	<&S>	Form Overlay Registration	Not supported	Not supported	Not supported
ESC+&R	<&R>	Form Overlay Call	Not supported	Not supported	Not supported
ESC+YS	<YS>	Format Registration	Supported	Supported	Supported
ESC+/N	</N>	Registration of Field	Supported	Supported	Supported
ESC+YR	<YR>	Format Call	Supported	Supported	Supported
ESC+/D	</D>	Print of Field	Supported	Supported	Supported
ESC+GI	<GI>	Registration of Graphic	Supported	Supported	Supported
ESC+GR	<GR>	Graphic Call	Supported	Supported	Supported
ESC+GT	<GT>	BMP File Registration	Supported	Supported	Supported
ESC+GC	<GC>	BMP File Call	Supported	Supported	Supported
ESC+PI	<PI>	PCX File Registration	Supported	Supported	Supported
ESC+PY	<PY>	PCX File Call	Supported	Supported	Supported
ESC+*	<*>	Memory Card Clear	Supported	Supported	Supported
ESC+T1	<T1>	Memory Card 16x16 dots External Font Registration	Supported	Supported	Supported

ESC+T2	<T2>	Memory Card 24x24 dots External Font Registration	Supported	Supported	Supported
ESC+K1 ESC+K2	<K1> <K2>	Horizontal Writing External Font Call	Supported	Supported	Supported
ESC+k1 ESC+k2	<k1> <k2>	Vertical Writing External Font Call	Supported	Supported	Supported
ESC+BJ ESC+BJD	<BJ> <BJD>	TrueType Font Registration(Compatible Commands)	Not supported	Not supported	Not supported
ESC+BJT	<BJT>	TrueType Font Call (Compatible Commands)	Not supported	Not supported	Not supported

Intelligent

Command		Function	BX Series	BA400	BV400
ESC+IK	<IK>	Label Feed Control	Supported	Supported	Supported

RFID

Command		Function	BX Series	BA400	BV400
ESC+IP0	<IP0>	EPC Code Write(UHF M6e)(*1)	Not supported	Not supported	Not supported
ESC+F	<F>	EPC Sequential Number(UHF M6e)(*1)	Not supported	Not supported	Not supported
ESC+IP5	<IP5>	Antenna Output Power(UHF M6e)(*1)	Not supported	Not supported	Not supported
ESC+TM	<TM>	Trademark Print(UHF M6e)(*1)	Not supported	Not supported	Not supported
ESC+TU	<TU>	Printing Tag Data(UHF M6e)(*1)	Not supported	Not supported	Not supported
ESC+RU	<RU>	EPC/TID Return(UHF M6e)(*1)	Not supported	Not supported	Not supported
ESC+RK	<RK>	RFID Write(ISO/IEC15693)(*1)	Not supported	Not supported	Not supported
ESC+TU	<TU>	Printing Tag Data(ISO/IEC15693)(*1)	Not supported	Not supported	Not supported
ESC+RU	<RU>	UID Return(ISO/IEC15693)(*1)	Not supported	Not supported	Not supported
ESC+RK	<RK>	RFID Write(ISO/IEC14443 TypeA)(*1)	Not supported	Not supported	Not supported
ESC+TU	<TU>	Printing Tag Data(ISO/IEC14443 TypeA)(*1)	Not supported	Not supported	Not supported
ESC+RU	<RU>	UID Return(ISO/IEC14443 TypeA)(*1)	Not supported	Not supported	Not supported
ESC+RK	<RK>	RFID Write(FeliCa)(*1)	Not supported	Not supported	Not supported
ESC+TU	<TU>	Printing Tag Data(FeliCa)(*1)	Not supported	Not supported	Not supported
ESC+RU	<RU>	IDm Return(FeliCa)(*1)	Not supported	Not supported	Not supported

(*1) Available only when an RFID is installed in the printer

Common for all languages

Command		Function	BX Series	BA400	BV400
DC2+PA		Printer Setting Command	Supported	Supported	Supported
DC2+PB		Printer Setting Information Acquisition	Supported	Supported	Supported
DC2+PC		Printer Device Information Acquisition	Supported	Supported	Supported
DC2+PD		Each Sensor Information Acquisition	Supported	Supported	Supported
DC2+PG		Printer Status Information Acquisition	Supported	Supported	Supported
DC2+PH		Cancel Request	Not supported	Not supported	Not supported
DC2+PI		Application Change	Not supported	Not supported	Not supported
DC2+PJ		EPC Code Read (UHF M6e)(*1)	Not supported	Not supported	Not supported
DC2+PK		EPC/TID Return Request (UHF M6e)(*1)	Not supported	Not supported	Not supported
DC2+PJ		RFID Read (ISO/IEC15693)(*1)	Not supported	Not supported	Not supported
DC2+PK		UID Return Request (ISO/IEC15693)(*1)	Not supported	Not supported	Not supported
DC2+PJ		RFID Read (ISO/IEC14443 TypeA)(*1)	Not supported	Not supported	Not supported
DC2+PK		UID Return Request (ISO/IEC14443 TypeA)(*1)	Not supported	Not supported	Not supported
DC2+PJ		RFID Read (FeliCa)(*1)	Not supported	Not supported	Not supported
DC2+PK		IDm Return Request (FeliCa)(*1)	Not supported	Not supported	Not supported
DC2+PN		Request to Return Label Pitch Size	Supported	Supported	Supported
DC2+DB		Initialization	Supported	Supported	Supported
DC2+DC		Reset	Supported	Supported	Supported
DC2+DD		Power OFF	Not supported	Not supported	Not supported
DC2+DE		File Download	Supported	Supported	Supported
DC2+DF		File Name Information Acquisition	Supported	Supported	Supported
DC2+DG		File Information Acquisition	Supported	Supported	Supported
DC2+DH		File Deletion	Supported	Supported	Supported

(*1) Available only when an RFID is installed in the printer

5. CONTROL COMMAND

5.1. ESC+A: START CODE

Start Code			ESC+A
Hexadecimal Code	ESC	A	Parameter
	<1B> ₁₆	<41> ₁₆	Nil
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF	The set command is not maintained.
	Valid range within items	The set command becomes invalid.
	Valid range between items	The set command becomes invalid.

[Function]

Specifying the start of the data transmission.

[Format]

<A>

[Coding Example]

<A>

<V>100<H>200<P>2<L>0202<XM>ABCD

<Q>2

<Z>

[Supplemental Explanation]

1. Indicates the start of an item. This must be used at the beginning of the item.
2. Data transmission start specification <A> and data transmission end specification <Z> must be used in pairs.

[Point]

1. All command settings except for some of the system commands return to their initial values.
2. If this command is not specified, printing will not be performed.

5.2. ESC+Z: STOP CODE

Stop Code			ESC+Z
Hexadecimal Code	ESC	Z	Parameter
	<1B> ₁₆	<5A> ₁₆	Nil
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF	The set command is not maintained.
	Valid range within items	The set command becomes invalid.
	Valid range between items	The set command becomes invalid.

[Function]

Specifying the end of data transmission.

[Format]

<Z>

[Coding Example]

<A>

<V>100<H>200<P>2<L>0202<XM>ABCD

<Q>2

<Z>

[Supplemental Explanation]

1. Indicates the end of the item. This must be used at the end of the item
2. Data transmission start specification <A> and data transmission end specification <Z> must be used in pairs.

[Point]

1. If this command is not specified, the printing operation is not performed.

5.3. ESC+Q: PRINT QUANTITY

Print Quantity			ESC+Q
Hexadecimal Code	ESC	Q	Parameter
	<1B> ₁₆	<51> ₁₆	aaaaaa
Initial Value	aaaaaa=1		

Valid Range and Term of Command	When the power switch is OFF	The set command is not maintained.
	Valid range within items	The set command becomes invalid.
	Valid range between items	The set command becomes invalid.

[Function]

Specifying the number of labels to print.

[Format]

<Q>aaaaaa

• Parameter

a: "Number of labels to print" = Valid range: 1 to 009999

* When 010000 to 999999 is specified, 9999 sheets are printed.

[Coding Example]

<A>

<V>100<H>200<P>2<L>0202<XM>ABCD

<Q>2

<Z>

[Supplemental Explanation]

1. Designate how many copies of the same label will be printed, with the print contents specified in <A> to <Z> as one sheet.
2. This command must be used before the end of data transfer <Z>.

[Point]

1. Reprint will be performed based on the specified print quantity. If specifying sequential numbering command <F>, the value of sequential number that was set up for that field portion will print.
2. When this command is used in combination with Multiple Cutting <~>, the specified print quantity multiplied by specified value for cutting becomes the number of labels to print.

5.4. ESC+ID: JOB ID NUMBER

Job ID Number			ESC+ID
Hexadecimal Code	ESC	ID	Parameter
	<1B> ₁₆	<49> ₁₆ <44> ₁₆	aa
Initial Value	aa=<20> ₁₆		

Valid Range and Term of Command	When the power switch is OFF	The set command is not maintained.
	Valid range within items	The set parameter is valid until the next valid setting.
	Valid range between items	The set command becomes invalid.

[Function]

Specifying job ID number for status return.

[Format]

<ID>aa

• Parameter

a: "Job ID number" = Valid range: 00 to 99 (2 digits fixed)

[Coding Example] Job ID number: 01

<A>

<ID>01

<V>200<H>100<P>0<\$>B,100,100,6

<\$>=> TOSHIBATECPRINTER

<Q>2

<Z>

[Supplemental Explanation]

1. When status return is used for the interface protocol, the specified job ID number can be set to the telegraphic status.
2. The status can be confirmed by outputting a status request (ENQ).
3. When printing with data transmission start specification <A> to data transmission end specification <Z>, use it by embedding it in the item.

[Point]

1. In the status return interface protocol, this command becomes valid when a status request (ENQ) is received while printing (QTY≠0, including at the time of an error).
2. In the status return communication protocol, if a status request (ENQ) is received when printing is not in progress (QTY=0, no received data when power is ON), a space (20H) will be set to the status and returned.
3. When Job ID Number <ID> is used more than twice within the items of <A> and <Z>, the last specified value becomes valid.

5.5. ESC+WK: JOB-NAME SPECIFICATION

Job-Name Specification			ESC+WK
Hexadecimal Code	ESC <1B> ₁₆	ID <57> ₁₆ <4B> ₁₆	Parameter aaaaaaaaaaaaaaaa
Initial Value	aaaaaaaaaaaaaaaa = <20> ₁₆		

Valid Range and Term of Command	When the power switch is OFF	The set command is not maintained.
	Valid range within items	The set parameter is valid until the next valid setting.
	Valid range between items	The set command becomes invalid.

[Function]

Specifying the name of the job in the return status in status 4 format.

[Format]

<WK>aaaaaaaaaaaaaaaa

- Parameter

a: "Job-name" = Valid range: 16 digits (ASCII) or 8 digits (Shift JIS KANJI)

[Coding Example] Job name: SATO

<A>

<ID>01

<WK>TOSHIBATEC

<V>200<H>100<P>0<\$>B,100,100,6

<\$>=>TOSHIBATECPRINTER

<Q>2

<Z>

[Supplemental Explanation]

1. When the status return is used for the communication protocol, the specified job name can be set to the status message.
2. The status can be checked by sending out a status request (ENQ).
3. Embedded in items when printing with the data sending start <A> to data sending end <Z>.
4. This command can be used in conjunction with the job ID number <ID>.

[Point]

1. A status request (ENQ) is enabled when it is received during printing (QTY≠0, including at the time of an error) in the status return communication protocol.
2. In the status return communication protocol, when a status request (ENQ) is received when no printing is in progress (QTY=0, no received data when power is ON), a space (20H) will be set to the status and returned.
3. When the Job ID number designation <ID> is used more than twice in an item with the data delivery start designation <A> through the data delivery end designation <Z>, the last value specified is valid.

6. PRINT POSITION COMMAND

6.1. ESC+H: HORIZONTAL PRINT POSITION

Horizontal Print Position			ESC+ H
Hexadecimal Code	ESC	H	Parameter
	<1B> ₁₆	<48> ₁₆	aaaa
Initial Value	aaaa=1		

Valid Range and Term of Command	When the power switch is OFF	The set command is not maintained.
	Valid range within items	The set parameter is valid until the next valid setting.
	Valid range between items	The set parameter becomes initial value at the next item <A>.

[Function]

Specifying horizontal print position from its start point by dot.

[Format]

<H>aaaa

- Parameter

a: "Horizontal Print Position" = Valid range: Refer to the table below.

[Coding Example] Horizontal Print Position: 200 dots

<A>

<V>100<H>200<P>2<L>0202<XM>ABCD

<Q>2

<Z>

[Supplemental Explanation]

1. Specify the start of the horizontal position for the print of text, barcode, ruled line and graphic.

[Point]

1. Any contents such as text, barcode, graphic exceed printable area will not be printed.
2. If parameter "a" is specified with non-numeric data or more than 4 digits, the command is ignored.
3. When a barcode or font is printed without specifying the ESC+H command, the print horizontal position will be the previous print end position.

[Initial Value and Valid Range of Parameter]

Model		Default	Valid range (dots)
BX410/BX420 S Mode	203 dpi	1	1 to 832
	305 dpi	1	1 to 1238
BX430 S Mode	203 dpi	1	1 to 2496
BX610/BX620 S Mode	203 dpi	1	1 to 1216
	305 dpi	1	1 to 1794
CL4NX-J	203 dpi	1	1 to 832
	305 dpi	1	1 to 1248

6.2. ESC+V: VERTICAL PRINT POSITION

Vertical Print Position			ESC+ V
Hexadecimal Code	ESC	V	Parameter
	<1B> ₁₆	<56> ₁₆	aaaaa
Initial Value	aaaaa=1		

Valid Range and Term of Command	When the power switch is OFF	The set command is not maintained.
	Valid range within items	The set parameter is valid until the next valid setting.
	Valid range between items	The set parameter becomes initial value at the next item <A>.

[Function]

Specifying the vertical print position from its start point by dot.

[Format]

<V>aaaaa

• Parameter

a: "Vertical Print Position" = Valid range: Refer to the table below.

[Coding Example] Vertical Print Position: 100 dots

<A>

<V>100<H>200<P>2<L>0202<XM>ABCD

<Q>2

<Z>

[Supplemental Explanation]

1. Specify the start of the vertical position for the print of text, barcode, ruled line and graphics.

[Point]

- Any contents such as text, barcode, graphic exceed printable area will not be printed.
- If parameter "a" is specified with non-numeric data or more than 5 digits, the command is ignored.
- If the barcode or font is printed without specifying the ESC+V command, the print vertical position will be the previous print end position.

[Initial Value and Valid Range of Parameter]

Model			Valid range: Horizontal line length (dots)	Valid range: Vertical line length (dots)
S Mode	BX410/BX420	203 dpi	1 to 832	1 to 12000
		305 dpi	1 to 1238	1 to 18000
	BX430	600 dpi	1 to 2496	1 to 11800
	BX610/BX620	203 dpi	1 to 1279	1 to 12000
		305 dpi	1 to 1921	1 to 18000
	CL4NX-J		203 dpi	1 to 20000
		305 dpi	1 to 1248	1 to 18000

* The value will be corrected to the maximum effective print length for each model.

7. MODIFICATION COMMAND

7.1. ESC+P: CHARACTER PITCH

Character Pitch			ESC+ P
Hexadecimal Code	ESC	P	Parameter
	<1B> ₁₆	<50> ₁₆	aa
Initial Value	aa=02		

Valid Range and Term of Command	When the power switch is OFF	The set command is not maintained.
	Valid range within items	The set parameter is valid in the field.
	Valid range between items	The set parameter becomes initial value at the next item <A>.

[Function]

Specifying a character pitch by dot.

[Format]

<P>aa

- Parameter

aa: "Character Pitch" = Valid range: 00 to 99 (dots)

[Coding Example] Character Pitch: 10

<A>

<V>100<H>200<P>10<L>0202<XM>ABCD

<Q>2

<Z>

[Supplemental Explanation]

1. The character pitch is the spacing between characters when selecting fonts and barcodes, or between barcode characters.
2. The specified character pitch will be widened based on the ratio of Enlargement <L>.
3. The character pitch designation <P> holds the parameter within the field. However, when the line feed code "CR" is specified in the automatic line feed specification <E>, the parameter is held between the fields. The value is returned to the initial one by data transmission start specification <A>.
4. By specifying Character Pitch <P> just before the barcode specification, the pitch command becomes valid for the barcode module.

Target barcode: NW-7, CODE39, Industrial 2 of 5, Matrix 2 of 5

5. If non-numeric data is specified or the number of digits is over, the initial value is used.

[Valid Command]

Font	<XU>	<XS>	<XM>	<XB>	<XL>	<OA>	<OB>	<RD>	<\$=>	<K1>
	<K2>	<K3>	<K4>	<K5>	<K8>	<K9>	<KA>	<KB>	<KD>	<k1>
	<k2>	<k3>	<k4>	<k5>	<k8>	<k9>	<kA>	<kB>	<kD>	<U>
	<S>	<M>	<WB>	<WL>	<X20>	<X21>	<X22>	<X23>	<X24>	
Barcode		<D>	<D><d>	<BD>	<BT>	<BW>	<BM>			
Modification										

7.2. ESC+L: ENLARGEMENT

Enlargement			ESC+ L
Hexadecimal Code	ESC	L	Parameter
	<1B> ₁₆	<4C> ₁₆	aabb
Initial Value	aa=01, bb=01		

Valid Range and Term of Command	When the power switch is OFF	The set command is not maintained.
	Valid range within items	The set parameter is valid until the next valid setting.
	Valid range between items	The set parameter becomes initial value at the next item <A>.

[Function]

Specifying the enlargement ratio of font.

[Format]

<L>aabb

- Parameter

aa: "Horizontal enlargement ratio" = Valid range: 01 to 09

bb: "Vertical enlargement ratio" = Valid range: 01 to 09

[Coding Example] Horizontal enlargement ratio: 4 times, Vertical enlargement ratio: 3 times

<A>

<V>100<H>200<P>3<L>0403<XM>ABCD

<Q>2

<Z>

[Supplemental Explanation]

1. The character pitch is also enlarged. When Character Pitch <P> is used at the same time, the parameter value of the horizontal enlargement ratio specified in Enlargement <L> will be reflected in the subsequent specification <P>.

[Point]

1. If the enlargement ratio is increased, design the print format that does not exceed the print area.
2. If a non-numeric value is specified for the parameter, the command is ignored.
3. If a value greater than 9 is specified for the parameter, the command is ignored.

[Valid Command]

Font	<XU>	<XS>	<XM>	<XB>	<XL>	<OA>	<OB>	<K1>	<K2>	
	<K3>	<K4>	<K5>	<K8>	<K9>	<KA>	<KB>	<KD>	<k1>	<k2>
	<k3>	<k4>	<k5>	<k8>	<k9>	<kA>	<kB>	<kD>	<U>	<S>
	<M>	<WB>	<WL>	<X20>	<X21>	<X22>	<X23>	<X24>		
Modification	<P>									
Graphic	<G>	<GM>	<GP>							
Memory Card	<GR>	<GC>	<PY>							

7.3. ESC+PS: PROPORTIONAL PITCH

Proportional Pitch			ESC+ PS
Hexadecimal Code	ESC	PS	Parameter
	<1B> ₁₆	<50> ₁₆ <53> ₁₆	Nil
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF	The set command is not maintained.
	Valid range within items	The set parameter is valid until the next valid setting.
	Valid range between items	The set parameter becomes initial value at the next item <A>.

[Function]

Specifying the proportional pitch.

[Format]

<PS>

[Coding Example]

<A>

<PS>

<V>100<H>200<P>2<L>0202<XM>ABCD

<Q>2

<Z>

[Supplemental Explanation]

1. The proportional pitch designation is available only for the commands described in the following [valid command] table.
2. You can set valid or invalid of the proportional pitch specification by PA command [DC2].

[Valid Command]

Font	<XU>	<XS>	<XM>	<XB>	<XL>			
	<X20>	<X21>	<X22>	<X23>	<X24>			
Modification								

7.4. ESC+PR: RELEASE PROPORTIONAL PITCH

Release Proportional Pitch			ESC+ PR
Hexadecimal Code	ESC	PR	Parameter
	<1B> ₁₆	<50> ₁₆ <52> ₁₆	Nil
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF	The set command is not maintained.
	Valid range within items	The set parameter is valid until the next valid setting.
	Valid range between items	The set parameter becomes initial value at the next item <A>.

[Function]

Specifying the release of proportional pitch.

[Format]

<PR>

[Coding Example]

<A>

<PR>

<V>100<H>200<P>2<L>0202<XM>ABCD

<Q>2

<Z>

[Supplemental Explanation]

1. The initial state is the setting state "proportional pitch" of proportional pitch designation <PS>.

[Valid Command]

Font	<XU>	<XS>	<XM>	<XB>	<XL>			
	<X20>	<X21>	<X22>	<X23>	<X24>			
Modification								

7.5. ESC+ %: ROTATION

Rotation			ESC+ %
Hexadecimal Code	ESC	%	Parameter
	<1B> ₁₆	<25> ₁₆	a
Initial Value	a=0		

Valid Range and Term of Command	When the power switch is OFF	The set command is not maintained.
	Valid range within items	The set parameter is valid until the next valid setting.
	Valid range between items	The set parameter becomes initial value at the next item <A>.

[Function]

Specifying the counterclockwise rotation of the font and barcode.

[Format]

<%>a

- Parameter

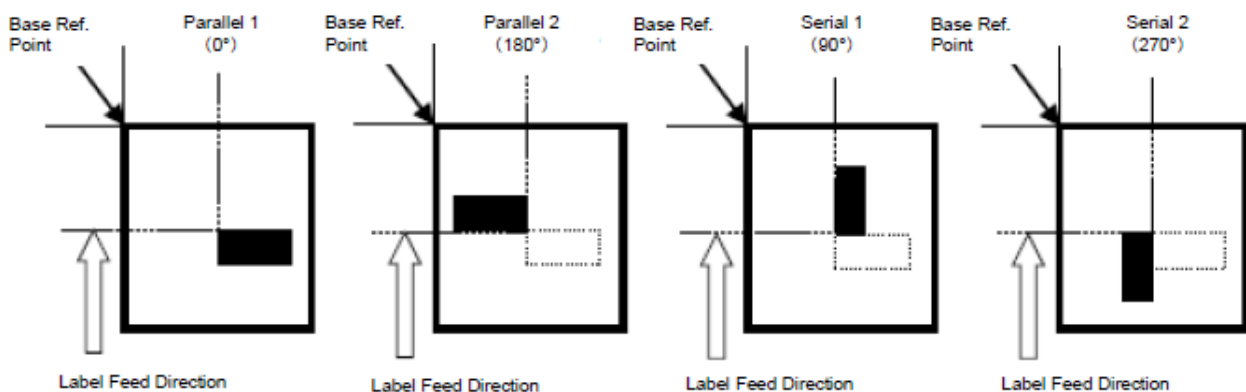
a: "Rotative Direction" =
0: Parallel 1 (0°)
1: Serial 1 (90°)
2: Parallel 2 (180°)
3: Serial 2 (270°)

[Coding Example] Font Rotation: Parallel 2 (180°), Barcode Rotation: Serial 1(90°)

```
<A>
<%>2
<V>100<H>400<P>3<L>0403<XM>ABCD
<%>1
<V>400<H>200<BD>103160*123*
<Q>2
<Z>
```

[Supplemental Explanation]

1. The position specification of Vertical Print Position <V> and Horizontal Print Position <H> are the absolute value from its base reference point.
2. If the value of parameter "a" is 4 to 9, it is treated as a command error and ignored. If a non-numeric value is specified, this is also ignored.



[Valid Command]

Font	<XU>	<XS>	<XM>	<XB>	<XL>	<OA>	<OB>	<RD>	<\$=>	<K1>
	<K2>	<K3>	<K4>	<K5>	<K8>	<K9>	<KA>	<KB>	<KD>	<k1>
	<k2>	<k3>	<k4>	<k5>	<k8>	<k9>	<kA>	<kB>	<kD>	<U>
	<S>	<M>	<WB>	<WL>	<X20>	<X21>	<X22>	<X23>	<X24>	
Barcode		<BC>	<BG>	<BI>	<D>	<D><d>	<BD>	<BT>	<BW>	<BP>
	<BF>	<BS>	<BL>	<BL><d>	<BM>					
2D Code	<2D10>	<BK>	<2D12>	<2D20>	<BV>					
	<2D50>	<BX>	<2D51>	<2D70>						
Composite Symbol	<EU>									
System	<E>									
Modification		<FW>	<FC>		<(>					
Calendar *1	<WA>									

*1: Available only when an RTC is connected to the printer.

7.6. ESC+F: SEQUENTIAL NUMBER

Sequential Number			ESC+ F
Hexadecimal Code	ESC	F	Parameter
	<1B> ₁₆	<46> ₁₆	aaaabcccc(,dd,ee,f)
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF	The set command is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

[Function]

Specifying prior to the data specification command of font or barcode and printing specified data in a sequential order.

[Format]

<F>aaaabcccc(,dd,ee,f)

● Parameter

- a: "Print quantity specification of identical contents" = Valid Range: 1 to 9999
- b: "Increase / decrease designation" = +: Addition
-: Subtraction
- c: "Setting of increasing and decreasing value" = Valid Range: 1 to 9999
- d: "Valid digit number for sequential number" = Valid Range: 1 to 99
When omitted 8 (omissible)
- e: "Low-order invalid digit number" = Valid Range: 0 to 99
When omitted 0 (omissible)
- f: "Specification of Decimal/Hex sequential number" = 0: Decimal number
When omitted 0 (omissible)
1: Hexadecimal number

[Coding Example]

Print quantity specification of identical contents: 1

Increase / decrease designation: +

Setting of increasing and decreasing value: 1

Valid digit number for sequential number: 5

Low-order invalid digit number: 0

<A>

<V>100<H>100<P>2<L>0202

<F>1+1,5,0<XU>10000

<Q>2

<Z>

[Supplemental Explanation]

1. The sequential number can be specified up to 8 points per format.
2. Next print data from the <F> command will be the initial value of the sequential number.
3. For serial number data, specify the number of digits more than the number of significant digits. If not specified, serial numbers may not be printed correctly.
4. Specification of Black/White Reverse Print <(> is not valid for sequential numbered data.
5. Auto Linefeed <E> is not available.

6. Need to print font or barcode to print the sequential number.
7. The number of significant digits in the sequence number must match the number of digits in the font or barcode data specification command. If the number of valid digits in the sequence number is greater than the number of digits in the font or barcode data specification command, the sequence number is not printed.
8. If the print data immediately after the sequential number command <F> becomes the sequential number invalid command, the sequential number will be invalid.

[Valid Command]

Font	<XU>	<XS>	<XM>	<XB>	<XL>	<OA>	<OB>	<RD>	<\$=>	<U>
	<S>	<M>	<WB>	<WL>		<X20>	<X21>	<X22>	<X23>	<X24>
Modification		<BC>	<BG>	<BI>	<D>	<D><d>	<BD>	<BT>	<BW>	<BP>
	<BF>	<BS>	<BL>	<BL><d>	<BM>					

7.7. ESC+FW: RULED/GRID LINE PRINT

Ruled/Grid Line Print			ESC+ FW
Hexadecimal Code	ESC	FW	Parameter
	<1B> ₁₆	<46> ₁₆ <57> ₁₆	Rule: aabccccc Grid: aabbvccccchddddd
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF	The set command is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

[Function]

Specifying the printing of ruled lines and grid lines.

[Format]

<FW>aabccccc: Print of ruled line

• Parameter

- a: "Line width" = Valid range: 01 to 99 (dots)
b: "Horizontal/Vertical direction" = H: Horizontal direction
V: Vertical direction
c: " Ruled line length" = Valid range: Refer to the table below.

<FW>aabbVccccchddddd: Print of grid line

• Parameter

- a: "Horizontal line width" = Valid range: 01 to 99 (dots)
b: "Vertical line width" = Valid range: 01 to 99 (dots)
c: "Vertical line length" = Valid range: Refer to the table below.
d: "Horizontal line length" = Valid range: Refer to the table below.

[Coding Example]

Ruled line print, Line width: 4,
Horizontal direction, Ruled line length: 400,
Grid line print, Vertical line width: 8, Horizontal line width: 8
Vertical line length: 300, Horizontal line length: 400

<A>

<V>100<H>200<FW>04H400

<V>300<H>200<FW>0808V300H400

<Q>2

<Z>

[Supplemental Explanation]

1. When the print start position exceeds the printable area, printing is not executed. (A command error will not occur.)
2. If setting the vertical line width wider, it will be widened to the right side against media feed direction. If setting the horizontal line width wider, it will be widened to the lower side against media feed direction.
3. In the case of a border, if the line width is increased, it will be thicker inside the border.
4. The command is ignored if an invalid parameter is specified.

[Valid Range]

Model			Valid range: Horizontal line length (dots)	Valid range: Vertical line length (dots)
S Mode	BX410/BX420	203 dpi	1 to 832	1 to 12000
		305 dpi	1 to 1238	1 to 18000
	BX430	600 dpi	1 to 2496	1 to 11800
	BX610/BX620	203 dpi	1 to 1279	1 to 12000
		305 dpi	1 to 1921	1 to 18000
	CL4NX-J		203 dpi	1 to 832
305 dpi			1 to 1248	1 to 18000

* The value will be corrected to the maximum effective print length for each model.

7.8. ESC+FC: PRINT CIRCLE

Print Circle			ESC+ FC
Hexadecimal Code	ESC	FC	Parameter
	<1B> ₁₆	<46> ₁₆ <43> ₁₆	aaa,bbb(,c,d)
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF	The set command is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

[Function]

Specifying the print circle.

[Format]

<FC>,aaa,bbb(,c,d)

- Parameter

a: "Radius" = Valid range: 5 to 999(dots)

b: "Line width" = Valid range: 1 to 999(dots)

c: "Sectional number" = Valid range: 0 to 8 (omissible, When omitted: 0)

* See below for details.

d: "Pattern" = Valid range: 0 to 3 (omissible, When omitted: 0)

0: Solid line (black)

1: Gray 1 (Not supported) (*1)

2: Gray 2 (Not supported) (*1)

3: Gray 3 (Not supported) (*1)

When (* 1) is selected, the circle is printed with "0: Solid line (black)".

- Parameter



Sectional numbers 1 to 8 are not supported (*2).

When (*2) is selected, the circle is printed with "Sectional number: 0".

[Coding Example] Solid line circle of 100 dots in radius, 8 dots in line width.

<A>

<V>200<H>200

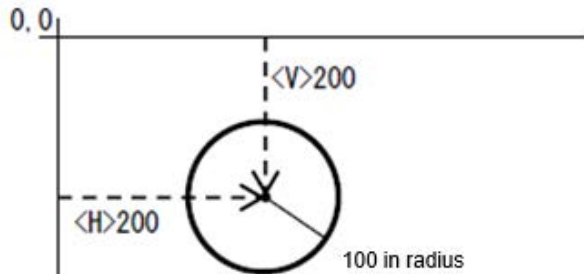
<FC>,100,8,0,0

<Q>1

<Z>

[Supplemental Explanation]

1. When the value outside the range is specified for sectional number, it will be processed as "0". In this case, this will not be a command error.
2. When the value outside the range is specified for the designation of pattern, it will be processed as "0". In this case, this will not be a command error.
3. If the print start position goes out of the print effective range, printing will not be executed.
4. The reference position by this command is the center of the circle.



5. This command can be registered as a format.
6. In the case of a border, if the line width is increased, it will be thicker inside the border.
7. The command is ignored if non-numeric parameter is specified.

[Valid Range]

Model	Valid range (dots)	
	Radius	Line width
S Mode	5 to 999	1 to 999
CL4NX-J	5 to 999	1 to 999

7.9. ESC+(: REVERSE COLOR PRINT

Reverse Color Print			ESC+ (
Hexadecimal Code	ESC	(	Parameter
	<1B> ₁₆	<28> ₁₆	aaaa,bbbb
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF	The set command is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

[Function]

Specifying reverse color print.

[Format]

<(>aaaa,bbbb

- Parameter

a: "Specification of reverse area in horizontal direction" = Refer to the table below.

b: "Specification of reverse area in vertical direction" = Refer to the table below.

Coding Example]

Reverse area in horizontal direction: 200, Reverse area in vertical direction: 70

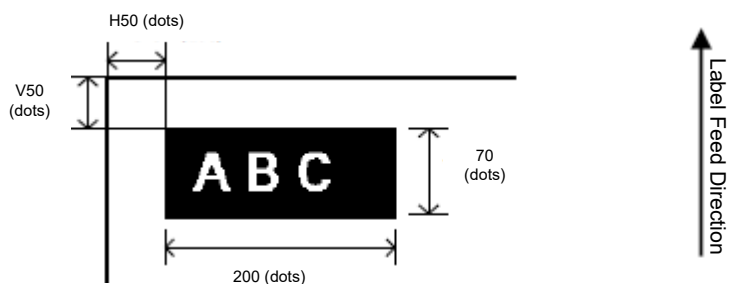
<A>

<V>50<H>50<P>2<L>0202<XM>ABC

<V>50<H>50<(>200,70

<Q>2

<Z>



[Supplemental Explanation]

1. When specifying color reverse printing <(>, select it next to the firmware data string. If you select it before the firmware data string, it will be printed in black only, but not reversing the color.
2. To set the print start position, specify Horizontal Print Position <H> and Vertical Print Position <V> before this command.
3. When the print start position is outside the printable area, printing will not be performed due to a command error.
4. If a non-numeric parameter is specified, the command is ignored.

[Valid Range]

Model			Valid range: Horizontal line length (dots)	Valid range: Vertical line length (dots)
S Mode	BX410/BX420	203 dpi	1 to 832	1 to 12000
		305 dpi	1 to 1238	1 to 18000
	BX430	600 dpi	1 to 2496	1 to 11800
	BX610/BX620	203 dpi	1 to 1279	1 to 12000
		305 dpi	1 to 1921	1 to 18000
	CL4NX-J		203 dpi	1 to 832
305 dpi			1 to 1248	1 to 18000

* The value will be corrected to the maximum effective print length for each model.

7.10. ESC+KC: KANJI CODE

Kanji Code			ESC+ KC
Hexadecimal Code	ESC	KC	Parameter
	<1B> ₁₆	<4B> ₁₆ <43> ₁₆	a
Initial Value	a=0		

Valid Range and Term of Command	When the power switch is OFF	The set command is not maintained.
	Valid range within items	The set parameter is valid until the next valid setting.
	Valid range between items	The set parameter becomes initial value at the next item <A>.

[Function]

Specifying the kanji code.

This can be switched by kanji code specification <KC>.

[Format]

<KC>a

- Parameter

a: "Kanji Code" = 0: JIS code
1: Shift JIS code
2: Unicode

[Coding Example 1] For Shift JIS

<A>

<KC>1

<V>100<H>200<P>2<L>0202

<K1>H81698A94816A83548367815B

<Q>2

<Z>

[Coding Example 2] For JIS

<A>

<KC>0

<V>100<H>200<P>2<L>0202

<K1>H214A3374214B25352548213C

<Q>2

<Z>

[Coding Example 3] For Unicode

<A>

<KC>2

<V>100<H>200<P>2<L>0202

<K1>HFF08682AFF0930B530C830FC

<Q>2

<Z>

[Supplemental Explanation]

1. There is no necessity to specify this command in normal label printing.
2. This can be used even if it is specified multiple times in one item.
3. Use the [DC2] PA command to set the shift JIS code to the initial value.
4. The command is ignored if a parameter other than 0, 1, 2 is specified.

7.11. ESC+0: PARTIAL EDIT

Partial Edit			ESC+0
Hexadecimal Code	ESC	0	Parameter
	<1B> ₁₆	<30> ₁₆	Nil
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF	The set command is not maintained.
	Valid range within items	The set command becomes invalid.
	Valid range between items	The set command becomes invalid.

[Function]

Specifying the partial editing for the previous print data.

[Format]

<0>

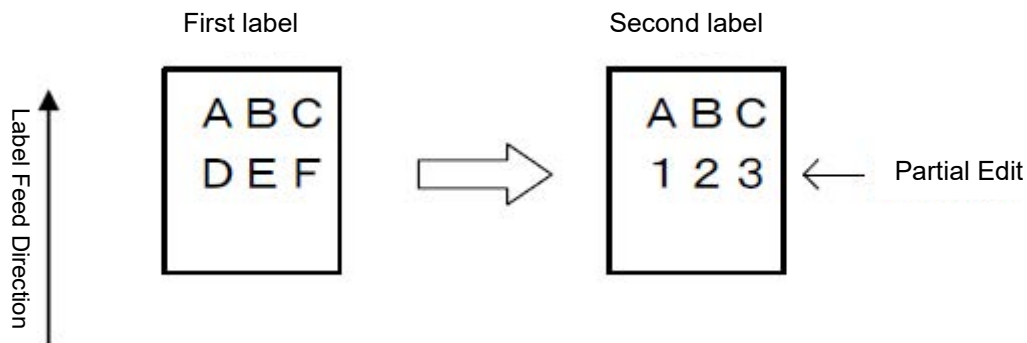
[Coding Example] [DEF] is changed to [123] (a part of print data is edited).

```
<A>
<V>100<H>200<P>2<L>0202<XM>ABC
<V>200<H>200<P>2<L>0202<XM>DEF
<Q>1
<Z>
```

First label

```
<A>
<0>
<V>200<H>200<P>2<L>0202<XM>123
<Q>1
<Z>
```

Second label



[Supplemental Explanation]

1. This is used when only a part changes with respect to the previous print data.
2. The previous print data is recalled by partial editing specification <0>, partial editing is performed, and printing is performed. The condition is that the same print position to be changed is specified with respect to the previous data, and the changed data is sent.
3. Specific portions in the previous data will be cleared.
4. If Rotation <%> is included in the specified editing portion, keep it for partial editing.
5. Use this command with a fixed pitch, same font or same digit number.

7.12. ESC+RM: MIRROR IMAGE

Mirror Image			ESC+RM
Hexadecimal Code	ESC	RM	Parameter
	<1B> ₁₆	<52> ₁₆ <4D> ₁₆	aaaa,bbbb
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF	The set command is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

[Function]

Performing mirror rotation of print data.

[Format]

<RM>aaaa,bbbb

- Parameter

a: "Horizontal range of mirror rotation specification" (Not supported) (*1)

b: "Vertical range of mirror rotation specification" (Not supported) (*1)

(*1) Even if an unsupported parameter is specified, all print data are printed with mirror rotation.

Coding Example 1] When specifying the mirror rotation range (rotation specification range is ignored)

<A>

<H>100<V>200<XS>12345

<H>100<V>200<RM>0200,0080

<Q>1

<Z>

[Coding Example 2] When the mirror rotation range is not specified

<A>

<H>100<V>200<XS>12345

<RM>

<Z>

[Supplemental Explanation]

1. Even if the parameters "aaaa" and "bbbb" are specified, the range specification becomes invalid and all print data are mirror-rotated.
2. If this command is specified for an item that does not contain print data, the command is ignored.
3. This command cannot be used in combination with a command involving reediting of print data, because it is the mirror rotation of the print data. See the table for commands that cannot be used together. Operation is not guaranteed if you specify a command that cannot be used together with others.
4. This command cannot be used in combination with some registration specification commands, because it is mirror rotation of print data. See the table for commands that cannot be used together. If you specify a command that cannot be used together, the operation is not guaranteed.
5. This command cannot be used in combination with some modification commands, because it rotates the mirror of the print data. See the table for commands that cannot be used together. If you specify a command that cannot be used together, the operation is not guaranteed.
6. When this command is specified multiple times with one label, the mirror rotation is toggled.

7.13. ESC+KS: KANJI SET

Kanji Set			ESC+KS
Hexadecimal Code	ESC	KS	Parameter
	<1B> ₁₆	<4B> ₁₆ <53> ₁₆	a
Initial Value	a=3		

Valid Range and Term of Command	When the power switch is OFF	The set command is not maintained.
	Valid range within items	The set command is valid until the next valid setting.
	Valid range between items	The set command is valid until the next valid setting.

[Function]

Setting the kanji set.

[Format]

<KS>a

- Parameter

a: "Kanji set" = 0: Japan, Compatible Kanji (JISX208)
1: Japan, JIS208 Kanji (JISX208)
2: Japan, JIS213 Kanji (JISX213)
3: China, Simplified Chinese characters (GB18030)
4: Reserved
5: China, Traditional Chinese characters (BIG5) (Not supported) (*1)
6: Korean (KSX1001) (Not supported) (*1)
(*1) If you specify an unsupported parameter, the command is ignored.

[Coding Example] When specifying GB18030

<A>

<KS>3

<Z>

[Supplemental Explanation]

1. Select the kanji set to be printed by using <K1>₁₆ x 16 dots horizontal writing kanji command, <K2>₂₄ x 24 dots horizontal writing command, <k1>₁₆ x 16 dots vertical writing kanji command and <k2>₂₄ x 24 dots vertical dots command.

7.14. ESC+AL: FIELD ALIGNMENT

Field Alignment			ESC+AL
Hexadecimal Code	ESC	AL	Parameter
	<1B> ₁₆	<41> ₁₆ <4C> ₁₆	a
Initial Value	a=1		

Valid Range and Term of Command	When the power switch is OFF	The set command is not maintained.
	Valid range within items	The set command is valid until the next valid setting.
	Valid range between items	The set parameter becomes initial value at the next item <A>.

[Function]

The reference point position designated by the print position commands <H> and <V> is the "alignment position" of this command. The designation of "alignment position" can change the origin of the field. The supported fields are all text fields, barcode, 2D barcode, graphics, ruled lines and boxes etc.

[Format]

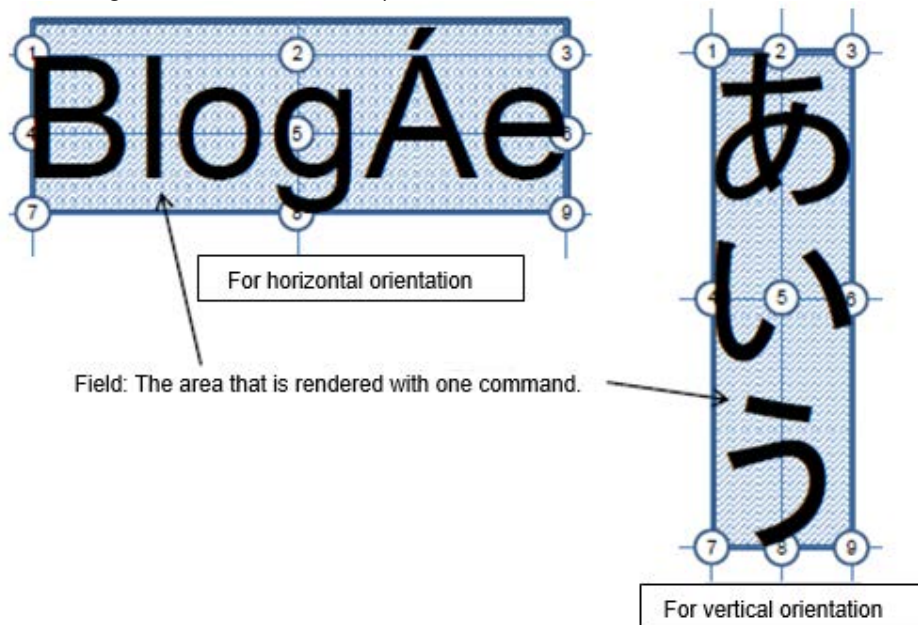
<AL>a

• Parameter

a: "Alignment position" = 1: Top left
2: Top center
3: Top right
4: Middle left
5: Middle center
6: Middle right
7: Bottom left
8: Bottom center
9: Bottom right

[Field and alignment positions (in case of the font command)]

* The number inside the circle indicates the value of parameter a: "Alignment position (the positions specified with print positioning commands <H>, <V>)".



[Coding Example] Font's alignment position: Top Right, Barcode alignment position: Bottom left

<A>

<AL>3

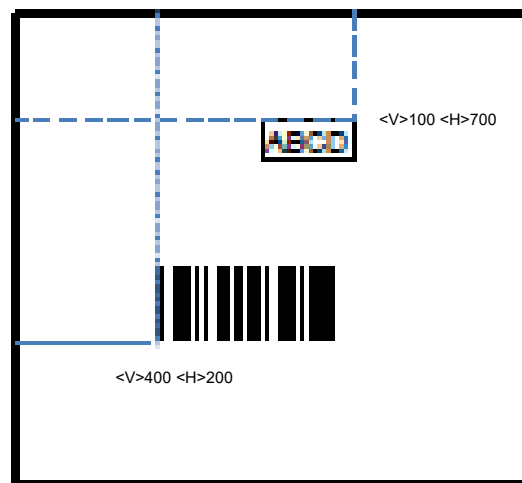
<V>100<H>700<P>3<L>0403<X22>,ABCD

<AL>7

<V>400<H>200<BD>103160*123*

<Q>2

<Z>

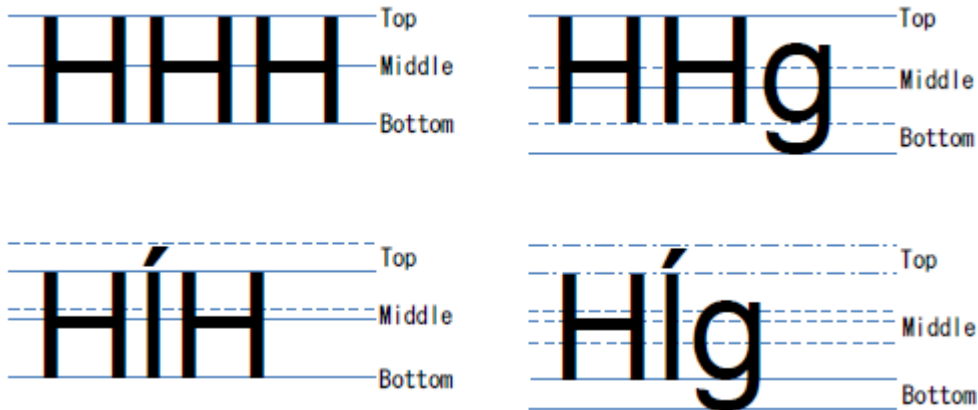


[Supplemental Explanation]

1. If the value of parameter "a" is 0 or a value other than a numerical one is specified, the setting is ignored and the initial value Top left is used.

- If you select Middle or Bottom, the position may vary depending on the ascender line and descender line of each field. Ascender/descender lines depend on each font, so not all fonts may be shown in the examples as below.

E.g.) Cases with and without 'l' and 'g'



- Make sure to specify <H> and <V> to the field when you select Center and Right. If they are not specified when specifying for the second field, the trailing edge of the first field becomes the base reference point of the second field, which means that the parts of the first and second field will overlap.

E.g.) If <H> and <V> are not specified to the second field when specifying Center



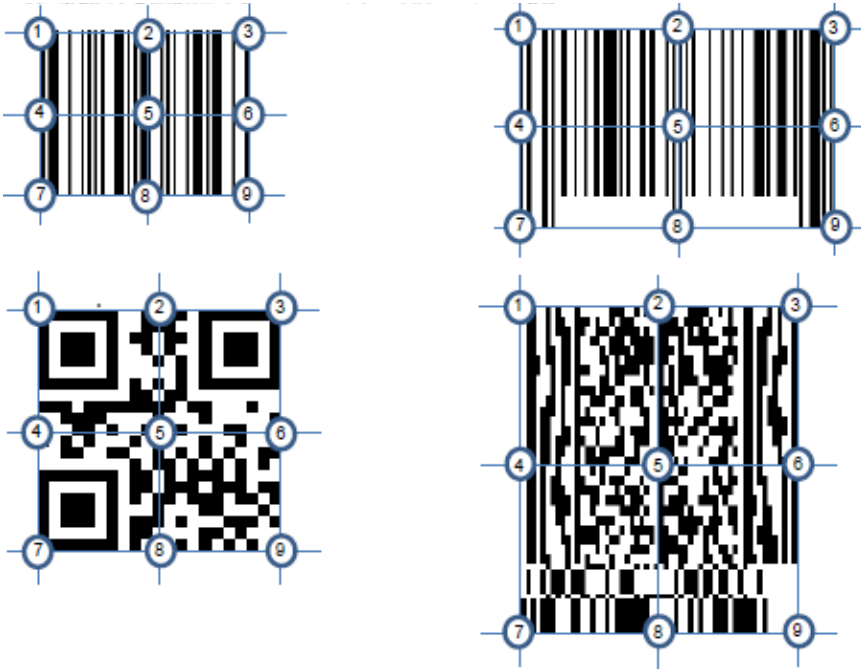
E.g.) If <H> and <V> are not specified to the second field when specifying Right



- The printer does not print if the positions specified with <H> and <V> (equal to "Alignment position") are out of the printable range.
- The field drawn by specifying the "alignment position" or print position command <H> or <V> may protrude from the print area.

6. When specifying "alignment" for the fields of barcodes and 2D codes, the configuration of the fields differs depending on the command.

E.g.) When specifying barcode, 2D code without automatically attached human readable



E.g.) When specifying a barcode with automatically attached human readable (<BD>, <BM>, <BI> etc.)



7. In the case of barcodes in which the automatically added human readable characters such as <BD>, <BM> UPC-A, JAN / EAN-13 are printed from the left side of the barcode, Top left, Middle left, Bottom left "Alignment position (print horizontal position <H>)" is different.

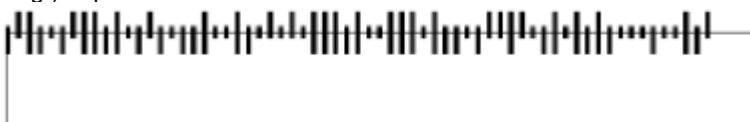


[Valid Command]

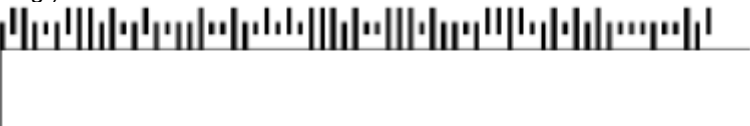
Font	<XU>	<XS>	<XM>	<XB>	<XL>	<OA>	<OB>	<U>	<S>	<M>
	<WB>	<WL>	<X20>	<X21>	<X22>	<X23>	<X24>			
	<\$=>	<RD>	<RH>	<RG>						
	<K1>	<K2>	<K3>	<K4>	<K5>	<K8>	<K9>	<KA>	<KB>	<KD>
	<k1>	<k2>	<k3>	<k4>	<k5>	<k8>	<k9>	<kA>	<kB>	<kD>
	<K1>(<K2>)	<k1>(<k2>)								
Barcode		<BC>	<BG>	<BI>	<D>	<D><d>*1	<BD>	<BW>	<BP>	<BM>
	<BF>*2	<BS>*3	<BL>	<BL><d>*1	<BZ>					
2D barcode	<2D10>	<2D12>	<2D20>	<2D30>	<2D31>	<2D32>	<2D50>	<2D51>	<2D33>	
	<BX>	<BK>	<BV>	<BQ>	<FX>					
Composite barcode	<EU>									
Graphic	<G>	<GM>	<GP>							
System	<E>									
Modification	<FW>	<F>	<%>		<L>	<P>	<PS>	<PR>		
Memory card	<GR>	<GC>	<PY>							
Calendar	<WA>									

- *1 The position depends on the specified human readable type and data. Make sure to specify just the right number of characters for human readable data. Printing is not guaranteed if there is an excess or the data is insufficiently human readable.
- *2 <BF>: Bookland is a barcode which uses multiple commands such as <BD> and <BF>, <D>~<d> and <BF>. Arrange so that they are printed in expected positions since alignment positions are calculated by each field for this command.
- *3 <BS>: USPS Barcode has the same position as specifying Middle position in this command without specifying this command. When you specify Middle position with this command, it prints to an alignment position equivalent to Bottom position.

E.g.) Top left



E.g.) Middle left



E.g.) Bottom left



7.15. ESC+&: FORM OVERLAY REGISTRATION SPECIFICATION

Form overlay registration specification			ESC+&
Hexadecimal Code	ESC	&	Parameter
	<1B> ₁₆	<26> ₁₆	(aab~b)
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF	The set command is not maintained.
	Valid range within items	The set parameter is valid until the next valid setting.
	Valid range between items	The set parameter is valid until the next valid setting.

[Function]

Specifying the registration of the form overlay.

[Format]

<&>(aab~b)

- Parameter

a: [registration key] = Valid range: 01 to 99 (omissible)

b: [comment] = Max. 16 bytes (omissible)

[Coding Example]

<A>

<V>100<H>50<FW>1010V800H750

<V>100<H>50<FW>0505V760H710

<V>150<H>100<XB>0MODEL

<&>01DATA1

<Z>

[Supplemental Explanation]

1. The fixed print contents can be stored in the printer by form overlay registration <&> and combined with drawing of normal data by form overlay call designation</> to print out.
2. The form overlay registration <&> is specified at the end of the data string to be stored. The valid range of the form overlay registration is the same as the printer's valid range for printing.
3. You can register only one format in the form overlay registration <&>. You can specify any code in the valid range of 01 to 99 as the registration key.
4. If you want to change the content, you must first specify the form overlay clear <*>& and then register the new storage data.
5. The registered contents are called by the form overlay call specification</>.
6. If the paper size specification <A1> is specified, it will be expanded in the specified area.

7.16. ESC+/: FORM OVERLAY CALL SPECIFICATION

Form overlay call specification			ESC+/ Parameter
Hexadecimal Code	ESC	/	
	<1B> ₁₆	<2F> ₁₆	(aa)
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF	The set command is not maintained.
	Valid range within items	The set parameter is valid until the next valid setting.
	Valid range between items	The set parameter is valid until the next valid setting.

[Function]

Calling the form overlay and specifying it.

[Format]

</>(aa)

- Parameter

a: [registration key] = Valid range: 01 to 99 (optional)

[Coding Example]

<A>

</>01

<V>200<H>100<P>0<\$>B,100,100,6

<\$=>TOSHIBATECPRINTER

<V>720<H>150102100*95000012345*

<Q>2

<Z>

[Supplemental Explanation]

1. The form overlay call specification</> calls and prints the content registered by the form overlay registration specification <&>.
2. When the form overlay call designation is detected in the normal print data, the printout is combined with the drawing stored in the form overlay, and the printout is executed.
3. As for the specification of the registration key, an error does not occur even if the registration key is different because it is not checked.

8. FONT COMMAND

8.1. ESC+X20: X20 FONT

X20 Font (Basic size 5×9 dots)			ESC+X20
Hexadecimal Code	ESC	X20	Parameter
	<1B> ₁₆	<58> ₁₆ <32> ₁₆ <30> ₁₆	,n~n
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF	The set command is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

[Function]

Specifying the font with the basic size; width 5 dots and height 9 dots.

[Format]

<X20>,n~n

• Parameter

n: "Print Data" = Data

[Coding Example]

```
<A>
<V>100<H>200<P>2<L>0304<X20>,ABCDE
<Q>2
<Z>
```

[Supplemental Explanation]

1. The X20 font only allows the setting of a fixed pitch.

[Valid Command]

Print position	<V>	<H>								
Modification	<P>	<L>	<%>	<F>			<0>			
Barcode	<D><d>	<BL><d>								
Calendar *1	<WA>									

*1 Available only when an RTC is connected to the printer.

X20 Font Character Set

	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0		0	@	P		p				-	タ	ミ		
1	!	1	A	Q	a	q				ア	チ	ム		
2	"	2	B	R	b	r				イ	ツ	メ		
3	#	3	C	S	c	s				ウ	テ	モ		
4	\$	4	D	T	d	t				エ	ト	ヤ		
5	%	5	E	U	e	u			・	オ	ナ	ユ		
6	&	6	F	V	f	v			ヲ	カ	ニ	ヨ		
7	'	7	G	W	g	w				キ	ヌ	ラ		
8	(	8	H	X	h	x				ク	ネ	リ		
9	)	9	I	Y	i	y				ケ	ノ	ル		
A	*	:	J	Z	j	z				コ	ハ	レ		
B	+	;	K	♂	k	-				サ	ヒ	ロ		
C	,	<	L	¥	l	-				シ	フ	ワ		
D	-	=	M		m					ス	ヘ	ン		
E	.	>	N		n					セ	ホ	ッ		
F	/	?	O		o					ソ	マ	°		

The data from 00 (H) to 1F (H) are control codes and thus they are not usable.

8.2. ESC+X21: X21 FONT

X21 Font (Basic size 17×17 dots)			ESC+X21
Hexadecimal Code	ESC	X21	Parameter
	<1B> ₁₆	<58> ₁₆ <32> ₁₆ <31> ₁₆	,n~n
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF	The set command is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

[Function]

Specifying the font with the basic size; width 17 dots and height 17 dots.

[Format]

<X21>,n~n

- Parameter

n: "Print Data" = Data

[Coding Example]

<A>

<V>100<H>200<P>2<L>0304<X21>,ABCDE

<Q>2

<Z>

[Supplemental Explanation]

1. The X21 font allows the setting of a fixed pitch or the setting of a proportional pitch.
2. The fixed pitch and proportional pitch can be set by the command specification.

[Valid Command]

Print position	<V>	<H>								
Modification	<P>	<L>	<%>	<PS>	<PR>	<F>			<0>	
Barcode	<D><d>	<BL><d>								
Calendar *1	<WA>									

*1 Available only when an RTC is connected to the printer.

X21 font character set

	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0		0	@	P		p				—	タ	ミ		
1	!	1	A	Q	a	q			。	ア	チ	ム		
2	“	2	B	R	b	r			「	イ	ツ	メ		
3	#	3	C	S	c	s			」	ウ	テ	モ		
4	\$	4	D	T	d	t			、	エ	ト	ヤ		
5	%	5	E	U	e	u			ー	オ	ナ	ユ		
6	&	6	F	V	f	v			ヲ	カ	ニ	ヨ		
7	‘	7	G	W	g	w			ア	キ	ヌ	ラ		
8	(	8	H	X	h	x			イ	ク	ネ	リ		
9	)	9	I	Y	i	y			ウ	ケ	ノ	ル		
A	*	:	J	Z	j	z			エ	コ	ハ	レ		
B	+	;	K	[	k	{			オ	サ	ヒ	ロ		
C	,	<	L	¥	l				ヤ	シ	フ	ワ		
D	-	=	M	]	m	}			ユ	ス	ヘ	ン		
E	.	>	N	^	n	~			ヨ	セ	ホ	ッ		
F	/	?	O	_	o				ツ	ソ	マ	°		

The data from 00 (H) to 1F (H) are control codes and thus they are not usable.

8.3. ESC+X22: X22 FONT

X22 Font (Basic size 24×24 dots)			ESC+X22
Hexadecimal Code	ESC	X22	Parameter
	<1B> ₁₆	<58> ₁₆ <32> ₁₆ <32> ₁₆	,n~n
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF	The set command is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

[Function]

Specifying the font with the basic size; width 24 dots and height 24 dots.

[Format]

<X22>,n~n

- Parameter

n: "Print Data" = Data

[Coding Example]

<A>

<V>100<H>200<P>2<L>0304<X22>,ABCDE

<Q>2

<Z>

[Supplemental Explanation]

1. The X22 font allows the setting of a fixed pitch or the setting of a proportional pitch.
2. The fixed pitch and proportional pitch can be set by the command specification.

[Valid Command]

Print Position	<V>	<H>								
Modification	<P>	<L>	<%>	<PS>	<PR>	<F>			<0>	
Barcode	<D><d>	<BL><d>								
Calendar *1	<WA>									

*1 Available only when an RTC is connected to the printer.

X22 font character set

	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0		0	@	P	`	p				—	タ	ミ		
1	!	1	A	Q	a	q			。	ア	チ	ム		
2	“	2	B	R	b	r			「	イ	ツ	メ		
3	#	3	C	S	c	s			」	ウ	テ	モ		
4	\$	4	D	T	d	t			、	エ	ト	ヤ		
5	%	5	E	U	e	u			ー	オ	ナ	ユ		
6	&	6	F	V	f	v			ヲ	カ	ニ	ヨ		
7	‘	7	G	W	g	w			ア	キ	ヌ	ラ		
8	(	8	H	X	h	x			イ	ク	ネ	リ		
9	)	9	I	Y	i	y			ウ	ケ	ノ	ル		
A	*	:	J	Z	j	z			エ	コ	ハ	レ		
B	+	;	K	[	k	{			オ	サ	ヒ	ロ		
C	,	<	L	¥	l				ヤ	シ	フ	ワ		
D	-	=	M	]	m	}			ユ	ス	ヘ	ン		
E	.	>	N	^	n	~			ヨ	セ	ホ	ッ		
F	/	?	O	_	o				ツ	ソ	マ	°		

The data from 00 (H) to 1F (H) are control codes and thus they are not usable.

8.4. ESC+X23: X23 FONT

X23 Font (Basic size 48×48 dots)			ESC+X23
Hexadecimal Code	ESC	X23	Parameter
	<1B> ₁₆	<58> ₁₆ <32> ₁₆ <33> ₁₆	,an~n
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF	The set command is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

[Function]

Specifying the font with the basic size; width 48 dots and height 48 dots.

[Format]

<X23>,n~n

• Parameter

a: "Smoothing" = 0: Smoothing OFF
 1: Smoothing ON
 (Available only when the enlargement specification <L> is 3 to 12 times.)
 (Not supported) (*1)
 (*1) When an unsupported parameter is specified, "0: Smoothing OFF" is set.

n: "Print Data" = Data

[Coding Example]

```
<A>
<V>100<H>200<P>2<L>0304<X23>,0ABCDE
<Q>2
<Z>
```

[Supplemental Explanation]

1. The X23 font allows the setting of a fixed pitch or the setting of a proportional pitch.
2. The fixed pitch and proportional pitch can be set by the command specification.
3. Smoothing parameters are not supported. Even if "1" is specified, smoothing is disabled.
4. The data of 00h to 1Fh are control codes and cannot be used as printable data.

[Valid Command]

Print position	<V>	<H>								
Modification	<P>	<L>	<%>	<PS>	<PR>	<F>			<0>	
Barcode	<D><d>	<BL><d>								
Calendar *1	<WA>									

*1 Available only when an RTC is connected to the printer.

X23 font character set

	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0		0	@	P	`	p				—	タ	ミ		
1	!	1	A	Q	a	q			。	ア	チ	ム		
2	“	2	B	R	b	r			「	イ	ツ	メ		
3	#	3	C	S	c	s			」	ウ	テ	モ		
4	\$	4	D	T	d	t			、	エ	ト	ヤ		
5	%	5	E	U	e	u			・	オ	ナ	ユ		
6	&	6	F	V	f	v			ヲ	カ	ニ	ヨ		
7	‘	7	G	W	g	w			ア	キ	ヌ	ラ		
8	(	8	H	X	h	x			イ	ク	ネ	リ		
9	)	9	I	Y	i	y			ウ	ケ	ノ	ル		
A	*	:	J	Z	j	z			エ	コ	ハ	レ		
B	+	;	K	[	k	{			オ	サ	ヒ	ロ		
C	,	<	L	¥	l				ヤ	シ	フ	ワ		
D	-	=	M	]	m	}			ユ	ス	ヘ	ン		
E	.	>	N	^	n	~			ヨ	セ	ホ	ッ		
F	/	?	O	_	o				ツ	ソ	マ	°		

The data from 00 (H) to 1F (H) are control codes and thus they are not usable.

8.5. ESC+X24: X24 FONT

X24 Font (Basic size 48×48 dots)			ESC+X24
Hexadecimal Code	ESC	X24	Parameter
	<1B>16	<58>16<32>16<34>16	,an~n
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF	The set command is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

[Function]

Specifying the font with the basic size; width 48 dots and height 48 dots.

[Format]

<X24>,n~n

• Parameter

a: "Smoothing" = 0: Smoothing OFF
 1: Smoothing ON
 (Available only when the enlargement specification <L> is 3 to 12 times.)
 (Not supported) (*1)
 (*1) When an unsupported parameter is specified, "0: Smoothing OFF" is set.

n: "Print Data" = Data

[Coding Example]

```
<A>
<V>100<H>200<P>2<L>0304<X24>_0ABCDE
<Q>2
<Z>
```

[Supplemental Explanation]

1. The X24 font allows the setting of a fixed pitch or the setting of a proportional pitch.
2. The fixed pitch and proportional pitch can be set by the command specification.
3. Smoothing parameters are not supported. Even if "1" is specified, smoothing is disabled.
4. The data of 00h to 1Fh are control codes and cannot be used as printable data.

[Valid Command]

Print position	<V>	<H>								
Modification	<P>	<L>	<%>	<PS>	<PR>	<F>			<0>	
Barcode	<D><d>	<BL><d>								
Calendar *1	<WA>									

*1 Available only when an RTC is connected to the printer.

X24 font character set

	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0		0	@	P	`	p				—	タ	ミ		
1	!	1	A	Q	a	q			。	ア	チ	ム		
2	“	2	B	R	b	r			「	イ	ツ	メ		
3	#	3	C	S	c	s			」	ウ	テ	モ		
4	\$	4	D	T	d	t			、	エ	ト	ヤ		
5	%	5	E	U	e	u			・	オ	ナ	ユ		
6	&	6	F	V	f	v			ヲ	カ	ニ	ヨ		
7	‘	7	G	W	g	w			ア	キ	ヌ	ラ		
8	(	8	H	X	h	x			イ	ク	ネ	リ		
9	)	9	I	Y	i	y			ウ	ケ	ノ	ル		
A	*	:	J	Z	j	z			エ	コ	ハ	レ		
B	+	;	K	[	k	{			オ	サ	ヒ	ロ		
C	,	<	L	¥	l				ヤ	シ	フ	ワ		
D	-	=	M	]	m	}			ユ	ス	ヘ	ン		
E	.	>	N	^	n	~			ヨ	セ	ホ	ッ		
F	/	?	O	_	o				ツ	ソ	マ	°		

The data from 00 (H) to 1F (H) are control codes and thus they are not usable.

8.6. ESC+XU: XU FONT

XU Font (Basic size 5×9 dots)			ESC+XU
Hexadecimal Code	ESC	XU	Parameter
	<1B> ₁₆	<58> ₁₆ <55> ₁₆	n~n
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF	The set command is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

[Function]

Specifying the font with the basic size; width 5 dots and height 9 dots.

[Format]

<XU>n~n

● Parameter

n: "Print Data" = Data

[Coding Example]

```
<A>
<V>100<H>200<P>2<L>0304<XU>ABCDE
<Q>2
<Z>
```

[Supplemental Explanation]

1. The XU font allows the setting of a fixed pitch or the setting of a proportional pitch.
2. The fixed pitch and proportional pitch can be set by the command specification.
3. The character set varies according to the setting of the <CE> command.
4. The data of 00h to 1Fh are control codes and cannot be used as printable data.

[Valid Command]

Print position	<V>	<H>								
Modification	<P>	<L>	<%>	<PS>	<PR>	<F>			<0>	
Barcode	<D><d>	<BL><d>								
Calendar *1	<WA>									

*1 Available only when an RTC is connected to the printer.

XU font character set

	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0		0	@	P	`	p	Ç	É	á	0		ð	ó	-
1	!	1	A	Q	a	q	ü	æ	í			Ð	ß	±
2	“	2	B	R	b	r	é	Æ	ó			Ê	ô	=
3	#	3	C	S	c	s	â	ô	ú			Ë	ò	¾
4	\$	4	D	T	d	t	ä	ö	ñ			È	õ	¶
5	%	5	E	U	e	u	à	ò	Ñ	Á		€	ð	§
6	&	6	F	V	f	v	å	û	Æ	Â	ã	í	µ	÷
7	‘	7	G	W	g	w	ç	ù	Ö	À	Ã	í	þ	,
8	(	8	H	X	h	x	ê	ÿ	¿	©		ï	þ	°
9	)	9	I	Y	i	y	ë	ö	®				Ú	”
A	*	:	J	Z	j	z	è	ü	¬				Û	+
B	+	;	K	[	k	{	ï	Ø	½				Ü	¹
C	,	<	L	¥	l		î	£	¼				ý	³
D	-	=	M	]	m	}	ì	Ø	ì	¢		ì	Ý	²
E	.	>	N	^	n	~	Ä	×	«	¥		ì	—	
F	/	?	O	-	o		Å	f	»		¤		’	

The data from 00 (H) to 1F (H) are control codes and thus they are not usable.

8.7. ESC+XS: XS FONT

XS Font (Basic size 17×17 dots)			ESC+XS
Hexadecimal Code	ESC	XS	Parameter
	<1B> ₁₆	<58> ₁₆ <53> ₁₆	n~n
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF	The set command is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

[Function]

Specifying the font with the basic size; width 17 dots and height 17 dots.

[Format]

<XS>n~n

● Parameter

n: "Print Data" = Data

[Coding Example]

<A>

<V>100<H>200<P>2<L>0304<XS>ABCDE

<Q>2

<Z>

[Supplemental Explanation]

1. The XS font allows the setting of a fixed pitch or the setting of a proportional pitch.
2. The fixed pitch and proportional pitch can be set by the command specification.
3. The character set varies according to the setting of the <CE> command.
4. The data of 00h to 1Fh are control codes and cannot be used as printable data.

[Valid Command]

Print position	<V>	<H>								
Modification	<P>	<L>	<%>	<PS>	<PR>	<F>			<0>	
Barcode	<D><d>	<BL><d>								
Calendar *1	<WA>									

*1 Available only when an RTC is connected to the printer.

XS font character set

	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0		0	@	P	`	p	Ç	É	á	0		ð	ó	-
1	!	1	A	Q	a	q	ü	æ	í			Ð	ß	±
2	“	2	B	R	b	r	é	Æ	ó			Ê	ô	=
3	#	3	C	S	c	s	â	ô	ú			Ë	ò	¾
4	\$	4	D	T	d	t	ä	ö	ñ			È	õ	¶
5	%	5	E	U	e	u	à	ò	Ñ	Á		€	ð	§
6	&	6	F	V	f	v	å	û	ä	Â	ã	í	μ	÷
7	‘	7	G	W	g	w	ç	ù	é	À	Ã	í	þ	,
8	(	8	H	X	h	x	ê	ÿ	¿	©		ï	þ	°
9	)	9	I	Y	i	y	ë	ö	®				Ú	”
A	*	:	J	Z	j	z	è	ü	¬				Û	•
B	+	;	K	[	k	{	ï	Ø	½				Ü	¹
C	,	<	L	¥	l		î	£	¼				ý	³
D	-	=	M	]	m	}	ì	Ø	ì	¢		ì	Ý	²
E	.	>	N	^	n	~	Ä	×	«	¥		ì	—	
F	/	?	O	-	o	■	Å	f	»		✕		’	

The data from 00 (H) to 1F (H) are control codes and thus they are not usable.

8.8. ESC+XM: XM FONT

XM FONT (Basic size 24×24 dots)			ESC+XM
Hexadecimal Code	ESC	XM	Parameter
	<1B> ₁₆	<58> ₁₆ <4D> ₁₆	n~n
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF	The set command is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

[Function]

Specifying the font with the basic size; width 24 dots and height 24 dots.

[Format]

<XM>n~n

● Parameter

n: "Print Data" = Data

[Coding Example]

<A>

<V>100<H>200<P>2<L>0304<XM>ABCDE

<Q>2

<Z>

[Supplemental Explanation]

1. The XM font allows the setting of a fixed pitch or the setting of a proportional pitch.
2. The fixed pitch and proportional pitch can be set by the command specification.
3. The character set varies according to the setting of the <CE> command.
4. The data of 00h to 1Fh are control codes and cannot be used as printable data.

[Valid Command]

Print Position	<V>	<H>							
Modification	<P>	<L>	<%>	<PS>	<PR>	<F>		<0>	
Barcode	<D><d>	<BL><d>							
Calendar *1	<WA>								

*1 Available only when an RTC is connected to the printer.

XM font character set

	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0		0	@	P	`	p	Ç	É	á	0		ð	ó	-
1	!	1	A	Q	a	q	ü	æ	í			Ð	ß	±
2	“	2	B	R	b	r	é	Æ	ó			Ê	ô	=
3	#	3	C	S	c	s	â	ô	ú			Ë	ò	¾
4	\$	4	D	T	d	t	ä	ö	ñ			È	õ	¶
5	%	5	E	U	e	u	à	ò	Ñ	Á		€	ð	§
6	&	6	F	V	f	v	å	û	<u>a</u>	Â	ã	í	μ	÷
7	‘	7	G	W	g	w	ç	ù	<u>o</u>	À	Ã	í	þ	,
8	(	8	H	X	h	x	ê	ÿ	¿	©		ï	þ	°
9	)	9	I	Y	i	y	ë	ö	®				Ú	”
A	*	:	J	Z	j	z	è	ü	¬				Û	•
B	+	;	K	[	k	{	ï	Ø	½				Ü	¹
C	,	<	L	¥	l		î	£	¼				ý	³
D	-	=	M	]	m	}	ì	Ø	ì	¢		ì	Ý	²
E	.	>	N	^	n	~	Ä	×	«	¥		ì	—	
F	/	?	O	-	o		Å	f	»				,	

The data from 00 (H) to 1F (H) are control codes and thus they are not usable.

8.9. ESC+XB: XB FONT

XB Font (Basic size 48×48 dots)			ESC+XB
Hexadecimal Code	ESC	XB	Parameter
	<1B> ₁₆	<58> ₁₆ <42> ₁₆	an~n
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF	The set command is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

[Function]

Specifying the font with the basic size; width 48 dots and height 48 dots.

[Format]

<XB>an~n

• Parameter

a: "Smoothing" = 0: Smoothing OFF
 1: Smoothing ON
 (Available only when the enlargement specification <L> is 3 to 9 times.)
 (Not supported) (*1)
 (*1) When an unsupported parameter is specified, "0: Smoothing OFF" is set.

n: "Print Data" = Data

[Coding Example]

```
<A>
<V>100<H>200<P>2<L>0304<XB>0ABCDE
<Q>2
<Z>
```

[Supplemental Explanation]

1. XB font allows the setting of a fixed pitch or the setting of a proportional pitch.
2. The fixed pitch and proportional pitch can be set by the command specification.
3. Smoothing parameters are not supported. Even if "1" is specified, smoothing is disabled.
4. The character set varies according to the setting of the <CE> command.
5. The data of 00h to 1Fh are control codes and cannot be used as printable data.

[Valid Command]

Print position	<V>	<H>								
Modification	<P>	<L>	<%>	<PS>	<PR>	<F>			<0>	
Barcode	<D><d>	<BL><d>								
Calendar *1	<WA>									

*1 Available only when an RTC is connected to the printer.

XB font character set

	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0		0	@	P	`	p	Ç	É	á	0		ð	ó	-
1	!	1	A	Q	a	q	ü	æ	í			Ð	ß	±
2	“	2	B	R	b	r	é	Æ	ó			Ê	ô	=
3	#	3	C	S	c	s	â	ô	ú			Ë	ò	¾
4	\$	4	D	T	d	t	ä	ö	ñ			È	õ	¶
5	%	5	E	U	e	u	à	ò	Ñ	Á		€	ð	§
6	&	6	F	V	f	v	å	û	a	Â	ã	í	μ	÷
7	‘	7	G	W	g	w	ç	ù	o	À	Ã	í	þ	,
8	(	8	H	X	h	x	ê	ÿ	¿	©		ï	þ	°
9	)	9	I	Y	i	y	ë	ö	®				Ú	”
A	*	:	J	Z	j	z	è	ü	¬				Û	•
B	+	;	K	[	k	{	ï	Ø	½				Ü	¹
C	,	<	L	¥	l		î	£	¼				ý	³
D	-	=	M	]	m	}	ì	Ø	ì	¢		ì	Ý	²
E	.	>	N	^	n	~	Ä	×	«	¥		ì	—	
F	/	?	O	-	o		Å	f	»		⌘		’	

The data from 00 (H) to 1F (H) are control codes and thus they are not usable.

8.10. ESC+XL: XL FONT

XL Font (Basic size 48×48 dots)			ESC+XL
Hexadecimal Code	ESC	XL	Parameter
	<1B> ₁₆	<58> ₁₆ <4C> ₁₆	an~n
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF	The set command is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

[Function]

Specifying the font with the basic size; width 48 dots and height 48 dots.

[Format]

 $\langle XL \rangle_{an} \sim n$

- Parameter

a: "Smoothing" = 0: Smoothing OFF
1: Smoothing ON
(Available only when the enlargement specification <L> is 3 to 9 times.)
(Not supported) (*1)
(*1) When an unsupported parameter is specified, "0: Smoothing OFF" is set.

n: "Print Data" = Data

[Coding Example]

<A>
<V>100<H>200<P>2<L>0304<XL>0ABCDE
<Q>2
<Z>

[Supplemental Explanation]

1. XL font allows the setting of a fixed pitch or the setting of a proportional pitch.
2. The fixed pitch and proportional pitch can be set by the command specification.
3. Smoothing parameters are not supported. Even if "1" is specified, smoothing is disabled.
4. The character set varies according to the setting of the <CE> command.
5. The data of 00h to 1Fh are control codes and cannot be used as printable data.

[Valid Command]

Print position	<V>	<H>								
Modification	<P>	<L>	<%>	<PS>	<PR>	<F>			<0>	
Barcode	<D><d>	<BL><d>								
Calendar *1	<WA>									

*1 Available only when an RTC is connected to the printer.

XL font character set

	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0		0	@	P	`	p	Ç	É	á	0		ð	ó	-
1	!	1	A	Q	a	q	ü	æ	í			Ð	ß	±
2	“	2	B	R	b	r	é	Æ	ó			Ê	ô	=
3	#	3	C	S	c	s	â	ô	ú			Ë	ò	¾
4	\$	4	D	T	d	t	ä	ö	ñ			È	õ	¶
5	%	5	E	U	e	u	à	ò	Ñ	Á		€	ð	§
6	&	6	F	V	f	v	å	û	ä	Â	ã	í	μ	÷
7	‘	7	G	W	g	w	ç	ù	ó	À	Ã	í	þ	,
8	(	8	H	X	h	x	ê	ÿ	¿	©		ï	þ	°
9	)	9	I	Y	i	y	ë	ö	®				Ú	¨
A	*	:	J	Z	j	z	è	ü	¬			≡	Û	•
B	+	;	K	[	k	{	ï	Ø	½			■	Ü	¹
C	,	<	L	¥	l		î	£	¼			▣	Ý	³
D	-	=	M	]	m	}	ì	Ø	ì	¢		ì	Ý	²
E	.	>	N	^	n	~	Ä	×	«	¥		ì	—	
F	/	?	O	-	o	■	Å	f	»		⊗	≡	,	

The data from 00 (H) to 1F (H) are control codes and thus they are not usable.

8.11. ESC+OA: OCR-A FONT

OCR-A Font			ESC+OA
Hexadecimal Code	ESC	OA	Parameter
	<1B> ₁₆	<4F> ₁₆ <41> ₁₆	n~n
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF	The set command is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

[Function]

Specifying the OCR-A font.

[Format]

<OA>n~n

• Parameter

n: "Print Data" = Data

[Coding Example]

<A>

<V>100<H>100<P>2<L>0202<OA>ABC

<Q>2

<Z>

[Supplemental Explanation]

1. Refer to the table below for the font size of each head density.

[Font Size Table]

Head density	Font size (dots)
203 dpi	width 15 x height 22
305 dpi	width 22 x height 33
600 dpi	width 44 x height 65

[Valid Command]

Print position	<V>	<H>								
Modification	<P>	<L>	<%>	<F>			<0>			
Barcode	<D><d>	<BL><d>								
Calendar *1	<WA>									

*1 Available only when an RTC is connected to the printer.

OCR-A font character set

	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0		0		P										
1		1	A	Q										
2		2	B	R										
3		3	C	S										
4		4	D	T										
5	\$	5	E	U										
6		6	F	V										
7		7	G	W										
8		8	H	X										
9		9	I	Y										
A			J	Z										
B			K											
C			L											
D			M											
E	.	>	N											
F	/		O											

The data from 00 (H) to 1F (H) are control codes and thus they are not usable.

8.12. ESC+OB: OCR-B FONT

OCR-B Font			ESC+OB
Hexadecimal Code	ESC	OB	Parameter
	<1B> ₁₆	<4F> ₁₆ <42> ₁₆	n~n
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF	The set command is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

[Function]

Specifying the OCR-B font.

[Format]

<OB>n~n

• Parameter

n: "Print Data" = Data

[Coding Example]

<A>

<V>100<H>100<P>2<L>0202<OB>ABC

<Q>2

<Z>

[Supplemental Explanation]

1. Refer to the table below for the font size of each head density.

[Font Size Table]

Head density	Font size (dots)
203 dpi	width 20 x height 24
305 dpi	width 30 x height 36
600 dpi	width 59 x height 71

[Valid Command]

Print position	<V>	<H>								
Modification	<P>	<L>	<%>	<F>			<0>			
Barcode	<D><d>	<BL><d>								
Calendar *1	<WA>									

*1 Available only when an RTC is connected to the printer.

OCR-B font character set

	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0		0	@	P										
1	!	1	A	Q										
2	"	2	B	R										
3	#	3	C	S										
4	\$	4	D	T										
5	%	5	E	U										
6	&	6	F	V										
7	'	7	G	W										
8	(	8	H	X										
9	)	9	I	Y										
A	*	:	J	Z										
B	+	;	K	¥										
C	,	<	L	Ÿ										
D	-	=	M											
E	.	>	N											
F	/	?	O											

The data from 00 (H) to 1F (H) are control codes and thus they are not usable.

8.13. ESC+U: U FONT

U Font			ESC+U
Hexadecimal Code	ESC	U	Parameter
	<1B> ₁₆	<55> ₁₆	n~n
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF	The set command is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

[Function]

Specifying the font with the basic size; width 5 dots and height 9 dots.

[Format]

<U>n~n

• Parameter

n: "Print Data" = Data

[Coding Example]

```
<A>
<V>100<H>200<P>2<L>0304<U>ABCDE
<Q>2
<Z>
```

[Supplemental Explanation]

1. The U font only allows the setting of a fixed pitch.
2. The character set varies according to the setting of the <CE> command.

[Valid Command]

Print position	<V>	<H>								
Modification	<P>	<L>	<%>	<F>			<0>			
Barcode	<D><d>	<BL><d>								
Calendar *1	<WA>									

*1 Available only when an RTC is connected to the printer.

U font character set

	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0		0	@	P	`	p	Ç	É	á	0		ð	ó	-
1	!	1	A	Q	a	q	ü	æ	í			Ð	ß	±
2	“	2	B	R	b	r	é	Æ	ó			Ê	ô	=
3	#	3	C	S	c	s	â	ô	ú			Ë	ò	¾
4	\$	4	D	T	d	t	ä	ö	ñ			È	õ	¶
5	%	5	E	U	e	u	à	ò	Ñ	Á		€	ð	§
6	&	6	F	V	f	v	å	û	Ξ	Â	ã	í	μ	÷
7	‘	7	G	W	g	w	ç	ù	Ω	À	Ã	í	þ	,
8	(	8	H	X	h	x	ê	ÿ	¿	©		ï	þ	°
9	)	9	I	Y	i	y	ë	ö	®				Ú	¨
A	*	:	J	Z	j	z	è	ü	¬				Û	•
B	+	;	K	[	k	{	ï	Ø	½				Ü	¹
C	,	<	L	¥	l		î	£	¼				ý	³
D	-	=	M	]	m	}	ì	Ø	ì	¢		ì	Ý	²
E	.	>	N	^	n	~	Ä	×	«	¥		ì	—	
F	/	?	O	-	o	⌘	Å	f	»		⌘		,	

The data from 00 (H) to 1F (H) are control codes and thus they are not usable.

8.14. ESC+S: S FONT

S Font			ESC+S
Hexadecimal Code	ESC	S	Parameter
	<1B> ₁₆	<53> ₁₆	n~n
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF	The set command is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

[Function]

Specifying the font with the basic size; width 8 dots and height 15 dots.

[Format]

<S>n~n

• Parameter

n: "Print Data" = Data

[Coding Example]

<A>

<V>100<H>200<P>2<L>0304<S>ABCDE

<Q>2

<Z>

[Supplemental Explanation]

1. The S font only allows the setting of a fixed pitch.
2. The character set varies according to the setting of the <CE> command.

[Valid Command]

Print position	<V>	<H>								
Modification	<P>	<L>	<%>	<F>			<0>			
Barcode	<D><d>	<BL><d>								
Calendar *1	<WA>									

*1 Available only when an RTC is connected to the printer.

S font character set

	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0		0	@	P	`	p	Ç	É	á	0		ð	ó	-
1	!	1	A	Q	a	q	ü	æ	í			Ð	ß	±
2	“	2	B	R	b	r	é	Æ	ó			Ê	ô	=
3	#	3	C	S	c	s	â	ô	ú			Ë	ò	¾
4	\$	4	D	T	d	t	ä	ö	ñ			È	õ	¶
5	%	5	E	U	e	u	à	ò	Ñ	Á		€	ð	§
6	&	6	F	V	f	v	å	û	a	Â	ã	í	μ	÷
7	‘	7	G	W	g	w	ç	ù	o	À	Ã	í	þ	,
8	(	8	H	X	h	x	ê	ÿ	¿	©		ï	þ	°
9	)	9	I	Y	i	y	ë	ö	®				Ú	”
A	*	:	J	Z	j	z	è	ü	¬				Û	•
B	+	;	K	[	k	{	ï	Ø	½				Ü	¹
C	,	<	L	¥	l		î	£	¼				ý	³
D	-	=	M	]	m	}	ì	Ø	ì	¢		ì	Ý	²
E	.	>	N	^	n	~	Ä	×	«	¥		ì	—	
F	/	?	O	-	o		Å	f	»		¤		’	

The data from 00 (H) to 1F (H) are control codes and thus they are not usable.

8.15. ESC+M: M FONT

M Font			ESC+M
Hexadecimal Code	ESC	M	Parameter
	<1B> ₁₆	<4D> ₁₆	n~n
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF	The set command is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

[Function]

Specifying the font with the basic size; width 13 dots and height 20 dots.

[Format]

<M>n~n

• Parameter

n: "Print Data" = Data

[Coding Example]

```
<A>
<V>100<H>200<P>2<L>0304<M>ABCDE
<Q>2
<Z>
```

[Supplemental Explanation]

1. The M font only allows the setting of a fixed pitch.
2. The character set varies according to the setting of the <CE> command.

[Valid Command]

Print position	<V>	<H>								
Modification	<P>	<L>	<%>	<F>			<0>			
Barcode	<D><d>	<BL><d>								
Calendar *1	<WA>									

*1 Available only when an RTC is connected to the printer.

M font character set

	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0		0	@	P	`	p	Ç	É	á	0		ð	ó	-
1	!	1	A	Q	a	q	ü	æ	í			Ð	ß	±
2	“	2	B	R	b	r	é	Æ	ó			Ê	ô	=
3	#	3	C	S	c	s	â	ô	ú			Ë	ò	¾
4	\$	4	D	T	d	t	ä	ö	ñ			È	õ	¶
5	%	5	E	U	e	u	à	ò	Ñ	Á		€	ð	§
6	&	6	F	V	f	v	å	û	æ	Â	ã	í	µ	÷
7	‘	7	G	W	g	w	ç	ù	ð	À	Ã	í	þ	,
8	(	8	H	X	h	x	ê	ÿ	¿	©		ï	þ	°
9	)	9	I	Y	i	y	ë	ö	®				Ú	”
A	*	:	J	Z	j	z	è	ü	¬				Û	•
B	+	;	K	[	k	{	ï	Ø	½				Ü	¹
C	,	<	L	¥	l		î	£	¼				ý	³
D	-	=	M	]	m	}	ì	Ø	ì	¢		ì	Ý	²
E	.	>	N	^	n	~	Ä	×	«	¥		ì	—	
F	/	?	O	-	o	■	Å	f	»		¤		’	

The data from 00 (H) to 1F (H) are control codes and thus they are not usable.

8.16. ESC+WB: WB FONT

WB Font			ESC+WB
Hexadecimal Code	ESC	WB	Parameter
	<1B> ₁₆	<57> ₁₆ <42> ₁₆	an~n
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF	The set command is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

[Function]

Specifying the font with the basic size; width 18 dots and height 30 dots.

[Format]

<WB>an~n

• Parameter

a: "Smoothing" = 0: Smoothing OFF
 1: Smoothing ON
 (Available only when the enlargement specification <L> is 3 to 12 times.)
 (Not supported) (*1)
 (*1) When an unsupported parameter is specified, "0: Smoothing OFF" is set.

n: "Print Data" = Data

[Coding Example]

```
<A>
<V>100<H>200<P>2<L>0304<WB>0ABCDE
<Q>2
<Z>
```

[Supplemental Explanation]

1. The WB font only allows the setting of a fixed pitch.
2. Smoothing parameters are not supported. Even if "1" is specified, smoothing is disabled.
3. The character set varies according to the setting of the <CE> command.
4. The data of 00h to 1Fh are control codes and cannot be used as printable data.

[Valid Command]

Print position	<V>	<H>								
Modification	<P>	<L>	<%>	<F>			<0>			
Barcode	<D><d>	<BL><d>								
Calendar *1	<WA>									

*1 Available only when an RTC is connected to the printer.

WB font character set

	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0		0	@	P	`	p	Ç	É	á	0		ð	ó	-
1	!	1	A	Q	a	q	ü	æ	í			Ð	ß	±
2	“	2	B	R	b	r	é	Æ	ó			Ê	ô	=
3	#	3	C	S	c	s	â	ô	ú			Ë	ò	¾
4	\$	4	D	T	d	t	ä	ö	ñ			È	õ	¶
5	%	5	E	U	e	u	à	ò	Ñ	Á		€	ð	§
6	&	6	F	V	f	v	å	û	ä	Â	ã	í	μ	÷
7	‘	7	G	W	g	w	ç	ù	ö	À	Ã	í	þ	,
8	(	8	H	X	h	x	ê	ÿ	¿	©		ï	þ	°
9	)	9	I	Y	i	y	ë	ö	®				Ú	”
A	*	:	J	Z	j	z	è	ü	¬				Û	•
B	+	;	K	[	k	{	ï	Ø	½				Ü	¹
C	,	<	L	¥	l		î	£	¼				ý	³
D	-	=	M	]	m	}	ì	Ø	ì	¢		ì	Ý	²
E	.	>	N	^	n	~	Ä	×	«	¥		ì	—	
F	/	?	O	-	o	■	Å	f	»		¤		’	

The data from 00 (H) to 1F (H) are control codes and thus they are not usable.

8.17. ESC+WL: WL FONT

WL Font			ESC+WL
Hexadecimal Code	ESC	WL	Parameter
	<1B> ₁₆	<57> ₁₆ <4C> ₁₆	an~n
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF	The set command is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

[Function]

Specifying the font with the basic size; width 28 dots and height 52 dots.

[Format]

<WL>an~n

• Parameter

a: "Smoothing" = 0: Smoothing OFF
 1: Smoothing ON
 (Available only when the enlargement specification <L> is 3 to 12 times.)
 (Not supported) (*1)
 (*1) When an unsupported parameter is specified, "0: Smoothing OFF" is set.

n: "Print Data" = Data

[Coding Example]

```
<A>
<V>100<H>200<P>2<L>0304<WL>0ABCDE
<Q>2
<Z>
```

[Supplemental Explanation]

1. The WL font only allows the setting of a fixed pitch.
2. Smoothing parameters are not supported. Even if "1" is specified, smoothing is disabled.
3. The character set varies according to the setting of the <CE> command.
4. The data of 00h to 1Fh are control code and cannot be used as printable data.

[Valid Command]

Print position	<V>	<H>								
Modification	<P>	<L>	<%>	<F>			<0>			
Barcode	<D><d>	<BL><d>								
Calendar *1	<WA>									

*1 Available only when an RTC is connected to the printer.

WL font character set

	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0		0	@	P	`	p	Ç	É	á	0		ð	ó	-
1	!	1	A	Q	a	q	ü	æ	í			Ð	ß	±
2	“	2	B	R	b	r	é	Æ	ó			Ê	ô	=
3	#	3	C	S	c	s	â	ô	ú			Ë	ò	¾
4	\$	4	D	T	d	t	ä	ö	ñ			È	õ	¶
5	%	5	E	U	e	u	à	ò	Ñ	Á		€	ð	§
6	&	6	F	V	f	v	å	û	<u>a</u>	Â	ã	í	μ	÷
7	‘	7	G	W	g	w	ç	ù	<u>o</u>	À	Ã	í	þ	,
8	(	8	H	X	h	x	ê	ÿ	¿	©		ï	þ	°
9	)	9	I	Y	i	y	ë	ö	®				Ú	”
A	*	:	J	Z	j	z	è	ü	¬				Û	•
B	+	;	K	[	k	{	ï	Ø	½				Ü	¹
C	,	<	L	¥	l		î	£	¼				ý	³
D	-	=	M	]	m	}	ì	Ø	ì	¢		ì	Ý	²
E	.	>	N	^	n	~	Ä	×	«	¥		ì	—	
F	/	?	O	-	o	■	Å	f	»		¤		’	

The data from 00 (H) to 1F (H) are control codes and thus they are not usable.

8.18. ESC+ \$: OUTLINE FONT DESIGN

Outline Font Design			ESC+ \$
Hexadecimal Code	ESC	\$	Parameter
	<1B> ₁₆	<24> ₁₆	a,bbb,ccc,d
Initial Value	a=A, bbb=50, ccc=50, d=0		

Valid Range and Term of Command	When the power switch is OFF	The set command is not maintained.
	Valid range within items	The set parameter is valid until the next valid setting
	Valid range between items	The set parameter becomes initial value at the next item <A>.

[Function]

Specifying the type, size, and shape of the outline font.

[Format]

<\$>a,bbb,ccc,d

- Parameter

- a: "Font Type" = A: Helvetica bold (Proportional)
 B: Helvetica bold (Inter-character pitch fixed)
 K: Kanji specified by hexadecimal number (*1)
 L: Kanji specified by binary number (*1)
 k: Kanji (vertical) specified by hexadecimal number (*1)
 l: Kanji (vertical) specified by binary number (*1)
 (*1) Will specify Kanji outline font
- b: "Font Width" = Valid range: 16 to 999 (dots)
- c: "Font Height" = Valid range: 16 to 999 (dots)
- d: "Font Design" = 0: Normal font (Black)
 1: White characters on black background (Not supported) (*2)
 2: Grey font (Pattern 1) (Not supported) (*2)
 3: Grey font (Pattern 2) (Not supported) (*2)
 4: Grey font (Pattern 3) (Not supported) (*2)
 5: Font with shadow (Not supported) (*2)
 6: White characters with shadow on black background (Not supported) (*2)
 7: Mirrored font (Not supported) (*2)
 8: Normal italic font (Not supported) (*2)
 9: White italic characters with shadow on black background (Not supported) (*2)
 (*2) When (* 2) is specified, "0: Normal font (black)" is printed.

[Coding Example] Font Type: A, Font Width: 100 dots, Font Height: 100 dots, Font Design: 1

<A>

<V>100<H>100<P>2

<\$>A,100,100,1<\$>SATO

<Q>2

<Z>

[Supplemental Explanation]

1. Outline font print specification <\$ => is specified after outline font design specification <\$>.
2. If the font width or height is very small, the shape may be lost.
3. When a number other than 0 (1 to 9) is specified in "Font Design", it becomes "0: Normal font (black)".
4. Latin extended and Greek characters cannot be printed on TEC printers.

[Valid Command]

Font	<\$=>									

8.19. ESC+ \$=: OUTLINE FONT PRINT

Outline Font Print			ESC+ \$=
Hexadecimal Code	ESC	\$=	Parameter
	<1B> ₁₆	<24> ₁₆ <3D> ₁₆	n~n
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF	The set command is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

[Function]

Specifying the printing command of the outline font.

[Format]

<\$=>n~n

- Parameter

n: "Print Data" = Data

[Coding Example] Print Data: TEC

<A>

<V>100<H>100<P>2

<\$>A,100,100,1<\$=>TEC

<Q>2

<Z>

[Supplemental Explanation]

1. The outline font print specification <\$ => is specified after the outline font design specification <\$>.
2. The font height includes both the ascender and descender areas. For a proportional pitch, the character width of the outline font differs depending on the font to be used.
3. Use character pitch command <P> to specify the font pitch.
4. If the font width and height of the outline font design specification <\$> are small, the shape may be broken depending on the font.

[Valid Command]

Print position	<V>	<H>								
Modification	<P>	<%>	<\$>	<F>						
Calendar *1	<WA>									

*1 Available only when an RTC is connected to the printer.

Outline font character set
JIS X0210

	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0		0	@	P	'	p				ー	タ	ミ		
1	!	1	A	Q	a	q			.	ア	チ	ム		
2	”	2	B	R	b	r			「	イ	ツ	メ		
3	#	3	C	S	c	s			」	ウ	テ	モ		
4	\$	4	D	T	d	t			,	エ	ト	ヤ		
5	%	5	E	U	e	u			・	オ	ナ	ユ		
6	&	6	F	V	f	v			ヲ	カ	ニ	ヨ		
7	'	7	G	W	g	w			ア	キ	ヌ	ラ		
8	(	8	H	X	h	x			イ	ク	ネ	リ		
9	)	9	I	Y	i	y			ウ	ケ	ノ	ル		
A	*	:	J	Z	j	z			エ	コ	ハ	レ		
B	+	;	K	[	k	{			オ	サ	ヒ	ロ		
C	,	<	L	¥	l	!			ヤ	シ	フ	ワ		
D	-	=	M	]	m	}			ユ	ス	ヘ	ン		
E	.	>	N	^	n	~			ヨ	セ	ホ	”		
F	/	?	O	-	o				ッ	ソ	マ	’		

Other than JIS X0210

	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0		0	@	P	'	p	Ç	É	á					
1	!	1	A	Q	a	q	ü	æ	í				ß	±
2	"	2	B	R	b	r	é	Æ	ó					
3	#	3	C	S	c	s	â	ô	ú					
4	\$	4	D	T	d	t	ä	ö	ñ				õ	
5	%	5	E	U	e	u	à	ò	Ñ					
6	&	6	F	V	f	v	å	û	à		â		μ	÷
7	'	7	G	W	g	w	ç	ù	ó					
8	(	8	H	X	h	x	ê	ÿ	¿					°
9	)	9	I	Y	i	y	ë	Ö						
A	*	:	J	Z	j	z	è	Ü	¬					·
B	+	;	K	[	k	{	ï	ø	½					
C	,	<	L	\	l	!	î	£	¼					
D	-	=	M	]	m	}	ì	Ø	ì	¢				²
E	.	>	N	^	n	~	Ä		«					
F	/	?	O	_	o		Å	f	»					

The data from 00 (H) to 1F (H) are control codes and thus they are not usable.

8.20. ESC+ RD: CG FONT

CG Font			ESC+ RD
Hexadecimal Code	ESC	RD	Parameter
	<1B> ₁₆	<52> ₁₆ <44> ₁₆	abc,ddd,eee,n~n
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF	The set command is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

[Function]

Specify the font type, character set, font size, and print data.

[Format]

<RD>abc,ddd,eee,n~n

• Parameter

- a: "Font Type" = A: SATO CG Sleek
B: SATO CG Stream
- b: "Character encoding selection" = -: Character set specified by <CE>
0: 858 (Default)
1: ISO 8859/1 Latin1
2: ISO 8859/2 Latin 2
3: ISO 8859/9 Latin 5
4: CP737 DOS Greek
5: CP855 DOS Cyrillic
6: -
7: -
8: PC-850 Multilingual
9: CP852 DOS Central European
A: CP857 DOS Turkish
B: CP866 DOS Cyrillic II
C: CP1250 Windows Central European
D: CP1251 Windows Cyrillic
E: CP1252 Windows Western Latin 1
F: CP1253 Windows Greek
G: CP1254 Windows Turkish
H: -
I: -
J: CP1257 Windows Baltic
K: CP869 IBM Greek
L: -
M: Japanese X0201 *1
@: Unicode UTF-8
*1: Specifying X201 prints ISO 8859-1 Latin 1 character set.

- c: "Font style" = 0: Standard
1: Bold (Not supported)
2: Italic (Not supported)
3: Bold + Italic (Not supported)
- d: "Width" = Valid Range: 004 to 999 (dots)
Valid Range: P02 to P99 (points)
- e: "Height" = Valid Range: 004 to 999 (dots)
Valid Range: P02 to P99 (points)
- n: "Print Data" = Data

[Coding Example] Font Type: SATO CG Sleek, Width: 10 pts, Height: 10 pts

```
<A>
<V>100<H>100<P>2
<RD>A00,P10,P10,SATO
<Q>2
<Z>
```

[Valid Command]

Print position	<V>	<H>								
Modification	<P>	<%>	<F>	<PS>						

8.21. ESC+ RG: MULTIPLE LANGUAGE

Multiple Language			ESC+ RG
Hexadecimal Code	ESC	RG	Parameter
	<1B> ₁₆	<52> ₁₆ <47> ₁₆	a,b,c,ddd,eee,fff...fff
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF	The set command is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

[Function]

Printing multiple language fonts.

[Format]

<RG>a,b,c,ddd,eee,fff...fff

- Parameter

- a: Character code Character code of print data to be specified to a parameter "f".
See the table below.
- b: Font set Font type for printing. See the table below.
- c: Modification 0: Standard
1: Italic (Not supported) (*1)
2: BOLD (Not supported) (*1)
3: BOLD + Italic (Not supported) (*1)
(*1) When an unsupported parameter is specified, "0: Standard" is set.
- d: Width Valid Range: 20 to 999 (dots)
Valid Range: P09 to P99 (points)
- e: Height Valid Range: 20 to 999 (dots)
Valid Range: P09 to P99 (points)
*1: One point is 0.35 mm.
- f: Print Data (Character Code)

[Character Code List]

Parameter "a"	Character Code						
0	UNICODE(UTF-8)						
1	UNICODE(UTF-16BE) *Recommended						
2	S-JIS						
3	BIG5 Not supported (*1)						
4	GB18030						
5	KSX 1001(EUC-KR) Not supported (*1)						
-	Character set specified by <CE>. * If UTF-8 or X201 is selected by <CE>, it acts as the value in the table below. <table border="1"> <tr> <th><CE></th><th><RG> Parameter "a"</th></tr> <tr> <td>UTF-8</td><td>0: UTF-8</td></tr> <tr> <td>X201</td><td>2: S-JIS</td></tr> </table>	<CE>	<RG> Parameter "a"	UTF-8	0: UTF-8	X201	2: S-JIS
<CE>	<RG> Parameter "a"						
UTF-8	0: UTF-8						
X201	2: S-JIS						

If (* 1) is selected, no printing will occur.

[Font Set List]

Parameter "b"	Font Name S Mode	Font Name CL4NX-J	Font Set	Font Type	Character Code Range (UTF-16BE)
0	Not supported (*2)	SATO Hebe Sans	WGL4	Hebe Serif	0020-FB02
1	Not supported (*2)	SATO Hebe Sans	Arabic Arabic(Farsi) +ISO8859-1	Hebe Serif	0020-00FF, 0600-06FF FE70-FEFC
2	Not supported (*2)	SATO Hebe Sans Thai	Thai+ISO8859-1	Hebe Serif	0020-00FF, 0E01-0E5B
3	Not supported (*2)	SATO Hebe Sans Hindi	Hindi+ISO8859-1	Hebe Serif	0020-00FF, 0901-097F
4	Not supported (*2)	SATO Gothic Traditional Chinese	WGL4 Big5 Not supported (*2) GB-18030 JISx0208(+NEC) JISx0201 KSX 1001 Not supported (*2)	Hebe Serif MobileGothic Crystalzhonghei MobileGothic MobileGothic	0020-FFE6
5	NotoSansCJKjp-Regular.otf	SATO Gothic Japanese	WGL4 JISx0208(+NEC) JISx0201 KSX 1001 Not supported (*2) GB-18030 Big5 Not supported (*2)	Hebe Serif NotoSansCJK-Regular(CJK.TTF) MobileGothic NotoSansCJK-Regular(CJK.TTF) obileGothic	0020-FFE6
6	NotoSansCJKjp-Regular.otf	SATO Gothic Simplified Chinese	WGL4 Not supported (*2) GB-18030	Hebe Serif NotoSansCJK-Regular(CJK.TTF)	0020-FFE5
7	Not supported (*2)	SATO Gothic Korean	WGL4 KSX 1001 Not supported (*2) JISx0208(+NEC) JISx0201 GB-18030 Big5 Not supported (*2)	Hebe Serif MobileGothic MobileGothic Crystalzhonghei MobileGothic	0020-FFE6
8	Not supported (*2)	SATO Silver Serif	WGL4	Silver Serif	0020-FB02
9	Not supported (*2)	SATO Mincho Traditional Chinese	WGL4 Big5 Not supported (*2) GB-18030 JISx0208(+NEC) JISx0201 KSX 1001 Not supported (*2)	Silver Serif Mincho Shusong2M CrystalMincho Mincho	0020-FFE6
10	NotoSerifCJKjp-Regular.otf	SATO Mincho Japanese	WGL4 JISx0208(+NEC) JISx0201 KSX 1001 Not supported (*2) GB-18030 Big5 Not supported (*2)	Silver Serif NotoSerifJP-Regular Mincho NotoSerifJP-Regular Mincho	0020-FFE6
11	NotoSerifCJKjp-Regular.otf	SATO Mincho Simplified Chinese	WGL4 GB-18030	Silver Serif NotoSerif-Regular	0020-FFE5
12	Not supported (*2)	SATO Mincho Korean	WGL4 KSX 1001 Not supported (*2) JISx0208(+NEC) JISx0201 GB-18030 Big5 Not supported (*2)	Silver Serif Mincho CrystalMincho Shusong2M Mincho	0020-FFE6
13	Not supported (*2)	SATO Roman Arabic	Arabic+ISO8859-1	Roman	0020-00F, 0600-06FF,

					FDF2, FE70-FEFC
14	Not supported (*2)	SATO Hebe Sans Hebrew	Hebrew+ISO8859-1	Hebe Serif	0020-00F, 05B0-05F4, FB1D-FB4F

If (* 2) is selected, no printing will occur.

[Coding Example]

Character code = UTF16, Font set = SJIS, Modification = Standard, Width = 20 dots, Height = 20 dots, Print Data = SATO

<A>

<V>100<H>100<P>2

<RG>1,5,0,20,20,<FF33>16<FF21>16<FF34>16<FF2F>16

<Q>2

<Z>

[Supplemental Explanation]

1. When a character code other than UTF-16BE is specified, the character code will be converted into UTF-16BE. If there are codes that cannot be converted, they are replaced with single spaces.
2. When UTF-16BE is specified as a character code or character codes do not exist in the font set after UTF-16BE conversion, they will not be printed. Moreover, if the data are supplemented with spaces or square frames in the character set data, the image is outputted.
3. The character size may be smaller than parameter because it takes into account the multi- language.
4. When the input code is UTF-8, the 1-character code is up to 3 bytes. 4, 5 and 6 bytes of UTF-8 are not supported.
5. When the input code is UTF-16BE, the 1-character code is up to 2 bytes. 3 and 4 bytes of UTF-16BE are not supported.
6. Complex script languages (Arabic, Hindi, Thai) and Hebrew are printed with proportional fonts, regardless of the setting of the font type to use the formatter function and the combined font function.
7. The linefeed code cannot be inserted among one word or one character code forming one character for the complex script languages (Arabic, Hindi, Thai) and Hebrew. If the linefeed is inserted, the rendering result is not guaranteed.
8. Unicode 2.1 compliant (Note that if the first byte is 0x1b when UTF-16BE is specified, it will be judged as the ESC code).
9. When executing sequential number printing in Arabic, Hindi, Thai and Hebrew, the character codes are rendered as a character string and it may not function properly.
10. This command does not support the partial editing because the complex script languages (Arabic, Hindi, Thai) and Hebrew extract the character string for using the formatter function and the combined font function.
11. Complex script languages (Arabic, Hindi, Thai) and Hebrew render character codes as character strings to use the formatter function and the combined font function. Other languages render character codes in character units, so that a gap between fonts is different from that of the complex script languages.

12. Note that when a combination of character codes and font sets is other than the table below, the expected character may not be printed.

Font Set	Character Code
WGL4, Arabic, Thai, Hindi, Hebrew	UNICODE(UTF-16BE), UNICODE(UTF-8)
SJIS	UNICODE(UTF-16BE), SJIS, UNICODE(UTF-8)
GB18030	UNICODE(UTF-16BE), GB18030, UNICODE(UTF-8)

13. If a font other than the supported ones is specified, printing is performed with a Helvetica bold proportional font.

[Valid Command]

Print position	<V>	<H>								
Modification	<P>	<%>	<F>	<PS>						

Multiple language sample

FONT NAME	SAMPLE
SATO Gothic Japanese	東芝テック株式会社
SATO Gothic Simplified Chinese	東芝テック株式会社
SATO Mincho Japanese	東芝テック株式会社
SATO Mincho Simplified Chinese	東芝テック株式会社

8.22. ESC+ RH: SCALABLE FONT

Scalable Font			ESC+ RH
Hexadecimal Code	ESC	RH	Parameter
	<1B> ₁₆	<52> ₁₆ <47> ₁₆	a,b...b,c,ddd,eee,f...f
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF	The set command is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

[Function]

Printing a built-in scalable font and the TTF font downloaded using file download [DC2] DE of a common command.

[Format]

<RH>a,b...b,c,ddd,eee, ffff...fff

- Parameter

- a: "Character Code" = 0: UNICODE(UTF-8)
1: UNICODE(UTF-16BE)
-: Character set specified by <CE>
- b: "Font set" = Valid range: See the table below
- c: "Modification" = 0: Standard
1: Bold (Not supported) (*1)
2: Italic (Not supported) (*1)
3: Bold + Italic (Not supported) (*1)
(*1) When an unsupported parameter is specified, "0: Standard" is set.
- d: "Width" = Valid range: 020 to 999 (dots)
Valid range: P09 to P99 (points)
- e: "Height" = Valid range: 020 to 999 (dots)
Valid range: P09 to P99 (points)
* One point is 0.35 mm.
* The valid range of height and width is 832 dots for 203 dpi.
- f: "Print Data" = Data

[Built-in Font Set List]

Parameter "b"	Font name (S Mode)	Font name (CL4NX-J9)
SATOCGSleek.ttf	NotoSerif-Reg.ttf	SATO CG Sleek
SATOCGStream.ttf	CJK.TTF	SATO CG Stream
SATOOOCRA.ttf	OCRA.ttf	SATO OCR-B
SATO0.ttf	NotoSans-Black.ttf	SATO 0
SATOALPHABC.ttf	NotoSans-Bold.ttf	SATO Alpha Bold Condensed
SATOBETABI.ttf	NotoSans-Italic.ttf	SATO Beta Bold Italic
SATOFOLIOB.ttf	NotoSans-Black.ttf	SATO Folio Bold
SATOFUTURAMC.ttf	NotoSans-Bold.ttf	SATO Futura Medium Condensed
SATOGAMMA.ttf	NotoSerif-Reg.ttf	SATO Gamma
SATOOOCRb.ttf	OCRB.ttf	SATO OCR-B
SATOSANS.ttf	CJK.TTF	SATO Sans
SATOSERIF.ttf	NotoSerif-Reg.ttf	SATO Serif
SATOSYM.ttf	Not supported (Blank is printed)	SATO Symbol Set
SATOVICA.ttf	NotoSans-Medium.ttf	SATO Vica
SATOWING.ttf	Not supported (Blank is printed)	SATO WingBats

[Coding Example 1: Printing of the built-in (scalable) font]

Character code = UTF16BE, Font set = SATO CG Stream, Modification = Standard, Width = 20dots, Height = 20dots, Print data = SATO

<A>

<V>100<H>100<P>2

<RH>1,SATOCGStream.ttf,0,20,20,<FF33>16<FF21>16<FF34>16<FF2F>16

<Q>2

<Z>

[Coding Example 2: Printing of the downloaded TTF]

Character code = UTF16BE, Font set (downloaded file name) = sample.ttf, Modification = Standard, Width = 40dots, Height = 40dots, Print data = SATO

<A>

<V>100<H>100<P>2

<RH>1,sample.ttf,0,40,40,<FF33>16<FF21>16<FF34>16<FF2F>16

<Q>2

<Z>

[Coding Example 3: Printing of the downloaded TTF]

Character code = UTF16BE, Font set (downloaded file name) = Sample.TTF, Modification = Standard, Width = 40dots, Height = 40dots, Print data = SATO

<A>

<V>100<H>100<P>2

<RH>1,Sample.TTF,0,40,40,<FF33>16<FF21>16<FF34>16<FF2F>16

<Q>2

<Z>

[Supplemental Explanation]

1. If the font corresponding to the specified character code does not exist, an invalid image defined in the font set will be printed.
2. The size that can be specified by the character set is up to 32 bytes. Only the following characters can be specified.
Alphabet, Number, Hyphen ("-"), Underscore ("_"), Period (".")
3. The recommended font for printing a character set of <CE> by specifying "-" for parameter "a" is shown in the table below.

<CE>		<RH>	
Parameter a	Official name	Parameter b	Font name
858	DOS 858	SATO CG Sleek SATO CG Stream	SATO CG Sleek SATO CG Stream
88591	ISO 8859/1		
88592	ISO 8859/2		
88599	ISO 8859/9		
850	DOS 850		
852	DOS 852		
855	DOS 855		
857	DOS 857		
737	DOS 737		
866	DOS 866		
1250	Win 1250		
1251	Win 1251		
1252	Win 1252		
1253	Win 1253		
1254	Win 1254		
1257	Win 1257		
869	IBM 869		
UTF-8	UTF-8		
201	X0201	-	-

[Valid Command]

Print Position	<V>	<H>								
Modification	<P>	<%>	<F>	<PS>						

Scalable Font Sample

FONT NAME	SAMPLE
SATOCGSleek.ttf	ABCXYZabcdefghijklmnopqrstuvwxyz123
SATOCGStream.ttf	ABCXYZabcdefghijklmnopqrstuvwxyz123
SATOOOCRA.ttf	A B C X Y Z a b c x y z 1 2 3
SATOØ.ttf	ABCXYZabcdefghijklmnopqrstuvwxyz123
SATOALPHABC.ttf	ABCXYZabcdefghijklmnopqrstuvwxyz123
SATOBETABI.ttf	<i>ABCXYZabcdefghijklmnopqrstuvwxyz123</i>
SATOFOLIOB.ttf	ABCXYZabcdefghijklmnopqrstuvwxyz123
SATOFUTURAMC.ttf	ABCXYZabcdefghijklmnopqrstuvwxyz123
SATOGAMMA.ttf	ABCXYZabcdefghijklmnopqrstuvwxyz123
SATOOOCRB.ttf	□ □ □ □ □ □ □ □ □ □ 1 2 3
SATOSANS.ttf	ABCXYZabcdefghijklmnopqrstuvwxyz123
SATOSERIF.ttf	ABCXYZabcdefghijklmnopqrstuvwxyz123
SATOVICA.ttf	ABCXYZabcdefghijklmnopqrstuvwxyz123

8.23. ESC+K1: 16×16 dots KANJI IN HORIZONTAL LINE

16×16 dots Kanji in Horizontal Line			ESC+ K1
Hexadecimal Code	ESC	K1	Parameter
	<1B> ₁₆	<4B> ₁₆ <31> ₁₆	an~n
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF	The set command is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

[Function]

Specifying 16x16 (width x height) dots horizontal written Kanji character print.

[Format]

<K1>an~n

- Parameter

a: "Kanji selection mode" = H: HEX character
 B: Binary code
 I: HEX character letters, smoothing function (*1)
 C: Binary code, smoothing function (*1)
 J: HEX character letters, highlight function
 D: Binary code, highlight function
 K: HEX character letters, smoothing and highlight function (*1)
 E: Binary code, smoothing and highlight function (*1)
 (*1) The smoothing function is not supported.

n: "Data" = Refer to the code table (JIS, Shift JIS, Unicode).

[Coding Example 1]

Shift JIS HEX code characters, Horizontal magnification: 3, Vertical magnification: 5

```
<A>
<V>100<H>200<P>2<L>0305
<K1>H81698A94816A83548367815B
<Q>2
<Z>
```

[Coding Example 2]

JIS binary code, Horizontal magnification: 2, Vertical magnification: 3

```
<A>
<V>100<H>200<P>2<L>0203
<K1>B ! J3T ! K%5%H ! <
<Q>2
<Z>
```

[Supplemental Explanation]

1. HEX characters = Kanji Code 4 bytes ASCII / 1 Kanji character
2. Binary code = Kanji Code 2 bytes / 1 Kanji character
3. Highlighting function validity range = Horizontal / Vertical valid range: factor 1 to 5
4. Unicode data contains control codes. Specify hexadecimal characters in the kanji specification mode to print the correct code.
5. When the language specification of the printer is Japanese, printing is performed according to the language specification.

[Point]

1. With the highlighting function, the character width enlarges proportional with the expansion factor.
2. Using the highlighting function, in some cases, characters will be squeezed depending on the type of the font.
3. If unavailable character data is specified, a black-filled box character will be printed.

[Valid Command]

Print Position	<V>	<H>								
Modification	<P>	<L>	<%>			<0>				

8.24. ESC+K2: 24×24 dots KANJI IN HORIZONTAL LINE

24×24 dots Kanji in Horizontal Line			ESC+K2
Hexadecimal Code	ESC	K2	Parameter
	<1B> ₁₆	<4B> ₁₆ <32> ₁₆	an~n
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF	The set command is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

[Function]

Specifying 24x24 (width x height) dots horizontal written Kanji character print.

[Format]

<K2>an~n

- Parameter

a: "Kanji selection mode" = H: HEX character
 B: Binary code
 I: HEX character letters, smoothing function (*1)
 C: Binary code, smoothing function (*1)
 J: HEX character letters, highlight function
 D: Binary code, highlight function
 K: HEX character letters, smoothing and highlight function (*1)
 E: Binary code, smoothing and highlight function (*1)
 (*1) The smoothing function is not supported.

n: "Data" = Refer to the code table (JIS, Shift JIS, Unicode).

[Coding Example 1]

Shift JIS HEX code characters, Horizontal magnification: 3, Vertical magnification: 5

```
<A>
<V>100<H>200<P>2<L>0305
<K2>H81698A94816A83548367815B
<Q>2
<Z>
```

[Coding Example 2]

JIS binary code, Horizontal magnification: 2, Vertical magnification: 3

```
<A>
<V>100<H>200<P>2<L>0203
<K2>B ! J3T ! K%5%H ! <
<Q>2
<Z>
```

[Supplemental Explanation]

1. HEX characters = Kanji code 4 bytes ASCII / 1 Kanji character
2. Binary code = Kanji code 2 bytes / 1 Kanji character
3. Highlighting function validity range = Horizontal / Vertical valid range: factor 1 to 5
4. Unicode data contains control codes. Specify hexadecimal characters in the kanji specification mode to print the correct code.
5. When the language specification of the printer is Japanese, printing is performed according to the language specification.

[Point]

1. With the highlighting function, the character width enlarges proportional with the expansion factor.
2. Using the highlighting function, in some cases, characters will be squeezed depending on the type of the font.
3. If unavailable character data is specified, a black-filled box character will be printed.

[Valid Command]

Print Position	<V>	<H>								
Modification	<P>	<L>	<%>			<0>				

8.25. ESC+K3: 22x22 dots KANJI IN HORIZONTAL LINE

22×22 dots Kanji in Horizontal Line			ESC+K3
Hexadecimal Code	ESC	K3	Parameter
	<1B> ₁₆	<4B> ₁₆ <33> ₁₆	an~n
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF	The set command is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

[Function]

Specifying 22 x 22 (width x height) dots horizontal written Kanji character print.

[Format]

<K3>an~n

- Parameter

a: "Kanji selection mode" = H: HEX character
 B: Binary code
 I: HEX character letters, smoothing function (*1)
 C: Binary code, smoothing function (*1)
 J: HEX character letters, highlight function
 D: Binary code, highlight function
 K: HEX character letters, smoothing and highlight function (*1)
 E: Binary code, smoothing and highlight function (*1)
 (*1) The smoothing function is not supported.

n: "Data" = Refer to the code table (JIS, Shift JIS, Unicode).

[Coding Example 1]

Shift JIS HEX code characters, Horizontal magnification: 3, Vertical magnification: 5

```
<A>
<V>100<H>200<P>2<L>0305
<K3>H81698A94816A83548367815B
<Q>2
<Z>
```

[Coding Example 2]

JIS binary code, Horizontal magnification: 2, Vertical magnification: 3

```
<A>
<V>100<H>200<P>2<L>0203
<K3>B ! J3T ! K%5%H ! <
<Q>2
<Z>
```

[Supplemental Explanation]

1. HEX characters = Kanji code 4 bytes ASCII / 1 Kanji character
2. Binary code = Kanji code 2 bytes / 1 Kanji character
3. Highlighting function validity range = Horizontal / Vertical valid range: factor 1 to 5
4. Unicode data contains control codes. Specify hexadecimal characters in the kanji specification mode to print the correct code.

[Point]

1. With the highlighting function, the character width enlarges proportional with the expansion factor.
2. Using the highlighting function, in some cases, characters will be squeezed depending on the type of the font.
3. If the kanji mode setting is [Japan, compatible kanji (JISX208)] or [China, simplified (GB18030)], the command is ignored.
4. If unavailable character data is specified, a black-filled box character will be printed.

[Valid Command]

Print Position	<V>	<H>								
Modification	<P>	<L>	<%>			<0>				

8.26. ESC+K4: 32x32 dots KANJI IN HORIZONTAL LINE

32×32 dots Kanji in Horizontal Line			ESC+K4
Hexadecimal Code	ESC	K4	Parameter
	<1B> ₁₆	<4B> ₁₆ <34> ₁₆	an~n
Initial Value	Nil		

Valid range and Term of Command	When the power switch is OFF	The set command is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

[Function]

Specifying 32 x 32 (width x height) dots horizontal written Kanji character print

[Format]

<K4>an~n

- Parameter

a: "Kanji selection mode" = H: HEX character
 B: Binary code
 I: HEX character letters, smoothing function (*1)
 C: Binary code, smoothing function (*1)
 J: HEX character letters, highlight function
 D: Binary code, highlight function
 K: HEX character letters, smoothing and highlight function (*1)
 E: Binary code, smoothing and highlight function (*1)
 (*1) The smoothing function is not supported.

n: "Data" = Refer to the code table (JIS, Shift JIS, Unicode).

[Coding Example 1]

Shift JIS HEX code characters, Horizontal magnification: 3, Vertical magnification: 5

<A>
 <V>100<H>200<P>2<L>0305
<K4>H81698A94816A83548367815B
 <Q>2
 <Z>

[Coding Example 2]

JIS binary code, Horizontal magnification: 2, Vertical magnification: 3

<A>
 <V>100<H>200<P>2<L>0203
<K4>B ! J3T ! K%5%H ! <
 <Q>2
 <Z>

[Supplemental Explanation]

1. HEX characters = Kanji code 4 bytes ASCII / 1 Kanji character
2. Binary code = Kanji code 2 bytes / 1 Kanji character
3. Highlighting function validity range = Horizontal /Vertical valid range: factor 1 to 5
4. Unicode data contains control codes. Specify hexadecimal characters in the kanji specification mode to print the correct code.

[Point]

1. With the highlighting function, the character width enlarges proportional with the expansion factor.
2. Using the highlighting function, in some cases, characters will be squeezed depending on the type of the font.
3. If the kanji mode setting is [Japan, compatible kanji (JISX208)] or [China, simplified (GB18030)], the command is ignored.
4. If unavailable character data is specified, a black-filled box character will be printed.

[Valid Command]

Print Position	<V>	<H>								
Modification	<P>	<L>	<%>			<0>				

8.27. ESC+K5: 40x40 dots KANJI IN HORIZONTAL LINE

40×40 dots Kanji in Horizontal Line			ESC+K5
Hexadecimal Code	ESC	K5	Parameter
	<1B> ₁₆	<4B> ₁₆ <35> ₁₆	an~n
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF	The set command is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

[Function]

Specifying 40 x 40 (width x height) dots horizontal written Kanji character print

[Format]

<K5>an~n

- Parameter

a: "Kanji selection mode" = H: HEX character
 B: Binary code
 I: HEX character letters, smoothing function (*1)
 C: Binary code, smoothing function (*1)
 J: HEX character letters, highlight function
 D: Binary code, highlight function
 K: HEX character letters, smoothing and highlight function (*1)
 E: Binary code, smoothing and highlight function (*1)
 (*1) The smoothing function is not supported.

n: "Data" = Refer to the code table (JIS, Shift JIS, Unicode).

[Coding Example 1]

Shift JIS HEX characters, Horizontal magnification: 3, Vertical magnification: 5

```
<A>
<V>100<H>200<P>2<L>0305
<K5>H81698A94816A83548367815B
<Q>2
<Z>
```

[Coding Example 2]

JIS binary code, Horizontal magnification: 2, Vertical magnification: 3

```
<A>
<V>100<H>200<P>2<L>0203
<K5>B ! J3T ! K%5%H ! <
<Q>2
<Z>
```

[Supplemental Explanation]

1. HEX characters = Kanji code 4 bytes ASCII / 1 Kanji character
2. Binary code = Kanji code 2 bytes / 1 Kanji character
3. Highlighting function validity range = Horizontal / Vertical valid range: factor 1 to 5
4. Unicode data contains control codes. Specify hexadecimal characters in the kanji specification mode to print the correct code.

[Point]

1. With the highlighting function, the character width enlarges proportional with the expansion factor.
2. Using the highlighting function, in some cases, characters will be squeezed depending on the type of the font.
3. If the kanji mode setting is [Japan, compatible kanji (JISX208)] or [China, simplified (GB18030)], the command is ignored.
4. If unavailable character data is specified, a black-filled box character will be printed.

[Valid Command]

Print Position	<V>	<H>								
Modification	<P>	<L>	<%>			<0>				

8.28. ESC+K8: 16x16 dots KANJI IN HORIZONTAL LINE WITH 1-byte CHARACTER

16×16 dots Kanji in Horizontal Line with 1- byte Character (Only shift JIS and UNICODE can be specified)			ESC+K8
Hexadecimal Code	ESC	K8	Parameter
	<1B> ₁₆	<4B> ₁₆ <38> ₁₆	an~n
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF	The set command is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

[Function]

Specifying 16 x 16 (width x height) dots horizontal written Kanji character print and 8 x 16 (width x height) dots half size character in horizontal line.

[Format]

<K8>an~n

● Parameter

a: "Kanji selection mode" = H: HEX character
B: Binary code
I: HEX character letters, smoothing function (*1)
C: Binary code, smoothing function (*1)
J: HEX character letters, highlight function
D: Binary code, highlight function
K: HEX character letters, smoothing and highlight function (*1)
E: Binary code, smoothing and highlight function (*1)
(*1) The smoothing function is not supported.

n: "Data" = Refer to the code table (Shift JIS, Unicode).

[Coding Example]

Shift JIS HEX code character, Data: SATO-

<A>

<V>100<H>200<P>2<L>0305

<K8>H8A948EAE89EF8ED0BBC4B0

<Q>2

<Z>

[Supplemental Explanation]

1. HEX characters = Kanji code 4 bytes ASCII / Kanji character
2. Binary code = Kanji code 2 bytes / 1 Kanji character
3. Highlighting function validity range = Horizontal / Vertical valid range: factor 1 to 5
4. Unicode data contains control codes. Specify hexadecimal characters in the kanji specification mode to print the correct code.

[Point]

1. With the highlighting function, the character width enlarges proportional with the expansion factor.
2. Using the highlighting function, in some cases, characters will be squeezed depending on the type of the font.
3. This command is only available for Shift JIS kanji code and Unicode.
4. For the half size character (one byte character code), printing will be performed in 8 x 16 (width x height) dots.
5. For the full size character (two byte character code), printing will be performed in 16 x 16 (width x height) dots.
6. If the kanji mode setting is [Japan, compatible kanji (JISX208)] or [China, simplified (GB18030)], the command is ignored.
7. If unavailable character data is specified, a black-filled box character will be printed.

[Valid Command]

Print Position	<V>	<H>								
Modification	<P>	<L>	<%>			<0>				

8.29. ESC+K9: 24×24 dots KANJI IN HORIZONTAL LINE WITH 1-byte CHARACTER

24×24 dots Kanji in Horizontal Line with 1- byte Character (Only shift JIS and UNICODE can be specified)			ESC+K9
Hexadecimal Code	ESC	K9	Parameter
	<1B> ₁₆	<4B> ₁₆ <39> ₁₆	an~n
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF	The set command is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

[Function]

Specifying 24 x 24 (width x height) dots horizontal written kanji character print and 12 x 24 (width x height) dots half size character in horizontal line.

[Format]

<K9>an~n

• Parameter

a: "Kanji selection mode" = H: HEX character
 B: Binary code
 I: HEX character letters, smoothing function (*1)
 C: Binary code, smoothing function (*1)
 J: HEX character letters, highlight function
 D: Binary code, highlight function
 K: HEX character letters, smoothing and highlight function (*1)
 E: Binary code, smoothing and highlight function (*1)
 (*1) Smoothing function is not supported.

n: "Data" = Refer to the code table (Shift JIS, Unicode).

[Coding Example]

Shift JIS HEX code characters, Data: SATO-

```
<A>
<V>100<H>200<P>2<L>0305
<K9>H8A948EAE89EF8ED0BBC4B0
<Q>2
<Z>
```

[Supplemental Explanation]

1. HEX characters = Kanji code 4 bytes ASCII / 1 Kanji character
2. Binary code = Kanji code 2 bytes / 1 Kanji character
3. Highlighting function validity range = Horizontal / Vertical valid range: factor 1 to 5
4. Unicode data contains control codes. Specify hexadecimal characters in the kanji specification mode to print the correct code.

[Point]

1. With the highlighting function, the character width enlarges proportional with the expansion factor.
2. Using the highlighting function, in some cases, characters will be squeezed depending on the type of the font.
3. This command is only available for Shift JIS kanji code and Unicode.
4. For the half size character (one byte character code), printing will be performed in 12 x 24 (width x height) dots.
5. For the full size character (two bytes character code), printing will be performed in 24 x 24 (width x height) dots.
6. If unavailable character data is specified, a black-filled box character will be printed.

[Valid Command]

Print Position	<V>	<H>								
Modification	<P>	<L>	<%>			<0>				

8.30. ESC+KA: 22×22 dots KANJI IN HORIZONTAL LINE WITH 1-byte CHARACTER

22×22 dots Kanji in Horizontal Line with 1-Byte Character (Only shift JIS and UNICODE can be specified)			ESC+KA
Hexadecimal Code	ESC	KA	Parameter
	<1B> ₁₆	<4B> ₁₆ <41> ₁₆	an~n
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF	The set command is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

[Function]

Specifying 22 x 22 (width x height) dots horizontal written kanji character print and 11 x 22 (width x height) dots half size character in horizontal line.

[Format]

<KA>an~n

• Parameter

a: "Kanji selection mode" = H: HEX character
 B: Binary code
 I: HEX character letters, smoothing function (*1)
 C: Binary code, smoothing function (*1)
 J: HEX character letters, highlight function
 D: Binary code, highlight function
 K: HEX character letters, smoothing and highlight function (*1)
 E: Binary code, smoothing and highlight function (*1)
 (*1) The smoothing function is not supported.

n: "Data" = Refer to the code table (Shift JIS, Unicode).

[Coding Example]

Shift JIS HEX code characters, Data: SATO

```
<A>
<V>100<H>200<P>2<L>0305
<CC>0
<KA>H8A948EAE89EF8ED0BBC4B0
<Q>2
<Z>
```

[Supplemental Explanation]

1. HEX characters = Kanji code 4 bytes ASCII / 1 Kanji character
2. Binary code = Kanji code 2 bytes / 1 Kanji character
3. Highlighting function validity range = Horizontal / Vertical valid range: factor 1 to 5
4. Unicode data contains control codes. Specify hexadecimal characters in the kanji specification mode to print the correct code.

[Point]

1. With the highlighting function, the character width enlarges proportional with the expansion factor.
2. Using the highlighting function, in some cases, characters will be squeezed depending on the type of font.
3. This command is only available for Shift JIS kanji code and Unicode.
4. For the half size character (one byte character code), printing will be performed in 11 x 22 (width x height) dots.
5. For the full size character (two bytes character code), printing will be performed in 22 x 22 (width x height) dots.
6. If the kanji mode setting is [Japan, compatible kanji (JISX208)] or [China, simplified (GB18030)], the command is ignored.
7. If unavailable character data is specified, a black-filled box character will be printed.

[Valid Command]

Print Position	<V>	<H>								
Modification	<P>	<L>	<%>			<0>				

8.31. ESC+KB: 32×32 dots KANJI IN HORIZONTAL LINE WITH 1-byte CHARACTER

32×32 dots Kanji in Horizontal Line with 1- byte Character (Only shift JIS and UNICODE can be specified)			ESC+KB
Hexadecimal Code	ESC	KB	Parameter
	<1B> ₁₆	<4B> ₁₆ <42> ₁₆	an~n
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF	The set command is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

[Function]

Specifying 32 x 32 (width x height) dots horizontal written kanji character print and 16 x 32 (width x height) dots half size character in horizontal line.

[Format]

<KB>an~n

• Parameter

a: "Kanji selection mode" = H: HEX character
 B: Binary code
 I: HEX character letters, smoothing function (*1)
 C: Binary code, smoothing function (*1)
 J: HEX character letters, highlight function
 D: Binary code, highlight function
 K: HEX character letters, smoothing and highlight function (*1)
 E: Binary code, smoothing and highlight function (*1)
 (*1) Smoothing function is not supported.

n: "Data" = Refer to the code table (Shift JIS, Unicode).

[Coding Example]

Shift JIS HEX code characters, Data: SATO

```
<A>
<V>100<H>200<P>2<L>0305
<CC>0
<KB>H8A948EAE89EF8ED0BBC4B0
<Q>2
<Z>
```

[Supplemental Explanation]

1. HEX characters = Kanji code 4 bytes ASCII / 1 Kanji character
2. Binary code = Kanji code 2 bytes / 1 Kanji character
3. Highlight function validity range = Horizontal / Vertical valid range: factor 1 to 5
4. Unicode data contains control codes. Specify hexadecimal characters in the kanji specification mode to print the correct code.

[Point]

1. With the highlighting function, the character width enlarges proportional with the expansion factor.
2. Using the highlighting function, in some cases, characters will be squeezed depending on the type of the font.
3. For the half size character (one byte character code), printing will be performed in 16 x 32 (width x height) dots.
4. For the full size character (two bytes character code), printing will be performed in 32 x 32 (width x height) dots.
5. This command is only available for Shift JIS kanji code and Unicode.
6. If the kanji mode setting is [Japan, compatible kanji (JISX208)] or [China, simplified (GB18030)], the command is ignored.
7. If unavailable character data is specified, a black-filled box character will be printed.

[Valid Command]

Print Position	<V>	<H>								
Modification	<P>	<L>	<%>			<0>				

8.32. ESC+KD: 40×40 dots KANJI IN HORIZONTAL LINE WITH 1-byte CHARACTER

40×40 dots Kanji in Horizontal Line with 1- byte Character (Only shift JIS and UNICODE can be specified)			ESC+KD
Hexadecimal Code	ESC	KD	Parameter
	<1B> ₁₆	<4B> ₁₆ <44> ₁₆	an~n
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF	The set command is not supported.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

[Function]

Specifying 40 x 40 (width x height) dots horizontal written kanji character print and 20 x 40 (width x height) dots half size character in horizontal line.

[Function]

<KD>an~n

- Parameter

a: "Kanji selection mode" = H: HEX character
 B: Binary code
 I: HEX character letters, smoothing function (*1)
 C: Binary code, smoothing function (*1)
 J: HEX character letters, highlight function
 D: Binary code, highlight function
 K: HEX character letters, smoothing and highlight function (*1)
 E: Binary code, smoothing and highlight function (*1)
 (*1) Smoothing function is not supported.

n: "Data" = Refer to the code table (Shift JIS, Unicode).

[Coding Example]

Shift JIS HEX code characters, Data: SATO

```
<A>
<V>100<H>200<P>2<L>0305
<CC>0
<KD>H8A948EAE89EF8ED0BBC4B0
<Q>2
<Z>
```

[Supplemental Explanation]

1. HEX characters = Kanji code 4 bytes ASCII / 1 Kanji character
2. Binary code = Kanji code 2 bytes / 1 Kanji character
3. Highlighting function validity range = Horizontal / Vertical valid: factor 1 to 5
4. Unicode data contains control codes. Specify hexadecimal characters in the kanji specification mode to print the correct code.

[Point]

1. With the highlighting function, the character width enlarges proportional with the expansion factor.
2. Using the highlighting function, in some cases, characters will be squeezed depending on the type of the font.
3. For the half size character (one byte character code), printing will be performed in 20 x 40 (width x height) dots.
4. For the full size character (two bytes character code), printing will be performed in 40 x 40 (width x height) dots.
5. This command is only available for Shift JIS kanji code and Unicode.
6. If the kanji mode setting is [Japan, compatible kanji (JISX208)] or [China, simplified (GB18030)], the command is ignored.
7. If unavailable character data is specified, a black-filled box character will be printed.

[Valid Command]

Print Position	<V>	<H>								
Modification	<P>	<L>	<%>			<0>				

8.33. ESC+k1: 16×16 dots KANJI IN VERTICAL LINE

16×16 dots Kanji in Horizontal Line			ESC+k1
Hexadecimal Code	ESC	k1	Parameter
	<1B> ₁₆	<6B> ₁₆ <31> ₁₆	an~n
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF	The set command is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

[Function]

Specifying 16 x 16 (width x height) dots vertical written Kanji character print

[Format]

<k1>an~n

- Parameter

a: "Kanji selection mode" = H: HEX character
 B: Binary code
 I: HEX character letters, smoothing function (*1)
 C: Binary code, smoothing function (*1)
 J: HEX character letters, highlight function
 D: Binary code, highlight function
 K: HEX character letters, smoothing and highlight function (*1)
 E: Binary code, smoothing and highlight function (*1)
 (*1) Smoothing function is not supported.

n: "Data" = Refer to the code table (JIS, Shift JIS, Unicode).

[Coding Example 1]

Shift JIS HEX code characters, Horizontal magnification: 3, Vertical magnification: 5

<A>

<V>100<H>200<P>2<L>0305

<k1>H81698A94816A83548367815B

<Q>2

<Z>

[Coding Example 2]

JIS binary code, Horizontal magnification: 2, Vertical magnification: 3

<A>

<V>100<H>200<P>2<L>0203

<k1>B!J3T!K%5%H!<

<Q>2

<Z>

[Supplemental Explanation]

1. HEX character = Kanji code 4 bytes ASCII / 1 Kanji character
2. Binary code = Kanji code 2 bytes / 1 Kanji character
3. Highlighting function validity range = Horizontal / Vertical valid range: factor 1 to 5
4. Unicode data contains control codes. Specify hexadecimal characters in the kanji specification mode to print the correct code.
5. A print result of a 2-byte underscore "_" is a vertical line. (Excluding when the kanji mode is [Japan, Compatible kanji])
6. When the language setting of the printer is Japanese or Simplified Chinese, printing follows the language setting.

[Point]

1. With the highlighting function, the character width enlarges proportional with the expansion factor.
2. Using the highlight function, in some cases, characters will be squeezed depending on the type of the font.
3. If unavailable character data is specified, a black-filled box character will be printed.

[Valid Command]

Print Position	<V>	<H>								
Modification	<P>	<L>	<%>			<0>				

8.34. ESC+k2: 24×24 dots KANJI IN VERTICAL LINE

24×24 dots Kanji in Vertical Line			ESC+k2
Hexadecimal Code	ESC	k2	Parameter
	<1B> ₁₆	<6B> ₁₆ <32> ₁₆	an~n
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF	The set command is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

[Function]

Specifying 24 x 24 (width x height) dots vertical written Kanji character print

[Format]

<k2>an~n

- Parameter

a: "Kanji selection mode" = H: HEX character
 B: Binary code
 I: HEX character letters, smoothing function (*1)
 C: Binary code, smoothing function (*1)
 J: HEX character letters, highlight function
 D: Binary code, highlight function
 K: HEX character letters, smoothing and highlight function (*1)
 E: Binary code, smoothing and highlight function (*1)
 (*1) Smoothing function is not supported.

n: "Data" = Refer to the code table (JIS, Shift JIS, Unicode).

[Coding Example 1]

Shift JIS HEX code characters, Horizontal magnification: 3, Vertical magnification: 5

```
<A>
<V>100<H>200<P>2<L>0305
<k2>H81698A94816A83548367815B
<Q>2
<Z>
```

[Coding Example 2]

JIS binary code, Horizontal magnification: 2, Vertical magnification: 3

```
<A>
<V>100<H>200<P>2<L>0203
<k2>B!J3T!K%5%H!<
<Q>2
<Z>
```

[Supplemental Explanation]

1. HEX characters = Kanji code 4 bytes ASCII / 1 Kanji character
2. Binary code = Kanji code 2 bytes / 1 Kanji character
3. Highlighting function validity range = Horizontal / Vertical valid range: factor 1 to 5
4. Unicode data contains control codes. Specify hexadecimal characters in the kanji specification mode to print the correct code.
5. A print result of a 2-byte underscore "_" is a vertical line. (Excluding when the kanji mode is [Japan, Compatible kanji])
6. When the language setting of the printer is Japanese or Simplified Chinese, printing follows the language setting.

[Point]

1. With the highlighting function, the character width enlarges proportional with the expansion factor.
2. Using the highlighting function, in some cases, characters will be squeezed depending on the type of the font.
3. If unavailable character data is specified, a black-filled box character will be printed.

[Valid Command]

Print Position	<V>	<H>								
Modification	<P>	<L>	<%>			<0>				

8.35. ESC+k3: 22×22 dots KANJI IN VERTICAL LINE

22×22 dots Kanji in Vertical Line			ESC+k3
Hexadecimal Code	ESC	k3	Parameter
	<1B> ₁₆	<6B> ₁₆ <33> ₁₆	an~n
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF	The set command is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

[Function]

Specifying 22 x 22 (width x height) dots vertical written Kanji character print

[Format]

<k3>an~n

- Parameter

a: "Kanji selection mode" = H: HEX character
 B: Binary code
 I: HEX character letters, smoothing function (*1)
 C: Binary code, smoothing function (*1)
 J: HEX character letters, highlight function
 D: Binary code, highlight function
 K: HEX character letters, smoothing and highlight function (*1)
 E: Binary code, smoothing and highlight function (*1)
 (*1) Smoothing function is not supported.

n: "Data" = Refer to the code table (JIS, Shift JIS, Unicode).

[Coding Example 1]

Shift JIS HEX code characters, Horizontal magnification: 3, Vertical magnification: 5

```
<A>
<V>100<H>200<P>2<L>0305
<k3>H81698A94816A83548367815B
<Q>2
<Z>
```

[Coding Example 2]

JIS binary code, Horizontal magnification: 2, Vertical magnification: 3

```
<A>
<V>100<H>200<P>2<L>0203
<k3>B!J3T!K%5%H!<
<Q>2
<Z>
```

[Supplemental Explanation]

1. HEX character = Kanji code 4 bytes ASCII / 1 Kanji character
2. Binary code = Kanji code 2 bytes / 1 Kanji character
3. Highlighting function validity range = Horizontal / Vertical valid range: factor 1 to 5
4. Unicode data contains control codes. Specify hexadecimal characters in the kanji specification mode to print the correct code.
5. A print result of a 2-byte underscore "_" is a vertical line.

[Point]

1. With the highlighting function, the character width enlarges proportional with the expansion factor.
2. Using the highlighting function, in some cases, characters will be squeezed depending on the type of font.
3. If the kanji mode setting is [Japan, compatible kanji (JISX208)] or [China, simplified (GB18030)], the command is ignored.
4. If unavailable character data is specified, a black-filled box character will be printed.

[Valid Command]

Print Position	<V>	<H>								
Modification	<P>	<L>	<%>			<0>				

8.36. ESC+k4: 32×32 dots KANJI IN VERTICAL LINE

32×32 dots Kanji in Vertical Line			ESC+k4
Hexadecimal Code	ESC	k4	Parameter
	<1B> ₁₆	<6B> ₁₆ <34> ₁₆	an~n
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF	The set command is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

[Function]

Specifying 32 x 32 (width x height) dots vertical written Kanji character print

[Format]

<k4>an~n

- Parameter

a: "Kanji selection mode" = H: HEX character
 B: Binary code
 I: HEX character letters, smoothing function (*1)
 C: Binary code, smoothing function (*1)
 J: HEX character letters, highlight function
 D: Binary code, highlight function
 K: HEX character letters, smoothing and highlight function (*1)
 E: Binary code, smoothing and highlight function (*1)
 (*1) Smoothing function is not supported.

n: "Data" = Refer to the code table (JIS, Shift JIS, Unicode).

[Coding Example 1]

Shift JIS HEX code characters, Horizontal magnification: 3, Vertical magnification: 5

```
<A>
<V>100<H>200<P>2<L>0305
<k4>H81698A94816A83548367815B
<Q>2
<Z>
```

[Coding Example 2]

JIS binary code, Horizontal magnification: 2, Vertical magnification: 3

```
<A>
<V>100<H>200<P>2<L>0203
<k4>B!J3T!K%5%H!<
<Q>2
<Z>
```

[Supplemental Explanation]

1. HEX characters = Kanji code 4 bytes ASCII / 1 Kanji character
2. Binary code = Kanji code 2 bytes / 1 Kanji character
3. Highlighting function validity range = Horizontal / Vertical valid range: factor 1 to 5
4. Unicode data contains control codes. Specify hexadecimal characters in the kanji specification mode to print the correct code.
5. A print result of a 2-byte underscore "_" is a vertical line.

[Point]

1. With the highlighting function, the character width enlarges proportional with the expansion factor.
2. Using the highlighting function, in some cases, characters will be squeezed depending on the type of the font.
3. If the kanji mode setting is [Japan, compatible kanji (JISX208)] or [China, simplified (GB18030)], the command is ignored.
4. If unavailable character data is specified, a black-filled box character will be printed.

Valid Command

Print Position	<V>	<H>								
Modification	<P>	<L>	<%>			<0>				

8.37. ESC+k5: 40×40 dots KANJI IN VERTICAL LINE

40×40 dots Kanji in Vertical Line			ESC+k5
Hexadecimal Code	ESC	k5	Parameter
	<1B> ₁₆	<6B> ₁₆ <35> ₁₆	an~n
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF	The set command is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

[Function]

Specifying 40 x 40 (width x height) dots vertical written Kanji character print

[Format]

<k5>an~n

- Parameter

a: "Kanji selection mode" = H: HEX character
 B: Binary code
 I: HEX character letters, smoothing function (*1)
 C: Binary code, smoothing function (*1)
 J: HEX character letters, highlight function
 D: Binary code, highlight function
 K: HEX character letters, smoothing and highlight function (*1)
 E: Binary code, smoothing and highlight function (*1)
 (*1) Smoothing function is not supported.

n: "Data" = Refer to the code table (JIS, Shift JIS, Unicode).

[Coding Example 1]

Shift JIS HEX code characters, Horizontal magnification: 3, Vertical magnification: 5

```
<A>
<V>100<H>200<P>2<L>0305
<k5>H81698A94816A83548367815B
<Q>2
<Z>
```

[Coding Example 2]

JIS binary code, Horizontal magnification: 2, Vertical magnification: 3

```
<A>
<V>100<H>200<P>2<L>0203
<k5>B!J3T!K%5%H!<
<Q>2
<Z>
```

[Supplemental Explanation]

1. HEX characters = Kanji code 4 bytes ASCII / 1 Kanji character
2. Binary code = Kanji code 2 bytes / 1 Kanji character
3. Highlighting function validity range = Horizontal / Vertical valid range: factor 1 to 5
4. Unicode data contains control codes. Specify hexadecimal characters in the kanji specification mode to print the correct code.
5. A print result of a 2-byte underscore "_" is a vertical line.

[Point]

1. With the highlighting function, the character width enlarges proportional with the expansion factor.
2. Using the highlighting function, in some cases, characters will be squeezed depending on the type of the font.
3. If the kanji mode setting is [Japan, compatible kanji (JISX208)] or [China, simplified (GB18030)], the command is ignored.
4. If unavailable character data is specified, a black-filled box character will be printed.

[Valid Command]

Print Position	<V>	<H>								
Modification	<P>	<L>	<%>			<0>				

8.38. ESC+k8: 16×16 dots KANJI IN VERTICAL LINE WITH 1-byte CHARACTER

16×16 dots Kanji in Vertical Line with 1-byte Character (Only shift JIS and UNICODE can be specified)			ESC+k8
Hexadecimal Code	ESC	k8	Parameter
	<1B> ₁₆	<6B> ₁₆ <38> ₁₆	an~n
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF	The set command is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

[Function]

Specifying to print the mixture text of 16 x 16 (width x height) dots Kanji and 8 x 16 (width x height) dots half size character in a vertical line.

[Format]

<k8>an~n

● Parameter

a: "Kanji selection mode" = H: HEX character
 B: Binary code
 I: HEX character letters, smoothing function (*1)
 C: Binary code, smoothing function (*1)
 J: HEX character letters, highlight function
 D: Binary code, highlight function
 K: HEX character letters, smoothing and highlight function (*1)
 E: Binary code, smoothing and highlight function (*1)
 (*1) Smoothing function is not supported.

n: "Data" = Refer to the code table (Shift JIS, Unicode).

[Coding Example] Shift JIS HEX code characters, Data: SATO

```
<A>
<V>100<H>200<P>2<L>0305
<k8>H8A948EAE89EF8ED0BBC4B0
<Q>2
<Z>
```

[Supplemental Explanation]

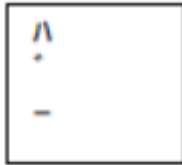
1. HEX characters = Kanji code 4 bytes ASCII / 1 Kanji character
2. Binary code = Kanji code 2 bytes / 1 Kanji character
3. Highlighting function validity range = Horizontal / Vertical valid range: factor 1 to 5
4. Unicode data contains control codes. Specify hexadecimal characters in the kanji specification mode to print the correct code.
5. A print result of a 2-byte underscore "_" is a vertical line. Excluding when the Kanji mode is [Japan, Compatible kanji]

[Point]

1. With the highlighting function, the character width enlarges proportional with the expansion factor.
2. Using the highlighting function, in some cases, characters will be squeezed depending on the type of the font.
3. This command is valid for Shift JIS Kanji code or Unicode.
4. For the half size character specification (1-byte character code), printing will be performed in 8 x 16 (width x height) dots.
5. For the full size character specification (2-byte character code), printing will be performed in 16 x 16 (width x height) dots.
6. If unavailable character data is specified, a black-filled box character will be printed.

[Attention]

1. When a half-sized character with voiced/P-sound consonant mark is specified, each part of character appears as a single character.
e.g.) When the word "l"-" is specified, it will be written separately such as "l", " ", "-".



[Valid Command]

Print Position	<V>	<H>								
Modification	<P>	<L>	<%>			<0>				

8.39. ESC+k9: 24×24 dots KANJI IN VERTICAL LINE WITH 1-byte CHARACTER

24×24 dots Kanji in Vertical Line with 1-byte Character (Only shift JIS and UNICODE can be specified)			ESC+k9
Hexadecimal Code	ESC	k9	Parameter
	<1B> ₁₆	<6B> ₁₆ <39> ₁₆	an~n
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF	The set command is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

[Function]

Specifying to print the mixture text of 24 x 24 (width x height) dots Kanji and 12 x 24 (width x height) dots half size character in a vertical line.

[Format]

<k9>an~n

● Parameter

a: "Kanji selection mode" = H: HEX character
 B: Binary code
 I: HEX character letters, smoothing function (*1)
 C: Binary code, smoothing function (*1)
 J: HEX character letters, highlight function
 D: Binary code, highlight function
 K: HEX character letters, smoothing and highlight function (*1)
 E: Binary code, smoothing and highlight function (*1)
 (*1) Smoothing function is not supported.

n: "Data" = Refer to the code table (Shift JIS, Unicode).

[Coding Example] Shift JIS HEX code character, Data: SATO

```
<A>
<V>100<H>200<P>2<L>0305
<k9>H8A948EAE89EF8ED0BBC4B0
<Q>2
<Z>
```

[Supplemental Explanation]

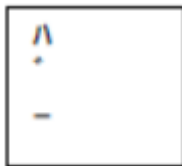
1. HEX characters = Kanji code 4 bytes ASCII / 1 Kanji character
2. Binary code = Kanji code 2 bytes / 1 Kanji character
3. Highlighting function validity range = Horizontal / Vertical valid range: factor 1 to 5
4. Unicode data contains control codes. Specify hexadecimal characters in the kanji specification mode to print the correct code.
5. A print result of a 2-byte underscore "_" is a vertical line. Excluding when the Kanji mode is [Japan, Compatible kanji]

[Point]

1. With the highlighting function, the character width enlarges proportional with the expansion factor.
2. Using the highlighting function, in some cases, characters will be squeezed depending on the type of the font.
3. This command is valid for Shift JIS Kanji code or Unicode.
4. For the half size character specification (1-byte character code), printing will be performed in 12 x 24 (width x height) dots.
5. For the full size character specification (2-byte character code), printing will be performed in 24 x 24 (width x height) dots.
6. If unavailable character data is specified, a black-filled box character will be printed.

[Attention]

1. When a half-sized character with voiced/P-sound consonant mark is specified, each part of character appears as a single character.
e.g.) When the word "㌪ー" is specified, it will be written separately such as "㌪", "゛", "ー".



[Valid Command]

Print Position	<V>	<H>								
Modification	<P>	<L>	<%>			<0>				

8.40. ESC+kA: 22×22 dots KANJI IN VERTICAL LINE WITH 1-byte CHARACTER

22×22 dots Kanji in Vertical Line with 1-byte Character (Only shift JIS and UNICODE can be specified)			ESC+kA
Hexadecimal Code	ESC	kA	Parameter
	<1B> ₁₆	<6B> ₁₆ <41> ₁₆	an~n
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF	The set command is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

[Function]

Specifying to print the mixture text of 22 x 22 (width x height) dots Kanji and 11 x 22 (width x height) dots half size character in a vertical line.

[Format]

<kA>an~n

● Parameter

a: "Kanji selection mode" = H: HEX character
 B: Binary code
 I: HEX character letters, smoothing function (*1)
 C: Binary code, smoothing function (*1)
 J: HEX character letters, highlight function
 D: Binary code, highlight function
 K: HEX character letters, smoothing and highlight function (*1)
 E: Binary code, smoothing and highlight function (*1)
 (*1) Smoothing function is not supported.

n: "Data" = Refer to the code table (Shift JIS, Unicode).

[Coding Example] Shift JIS HEX code characters, Data: SATO

```
<A>
<V>100<H>200<P>2<L>0305
<CC>0
<kA>H8A948EAE89EF8ED0BBC4B0
<Q>2
<Z>
```

[Supplemental Explanation]

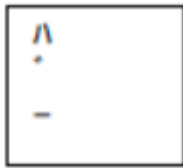
1. HEX characters = Kanji code 4 bytes ASCII / 1 Kanji character
2. Binary code = Kanji code 2 bytes / 1 Kanji character
3. Highlighting function validity range = Horizontal / Vertical valid range: factor 1 to 5
4. Unicode data contains control codes. Specify hexadecimal characters in the kanji specification mode to print the correct code.
5. A print result of a 2-byte underscore "_" is a vertical line.

[Point]

1. With the highlighting function, the character width enlarges proportional with the expansion factor.
2. Using the highlighting function, in some cases, characters will be squeezed depending on the type of the font.
3. This command is valid for Shift JIS Kanji code or Unicode.
4. For the half size character specification (1-byte character code), printing will be performed in 11 x 22 (width x height) dots.
5. For the full size character specification (2-byte character code), printing will be performed in 22 x 22 (width x height) dots.
6. If the kanji mode setting is [Japan, compatible kanji (JISX208)] or [China, simplified (GB18030)], the command is ignored.
7. If unavailable character data is specified, a black-filled box character will be printed.

[Attention]

1. When a half-sized character with voiced/P-sound consonant mark is specified, each part of character appears as a single character.
e.g.) When the word "l`-" is specified, it will be written separately such as "l", "`", "-".



[Valid Command]

Print Position	<V>	<H>								
Modification	<P>	<L>	<%>			<0>				

8.41. ESC+kB: 32×32 dots KANJI IN VERTICAL LINE WITH 1-byte CHARACTER

32×32 dots Kanji in Vertical Line with 1-byte Character (Only shift JIS and UNICODE can be specified)			ESC+kB
Hexadecimal Code	ESC	kB	Parameter
	<1B> ₁₆	<6B> ₁₆ <42> ₁₆	an~n
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF	The set command is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

[Function]

Specifying to print the mixture text of 32 x 32 (width x height) dots Kanji and 16 x 32 (width x height) dots half size character in vertical line.

[Format]

<kB>an~n

● Parameter

a: "Kanji selection mode" = H: HEX character
 B: Binary code
 I: HEX character letters, smoothing function (*1)
 C: Binary code, smoothing function (*1)
 J: HEX character letters, highlight function
 D: Binary code, highlight function
 K: HEX character letters, smoothing and highlight function (*1)
 E: Binary code, smoothing and highlight function (*1)
 (*1) Smoothing function is not supported.

n: "Data" = Refer to the code table (Shift JIS, Unicode).

[Coding Example] Shift JIS HEX code characters, Data: SATO

```
<A>
<V>100<H>200<P>2<L>0305
<CC>0
<kB>H8A948EAE89EF8ED0BBC4B0
<Q>2
<Z>
```

[Supplemental Explanation]

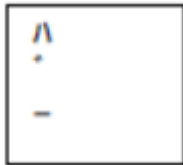
1. HEX characters = Kanji code 4 bytes ASCII / 1 Kanji character
2. Binary code = Kanji code 2 bytes / 1 Kanji character
3. Highlighting function validity range = Horizontal /Vertical valid range: factor 1 to 5
4. Unicode data contains control codes. Specify hexadecimal characters in the kanji specification mode to print the correct code.
5. A print result of a 2-byte underscore "_" is a vertical line. (Excluding when the Kanji mode is [Japan, Compatible kanji])

[Point]

1. With the highlighting function, the character width enlarges proportional with the expansion factor.
2. Using the highlighting function, in some cases, characters will be squeezed depending on the type of the font.
3. This command is valid for Shift JIS Kanji code or Unicode.
4. For the half size character specification (1-byte character code), printing will be performed in 16 x 32 (width x height) dots.
5. For the full size character specification (2-byte character code), printing will be performed in 32 x 32 (width x height) dots.
6. If the kanji mode setting is [Japan, compatible kanji (JISX208)] or [China, simplified (GB18030)], the command is ignored.
7. If unavailable character data is specified, a black-filled box character will be printed.

[Attention]

1. When a half-sized character with voiced/P-sound consonant mark is specified, each part of character appears as a single character.
e.g.) When the word "j" is specified, it will be written separately such as "j", " ", " ".



[Valid Command]

Print Position	<V>	<H>								
Modification	<P>	<L>	<%>			<0>				

8.42. ESC+kD: 40×40 dots KANJI IN VERTICAL LINE WITH 1-byte CHARACTER

40×40 dots Kanji in Vertical Line with 1-byte Character (Only shift JIS and UNICODE can be specified)			ESC+kD
Hexadecimal Code	ESC	kD	Parameter
	<1B> ₁₆	<6B> ₁₆ <44> ₁₆	an~n
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF	The set command is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

[Function]

Specifying to print the mixture text of 40 x 40 (width x height) dots Kanji and 20 x 40 (width x height) dots half size character in a vertical line.

[Format]

<kB>an~n

● Parameter

a: "Kanji selection mode" = H: HEX character
 B: Binary code
 I: HEX character letters, smoothing function (*1)
 C: Binary code, smoothing function (*1)
 J: HEX character letters, highlight function
 D: Binary code, highlight function
 K: HEX character code, smoothing and highlight function (*1)
 E: Binary code, smoothing and highlight function (*1)
 (*1) Smoothing function is not supported.

n: "Data" = Refer to the code table (Shift JIS, Unicode).

[Coding Example] Shift JIS HEX code characters, Data: SATO

```
<A>
<V>100<H>200<P>2<L>0305
<CC>0
<kD>H8A948EAE89EF8ED0BBC4B0
<Q>2
<Z>
```

[Supplemental Explanation]

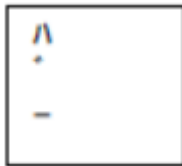
1. HEX characters = Kanji code 4 bytes ASCII / 1 Kanji character
2. Binary code = Kanji code 2 bytes / 1 Kanji character
3. highlight function validity range = Horizontal / Vertical valid range: factor 1 to 5
4. Unicode data contains control codes. Specify hexadecimal characters in the kanji specification mode to print the correct code.
5. A print result of a 2-byte underscore "_" is a vertical line.

[Point]

1. With the highlighting function, the character width enlarges proportional with the expansion factor.
2. Using the highlighting function, in some cases, characters will be squeezed depending on the type of the font.
3. This command is valid for Shift JIS Kanji code or Unicode.
4. For the half size character specification (1-byte character code), printing will be performed in 20 x 40 (width x height) dots.
5. For the full size character specification (2-bytes character code), printing will be performed in 40 x 40 (width x height) dots.
6. If the kanji mode setting is [Japan, compatible kanji (JISX208)] or [China, simplified (GB18030)], the command is ignored.
7. If unavailable character data is specified, a black-filled box character will be printed.

[Attention]

1. When a half-sized character with voiced/P-sound consonant mark is specified, each part of character appears as a single character.
e.g.) When the word "l`-" is specified, it will be written separately such as "l", " ` ", "-".



[Valid Command]

Print Position	<V>	<H>								
Modification	<P>	<L>	<%>			<0>				

8.43. ESC+T1: 16×16 dots EXTERNAL FONT REGISTRATION

16×16 dots External Font Registration			ESC+T1
Hexadecimal Code	ESC	T1	Parameter
	<1B> ₁₆	<54> ₁₆ <31> ₁₆	abbn~n
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF	The set command is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

[Function]

Registering 16 x 16 (width x height) dots external fonts.

[Format]

<T1>abbn~n

- Parameter

a: "Registration data selection"

= H: Registration code in HEX character

B: Registration code in binary code

b: "Registration font code address"

Using Kanji set the <KS> command to set Japanese (0,1,2)

JIS code

H: Up to 95 registrations from "21" to "7F" is available.

B: Up to 95 registrations from 21H to 7FH is available.

Shift JIS code

H: Up to 95 registrations from "40" to "9E" is available.

B: Up to 95 registrations from 40H to 9EH is available.

Unicode

H: Up to 95 registrations from "00" to "5E" is available.

B: Up to 95 registrations from 00H to 5EH is available.

Using Kanji set the <KS> command to set other than Japanese

(3 (China Simplified Chinese), 5 (China Traditional Chinese),

6(Korean))

H: Up to 95 registrations from "21" to "7F" is available.

B: Up to 95 registrations from 21H to 7FH is available.

n: "Registered external font data"

= Data

[Coding Example 1] Registration data in JIS HEX character

<A>
<KS>0
<CC>0
<T1>H21
00FF.....FF00
<Z>
<A>
<CC>0
<V>100<H>200<K1>H9021
<Q>2
<Z>

[Coding Example 2] Registration code in Shift JIS binary code

<A>
<KS>0
<CC>0
<T1>B<40>¹⁶
<00FF.....FF00>¹⁶
<Z>
<A>
<CC>0
<V>100<H>200<K1>B<90>¹⁶<40>¹⁶
<Q>2
<Z>

[Coding Example 3] Registration code in Unicode binary code

<A>
<KS>0
<CC>0
<T1>B<00>¹⁶
<00FF.....FF00>¹⁶
<Z>
<A>
<CC>0
<V>100<H>200<K1>B<E0>¹⁶<00>¹⁶
<Q>2
<Z>

[Coding Example 4] Register in the user registration memory

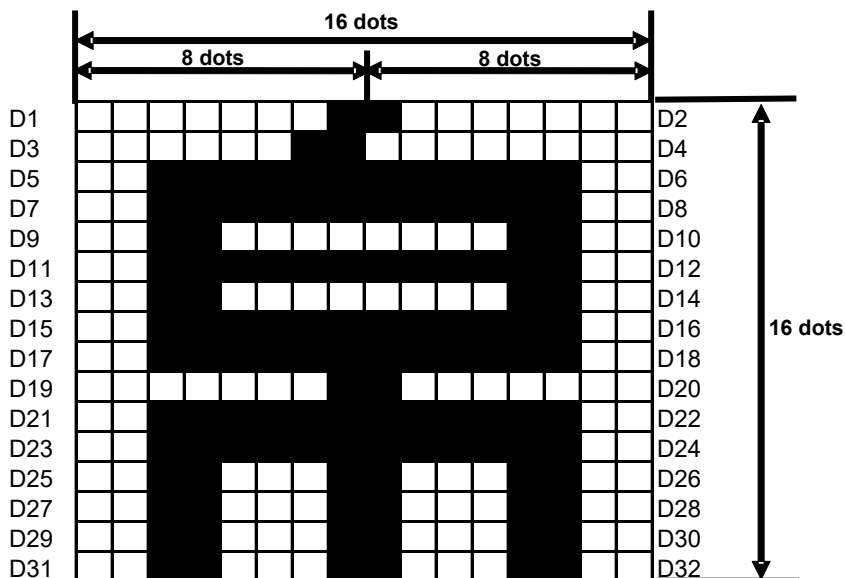
<A>
<KS>0
<CC>1
<T1>B<40>¹⁶
<00FF.....FF00>¹⁶
<Z>

[Supplemental Explanation]

1. Register 16 x 16 (width x height) dots external fonts in the internal memory or user registration memory.
2. The code to specify in the registration font code address needs to match the Kanji set (<KS>) and Kanji code (<KC>).
3. Overwriting registration data is available.
4. The order of data registration is shown below.
5. The data registered in the print memory will be deleted at the power off. In this case, you need to register the data again.

External character file "16x16"

D1	D2
D3	D4
D5	D6
D31	D32



When registering the external characters described above, D1 data becomes <01>₁₆ and D2 data becomes <80>₁₆ because D1 consists of [00000001], D2 consists of [10000000].

In the same manner, D3 is <03>₁₆, D4 is <00>₁₆, D5 is <3F>₁₆, D6 is <FC>₁₆, and the external registration data will be <018003003FFC.....>₁₆ up to D32.

[Point]

1. The data registered in the user registration memory will be maintained after the printer's power is off.
2. The internal memory cannot be used in combination with the user registration memory.
3. Specify the slot to register.

If the <CC> command is not sent after the power on, the data are registered in the internal memory.

8.44. ESC+T2: 24×24 dots EXTERNAL FONT REGISTRATION

24×24 dots External Font Registration			ESC+T2
Hexadecimal Code	ESC	T2	Parameter
	<1B> ₁₆	<54> ₁₆ <32> ₁₆	abbn~n
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF	The set command is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

[Function]

Registering 24 x 24 (width x height) dots external fonts.

[Format]

<T2>abbn~n

- Parameter

a: "Registration data selection"

= H: Registration code in HEX character

B: Registration code in binary code

b: "Registration font code address"

Using Kanji set the <KS> command to set Japanese (0,1,2)

JIS code

H: Up to 95 registrations from "21" to "7F" is available.

B: Up to 95 registrations from 21H to 7FH is available.

Shift JIS code

H: Up to 95 registrations from "40" to "9E" is available.

B: Up to 95 registrations from 40H to 9EH is available.

Unicode

H: Up to 95 registrations from "00" to "5E" is available.

B: Up to 95 registrations from 00H to 5EH is available.

Using Kanji set the <KS> command to set other than Japanese (3(China Simplified Chinese), 5(China Traditional Chinese), 6(Korean))

H: Up to 95 registrations from "21" to "7F" is available.

B: Up to 95 registrations from 21H to 7FH is available.

n: "Registered external font data"

= Data

[Coding Example 1] Registration data in JIS HEX character

<A>
<KS>0
<CC>0
<T2>H21
00FF.....FF00
<Z>
<A>
<CC>0
<V>100<H>200<K2>H9021
<Q>2
<Z>

[Coding Example 2] Registration code in Shift JIS binary code

<A>
<KS>0
<CC>0
<T2>B<40>¹⁶
<00FF.....FF00>¹⁶
<Z>
<A>
<CC>0
<V>100<H>200<K2>B<90>¹⁶<40>¹⁶
<Q>2
<Z>

[Coding Example 3] Registration code in Unicode binary code

<A>
<KS>0
<CC>0
<T2>B<00>¹⁶
<00FF.....FF00>¹⁶
<Z>
<A>
<V>100<H>200<K2>B<E0>¹⁶<00>¹⁶
<Q>2
<Z>

[Coding Example 4] Register in the user registration memory

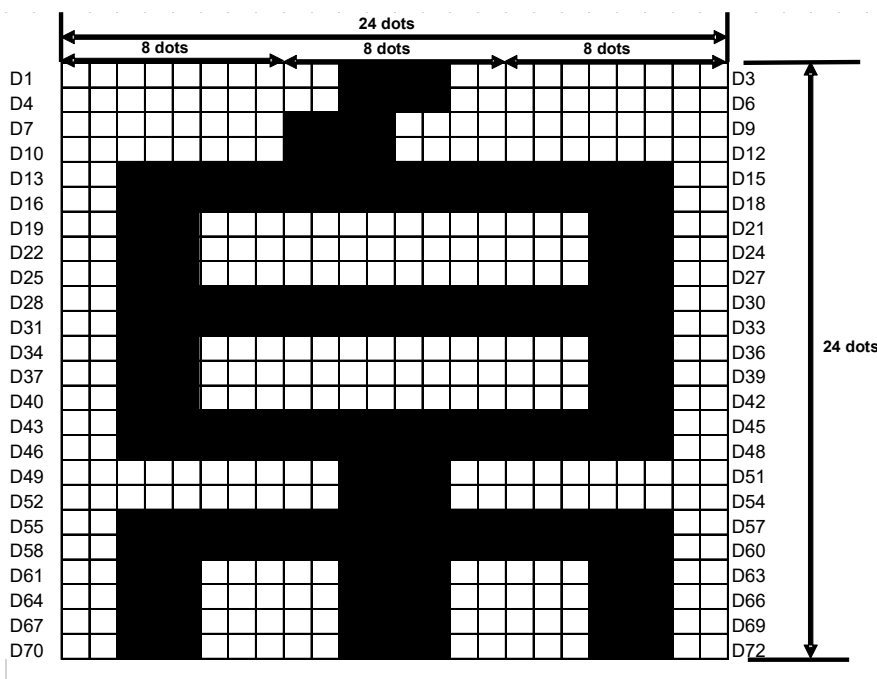
<A>
<KS>0
<CC>1
<T2>B<41>¹⁶
<00FF.....FF00>¹⁶
<Z>

[Supplemental Explanation]

1. Registering 24 x 24 (width x height) dots external fonts in the internal memory or user registration memory.
2. The code to specify in the registration font code address needs to match the Kanji set (<KS>) and Kanji code (<KC>).
3. Overwriting registration data is available.
4. The data output order is shown below.
5. The data registered in the printer memory will be deleted at the power off. In this case, you need to register the data again.

External character file "24x24"

D1	D2	D3
D4	D5	D6
D7	D8	D9
D70	D71	D72



When registering the external characters described above, D1 data becomes <00>₁₆, D2 data becomes <3C>₁₆ and D3 data becomes <00>₁₆ because D1 consists of [00000000], D2 consists of [00111100] and D3 consists of [00000000].

In the same manner, D4 becomes <00>₁₆, D5 becomes <3C>₁₆ and D6 becomes <00>₁₆, and the external registration data are specified to <003C00003C00.....>₁₆ and up to D72.

[Point]

1. The data registered in the user registration memory will be maintained after the power of the printer is OFF.
2. The internal memory cannot be used in combination with the user registration memory.
3. Specify the slot to register.

If the <CC> command is not sent after the power on, the data are registered in the internal memory.

8.45. ESC+K1(K2): RECALL HORIZONTAL WRITING EXTERNAL CHARACTER

Recall Horizontal Writing External Character			ESC+K1(K2)
Hexadecimal Code	ESC	K1(K2)	Parameter
	<1B> ₁₆	<4B> ₁₆ <31> ₁₆ (<4B> ₁₆ <32> ₁₆)	an~n
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF		The set command is not maintained.
	Valid range within items		The set parameter becomes invalid.
	Valid range between items		The set parameter becomes invalid.

[Function]

Invoking horizontal external characters saved in the printer memory to print out.

[Format]

<K1>an~n

<K2>an~n

• Parameter

a: "Kanji selection mode" = H: HEX character
 B: Binary code
 I: HEX character letters, smoothing function (*1)
 C: Binary code, smoothing function (*1)
 J: HEX character letters, highlight function
 D: Binary code, highlight function
 K: HEX character letters, smoothing and highlight function (*1)
 E: Binary code, smoothing and highlight function (*1)
 (*1) Smoothing function is not supported.

n: "Registration code"

Using Kanji set the <KS> command to set Japanese (0,1,2)

JIS code

H,I,J,K: "9021" to "907F"

B,C,D,E: 9021H to 907FH

Shift JIS code

H,I,J,K: "F040" to "F09E"

B,C,D,E: F040H to F09EH

Unicode

H,I,J,K: "E000" to "E05E"

B,C,D,E: E000H to E05EH

Using Kanji set the <KS> command to set other than Japanese

(3(China Simplified Chinese), 5(China Traditional Chin), 6(Korean))

H,I,J,K: "8021" to "807F"

B,C,D,E: 8021H to 807FH

[Coding Example 1] Invokes 16 x 16 dots external character, Registration data in JIS HEX character

```
<A>  
<KS>0  
<T1>H21  
00FF.....FF00  
<Z>  
<A>  
<V>100<H>200<K1>H9021  
<Q>2  
<Z>
```

[Coding Example 2] Invokes 24 x 24 dots external character, Registration data in Shift JIS binary code

```
<A>  
<KS>0  
<T2>B<40>16  
<00FF.....FF00>16  
<Z>  
<A>  
<V>100<H>200<K2>B<F0>16<40>16  
<Q>2  
<Z>
```

[Coding Example 3] Invokes 16 x 16 dots external character, Registration data in Unicode character

```
<A>  
<KS>0  
<T1>H01  
00FF.....FF00  
<Z>  
<A>  
<V>100<H>200<K1>HE001  
<Q>2  
<Z>
```

[Supplemental Explanation]

1. If printing is not executed properly, register the data again.
2. External characters registered as JIS or Shift JIS character cannot be called with Unicode. In addition, external characters registered as Unicode cannot be called with JIS or Shift JIS.
3. Valid data of registration code vary according to the Kanji set command <KS>.

8.46. ESC+k1(k2): RECALL VERTICAL WRITING EXTERNAL CHARACTER

Recall Vertical Writing External Character			ESC+k1(k2)
Hexadecimal Code	ESC	k1(k2)	Parameter
	<1B> ₁₆	<6B> ₁₆ <31> ₁₆ (<6B> ₁₆ <32> ₁₆)	an~n
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF	The set command is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

[Function]

Invoking horizontal external characters registered in the printer memory to print out.

[Format]

<k1> an~n

<k2> an~n

• Parameter

a: "Kanji selection mode" = H: HEX character
 B: Binary code
 I: HEX character letters, smoothing function (*1)
 C: Binary code, smoothing function (*1)
 J: HEX character letters, highlight function
 D: Binary code, highlight function
 K: HEX character letters, smoothing and highlight function (*1)
 E: Binary code, smoothing and highlight function (*1)
 (*1) Smoothing function is not supported.

n: "Registration code"

Using Kanji set the <KS> command to set Japanese (0,1,2)

JIS code

H,I,J,K: "9021" to "907F"

B,C,D,E: 9021H to 907FH

Shift JIS code

H,I,J,K: "F040" to "F09E"

B,C,D,E: F040H to F09EH

Unicode

H,I,J,K: "E000" to "E05E"

B,C,D,E: E000H to E05EH

Using Kanji set the <KS> command to set other than Japanese

(3(China, Simplified Chinese), 5(China, Traditional Chinese), 6(Korean))

H,I,J,K: "8021" to "807F"

B,C,D,E: 8021H to 807FH

[Coding Example 1] Invokes 16 x 16 dots external character, Registration data in JIS HEX character

```
<A>  
<KS>0  
<T1>H21  
00FF.....FF00  
<Z>  
<A>  
<V>100<H>200<k1>H9021  
<Q>2  
<Z>
```

[Coding Example 2] Invokes 24 x 24 dots external character, Registration data in Shift JIS binary code

```
<A>  
<KS>0  
<T2>B<40>16  
<00FF.....FF00>16  
<Z>  
<A>  
<V>100<H>200<k2>B<F0>16<40>16  
<Q>2  
<Z>
```

[Coding Example 3] Invokes 16 x 16 dots external character, Registration data in Unicode character

```
<A>  
<KS>0  
<T1>H01  
00FF.....FF00  
<Z>  
<A>  
<V>100<H>200<k1>HE001  
<Q>2  
<Z>
```

[Supplemental Explanation]

1. If printing out is not executed properly, register the data again.
2. External characters registered as JIS or Shift JIS character cannot be called with Unicode. In addition, external characters registered as Unicode cannot be called with JIS or Shift JIS.
3. Valid data of registration code vary according to the Kanji set command <KS>.

9. BARCODE SPECIFICATION SUMMARY

In the barcode specifications, printing of various barcodes, changing of the bar width ratio, and printing of a guard bar or human-readable information can be performed by the specification (B, D, BD) after ESC.

The contents may vary depending on the specification. This page and the next one should be read closely and followed.

Refer to the table below for the specification of B, D, and BD.

[Supplemental Explanation]

Barcode specification parameter	Barcode specification		<D>	<BD>
0	CODABAR(NW-7)	1:3	1:2	2:5
1	CODE39	1:3	1:2	2:5
2	ITF	1:3	1:2	2:5
5	Industrial 2 of 5	1:3	1:2	2:5
6	Matrix 2 of 5	1:3	1:2	2:5

(1) Bar width ratio

The barcode is composed of the narrow bar, wide bar, narrow space and wide space. The bar width ratio is the proportion of the narrow bar and the wide bar.

- Bar width ratio (Ratio 1:3)

This barcode is composed of narrow bar [1] and wide bar [3].

- Bar width ratio (Ratio 1:2) <D>

This barcode is composed of narrow bar [1] and wide bar [2].

- Bar width ratio (Ratio 2:5) <BD>

This barcode is composed of narrow bar [2] and wide bar [5].

To specify a certain bar width ratio, register the ratio with Bar Width Ratio <BT> and print labels with Print of Specified Bar Width Ratio <BW>.

(2) Width of narrow bar and bar height

The width of the narrow bar means its thickness, and the barcode height means the height of the barcode.

For instance, printing a narrow bar for 1 dot in a head density of 8-dot/mm (203dpi), its width will be 0.125 mm and a barcode scanner may have a reading problem. To avoid this problem, set a narrow bar to 2 dots so that its width will be 0.25 mm and this will improve the scanner reading condition.

There is a necessity to set the narrow bar width based on the printer head density or the performance of a barcode scanner. In the bar width ratio, the [Width of narrow bar] specification sets the width of the bar.

e.g.) When the bar width ratio is 1:3 and the narrow bar width is 3 dots, the bar width ratio becomes 3:9.

The bar height is to specify the height of the barcode, and the proper height based on the scanner type can be set.

(3) Intercharacter gap

An intercharacter gap is the space between two adjacent barcode characters in a discrete barcode. When specifying the intercharacter gap, it is made valid by selecting the character pitch specification <P> immediately before the barcode specification <D> <BD> and the barcode printing specification <BW> by ratio registration. If not, the initial value (2 dots) will be set.

The intercharacter gap is designable for the following barcodes.

- (1) CODABAR(NW-7)
- (2) CODE39
- (3) Industrial 2 of 5
- (4) Matrix 2 of 5

The intercharacter gap is the multiplier of values specified with Character Pitch <P> and the narrow bar width.

e.g.) When Character Pitch <P> is 3 and the narrow bar width is 2 dots

Intercharacter gap = $3 \times 2 = 6$ (dots)

(4) Designation of human readable information (HRI) and guard bar

For UPC-A and JAN/EAN 8 and 13 digits barcode, the availability of human-readable information (hereinafter HRI) and a guard bar can be specified.

Barcode specification parameter	Barcode specification		<D>	<BD>
3	JAN/EAN 13	HRI: Nil Guard bar: Nil	HRI: Nil Guard bar: Available	HRI: Available Guard bar: Available
4	JAN/EAN 8	HRI: Nil Guard bar: Nil	HRI: Nil Guard bar: Available	HRI: Available Guard bar: Available
H	UPC-A	HRI: Nil Guard bar: Nil	HRI: Nil Guard bar: Available	HRI: Available Guard bar: Available

Barcode specification parameter	Barcode specification	<BM>	<BL>
H	JAN/EAN 13	HRI: Available Guard bar: Available	HRI: Nil Guard bar: Available

[1] Specification (No HRI, No guard bar)

If specifying , the following barcode will be printed.



[2] Specification <D> (No HRI, Guard bar available)

If specifying <D>, the following barcode will be printed.



[Explanation]

HRI is printable by specifying <Character Type> data subsequently to <D>.

For more information, refer to Barcode Specification (Selection of HRI) <D>~<d>.

[3] Specification of <BD> (HRI and guard bar available)

If specifying <BD>, the following barcode will be printed.



[Barcode Specification Only]

Barcode specification parameter	Barcode specification	
C	CODE93	Barcode only
E	UPC-E	Barcode only
G	CODE128	Barcode only
I	UCC/EAN128 for standard carton ID	Barcode only

Notes:

1. In this case, a barcode will not have any specification such as Bar Width Ratio and HRI.
2. HRI will not be printed when the barcode is an error for a barcode with HRI.

(5) Composition of C/D

Refer to the table below for check digit in each barcode.

[Composition of C/D]

Barcode specification parameter	Barcode specification	Input digit No.	Print digit number and contents
3	JAN/EAN 13	12-digit	13-digit (Input data of barcode + C/D) C/D is calculated by modulus 10.
		13-digit	13-digit (Input data of barcode) C/D is not checked.
4	JAN/EAN 8	7-digit	8-digit (Input data of barcode + C/D) C/D is calculated by modulus 10.
		8-digit	8-digit (Input data of barcode) C/D is not checked.
C	CODE 93	Max.99-digit	C/D is calculated by modulus 47.
E	UPC-E	6-digit only	C/D is calculated by modulus 10.
G	CODE 128	-	C/D is calculated by modulus 103.
H	UPC-A	11-digit only*1	12-digit (Input data of barcode+ C/D) C/D is calculated by modulus 10
I	UCC/EAN128 for standard carton ID	17-digit only	C/D is calculated by modulus 103.

(6) Barcode Rotation Print

The print direction of the barcode can be rotated. Note that when specifying Serial 1 and Serial 2 for the barcode rotation, it may cause blurring due to the barcode enlargement ratio.

Avoid printing of 1-dot Narrow Bar since 1 dot is 0.125 mm for the head density 203dpi (8-dot/mm) or 0.085 mm for the head density 300dpi (11.8-dot/mm).

Parallel 1: Forward feed print

Parallel 2: Backward feed print at 180-degree rotation

Serial 1: Forward feed print 90-degree rotation

Serial 2: Forward feed print 270-degree rotation

* Forward feed: Prints horizontally to label feed direction

- 1) To print with Parallel 1 and Parallel 2, specify the enlargement ratio of the bar width so that Narrow Bar will become at least 2 dots.

("L" indicates the enlargement ratio to the bar width ratio)

	Head density		
	203 dpi	305 dpi	600 dpi
Bar width ratio 1:2	2L or more	2L or more	xL or more
Bar width ratio 1:3	2L or more	2L or more	xL or more
Bar width ratio 2:5	1L or more	1L or more	xL or more
UPC-A/EAN/JAN	2L or more	2L or more	xL or more

- 2) To print with Serial 1 or Serial 2, specify the bar width expansion factor so that Narrow bar will become at least 3 dots when using a head density of 203 dpi or 300 dpi.

	Head density		
	203 dpi	300 dpi	600 dpi
Bar width ratio 1:2	3L or more	3L or more	xL or more
Bar width ratio 1:3	3L or more	3L or more	xL or more
Bar width ratio 2:5	2L or more	2L or more	xL or more
UPC-A/EAN/JAN	3L or more	3L or more	xL or more

- 3) To print with Serial 1 or Serial 2, reduce the print speed.

9.1. ESC+B: BARCODE (RATIO 1:3)

Barcode (Ratio 1:3)			ESC+B
Hexadecimal Code	ESC	B	Parameter
	<1B> ₁₆	<42> ₁₆	abbcccn~n
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF	The set command is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

[Function]

Specifying a barcode with a ratio of 1:3 between narrow bar and wide bar.

[Format]

abbcccn~n

- Parameter

- a: "Barcode type" = Refer to table below
- b: "Narrow bar width" = Valid range: 01 to 36 (dots)
- c: "Barcode height" = Valid range: 001 to 800 (dots)
- n: "Print Data" = Data

Barcode type

(The ratio of the module composition may not be available depending on the barcode type.)

A	Barcode type	Description	Ratio
0	CODABAR(NW- 7)	Set print data including the start and stop characters. Use [A, B, C, D, E, N, T, a, b, c, d, e, n, t] for the start and stop characters. However, note that use [D, B, A, A, B, C, D, D, B, A] if scan results of the characters are [E, N, T, a, b, c, d, e, n, t]. e.g.) When barcode print data is [123], specify [A123A]. The barcode character pitch becomes enabled. For print data, refer to the CODABAR(NW-7) code table.	1:3
1	CODE39	Set print data including the start and stop characters. User [*] for the start and stop characters. e.g.) When barcode print data is [12345], specify [*12345*]. The barcode character pitch becomes enabled. For print data, refer to the CODE39 code table.	1:3
2	ITF	Specify print data in even-numbered digit. If specifying in odd-numbered digit, add "0" to the head of print data. For print data, refer to the ITF code table.	1:3
3	JAN/EAN13	This barcode has no guard bars and no human-readable characters. For print data, refer to the JAN/EAN13 code table.	Fixed (11, 12, 13 digits)
4	JAN/EAN8	This barcode has no guard bars and no human-readable characters. For print data, refer to the JAN/EAN8 code table.	Fixed (7, 8 digits)

5	Industrial 2 of 5	Barcode character pitch is enabled. For print data, refer to the Industrial 2 of 5 code table.	1:3
6	Matrix 2 of 5	Barcode character pitch is enabled. For print data, refer to the Matrix 2 of 5 code table.	1:3
A	MSI	Specify 13-digit number for print data. For print data, refer to the MSI code table.	Fixed
C	CODE93	Refer to CODE93 <BC>.	Fixed
E	UPC-E	Specify 6-digit number for print data. For print data, refer to the UPC-E code table.	Fixed
F	UPC add-on code Bookland	Refer to UPC add-on code/Bookland <BF>.	Fixed
G	CODE128	Refer to CODE128 <BG>	Fixed
H	UPC-A	This barcode has no guard bars and no human-readable characters. For print data, refer to the UPC-A code table.	Fixed
I	GS1-128 (UCC/EAN128)	Refer to GS1-128 (UCC/EAN128) <BI>.	Fixed
P	Postnet	Refer to Postnet <BP>.	Fixed
S	USPS code	Refer to USPS code <BS>.	Fixed

[Coding Example 1]

Barcode type: CODE39, Narrow bar width: 03, Height of barcode: 120, Print data: *1234AB*

<A>

<V>100<H>100103120*1234AB*

<Q>2

<Z>



[Coding Example 2]

Barcode type: JAN8, Narrow bar width: 02, Height of barcode: 080, Print data: 4912345

<A>

<V>100<H>1004020804912345

<Q>2

<Z>



[Supplemental Explanation]

1. An intercharacter pitch of the barcode is valid at CODABAR(NW-7), CODE39, Industrial 2 of 5, Matrix 2 of 5. The barcode intercharacter pitch is set by specifying the character pitch <P> immediately before. If not set, the intercharacter pitch will be of the same size as a narrow space and will become multiples of a narrow bar.

Command	Ratio	Narrow space width	<P>	Character pitch	
				Narrow bar width is [1]	Narrow bar width is [2]
	1:3	1	None	1	2
			<P>0	1	2
			<P>1	1	2
			<P>2	2	4
			<P>3	3	6
			<P>4	4	8

2. For print data of each barcode type, refer to the code tables of the barcode.

[Point]

1. If a value other than the valid range is set, the barcode will not be printed.
2. The barcode will be printed even if the data exceed the printable area.
3. Increasing the narrow bar width may exceed the print area.
4. Adjust Print Speed <CS> or Print Darkness <#F> in case of a scanner reading problem.
5. Matrix 2 of 5 will be expressed as Coop 2 of 5/NEC 2 of 5.
6. When CODABAR (NW-7) or CODE39 is specified and the start and stop characters are not included in the print data, the barcode is printed but not read by a scanner.
7. When JAN/EAN13 or JAN/EAN8 is specified while C/D is included in the print data, the calculated value must be set correctly. If a wrong C/D is included, the barcode is printed but cannot be read by a scanner.

9.2. ESC+D: BARCODE (RATIO 1:2)

Barcode (Ratio 1:2)			ESC+D
Hexadecimal Code	ESC	D	Parameter
	<1B> ₁₆	<44> ₁₆	abbcccn~n
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF	The set command is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

[Function]

Specifying a barcode with a ratio of 1:2 between the narrow bar and wide bar.

[Format]

<D>abbcccn~n

- Parameter

- a: "Barcode type" = Refer to table below
- b: "Narrow bar width" = Valid range: 01 to 36 (dots)
- c: "Barcode height" = Valid range: 001 to 800 (dots)
- n: "Print Data" = Data

Barcode type

(The ratio of the module composition may not be available depending on the barcode type.)

A	Barcode type	Description	Ratio
0	CODABAR(NW- 7)	Set print data including the start and stop characters. Use [A, B, C, D, E, N, T, a, b, c, d, e, n, t] for the start and stop characters. However, note that use [D, B, A, A, B, C, D, D, B, A] if scan results of the characters are [E, N, T, a, b, c, d, e, n, t]. e.g.) When barcode print data is [123], specify [A123A]. The barcode character pitch becomes enabled. For print data, refer to the CODABAR(NW-7) code table.	1:2
1	CODE39	Set print data including the start and stop characters. User [*] for the start and stop characters. e.g.) When barcode print data is [12345], specify [*12345*]. The barcode character pitch becomes enabled. For print data, refer to the CODE39 code table.	1:2
2	ITF	Specify print data in even-numbered digit. If specifying in odd-numbered digit, add "0" to the head of print data. For print data, refer to the ITF code table.	1:2
3	JAN/EAN13	This barcode has no guard bars and no human-readable characters. For print data, refer to the JAN/EAN13 code table. Specify 11-digit, 12-digit or 13-digit data.	Fixed

4	JAN/EAN8	This barcode has no guard bars and no human-readable characters. For print data, refer to the JAN/EAN8 code table. Specify 7-digit or 8-digit data.	Fixed
5	Industrial 2 of 5	Barcode character pitch is enabled. For print data, refer to the Industrial 2 of 5 code table.	1:2
6	Matrix 2 of 5	Barcode character pitch is enabled. For print data, refer to the Matrix 2 of 5 code table.	1:2
H	UPC-A	This barcode has no guard bars and no human-readable characters. For print data, refer to the UPC-A code table.	Fixed

[Coding Example 1]

Barcode type: CODABAR(NW-7), Narrow bar width: 03, Height of barcode: 120, Print data: A1234A

<A>

<V>100<H>100<D>003120A1234A

<Q>2

<Z>



[Coding Example 2]

Barcode type: ITF, Narrow bar width: 02, Height of barcode: 08, Print data: 98002345678163

<A>

<V>100<H>100<D>20208098002345678163

<Q>2

<Z>



[Coding Example 3]

Barcode type: UPC-A, Narrow bar width: 03, Height of barcode: 120, Print data: 20123948573

<A>

<V>240<H>100<D>H0312020123948573

<Q>2

<Z>



[Supplemental Explanation]

1. An intercharacter pitch of the barcode is valid at CODABAR(NW-7), CODE39, Industrial 2 of 5, and Matrix 2 of 5. The barcode intercharacter pitch is set by specifying the character pitch <P> immediately before.
If not set, the intercharacter pitch will be of the same size as a narrow space and will become multiples of a narrow bar.
e.g.)

Command	Ratio	Narrow space width	<P>	Character pitch	
				Narrow bar width is [1]	Narrow bar width is [2]
<D>	1:2	1	None	1	2
			<P>0	1	2
			<P>1	1	2
			<P>2	2	4
			<P>3	3	6
			<P>4	4	8

2. For print data of each barcode type, refer to the code tables of the barcode.

[Point]

1. If a value other than the valid range is set, the barcode will not be printed.
2. The barcode will be printed even if the data exceed the printable area.
3. Increasing the narrow bar width may exceed the print area.
4. Matrix 2 of 5 will be expressed as Coop 2 of 5/NEC 2 of 5.
5. When CODABAR (NW-7) or CODE39 is specified and the start and stop characters are not included in the print data, the barcode is printed but not read by a scanner.
6. When JAN/EAN13 or JAN/EAN8 is specified while C/D is included in the print data, the calculated value must be set correctly. If a wrong C/D is included, the barcode is printed but cannot be read by a scanner.

9.3. ESC+D~ESC+d: BARCODE (with HRI)

Barcode(with HRI)			ESC+D ~ ESC+d
Hexadecimal Code	ESC	D	Parameter
	<1B> ₁₆	<44> ₁₆ ~ Character type	abbcccn~n ~ <d>n~n
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF		The set command is not maintained.
	Valid range within items		The set parameter becomes invalid.
	Valid range between items		The set parameter becomes invalid.

[Function]

Specifying the character type of human readable interpretation (HRI) for barcode.

[Format]

<D>abbcccn~n ~ <d>n~n

● Parameter

- a: "Barcode type" = 3: JAN/EAN13
4: JAN/EAN8
H: UPC-A
- b: "Narrow bar width" = Valid range: 01 to 36 (dots)
- c: "Height of barcode" = Valid range: 001 to 800 (dots)
- n: "Print data" = Barcode data
- d: "Character type" = OA,
OB,
XU,
XS,
XM,
XB,
XL,
U,
S,
M,
WB,
WL,
X20,
X21,
X22,
X23,
X24
- n: "Print data" = HRI data

[Coding Example]

Barcode type: JAN/EAN13, Narrow bar width: 03, Height of barcode: 120, Barcode data: 4902471000793,
Character type: XU, HRI data: 4902471000793

<A>

<V>100<H>200<D>3031204902471000793

<XU>4902471000793

<Q>2

<Z>



[Supplemental Explanation]

1. Add HRI characters with the specified font.
2. When data other than specified values are set, printing will not be performed. When the barcode enlargement ratio is small and the character type is large, HRI text may be overlapped with each other.
3. Printer will lay out HRI properly.
4. When a barcode with an HRI character is in error, no HRI character is printed.
5. When specifying <P> and <L>, (<P>02<d>n~n, <L><d>n~n), and HRI are not printed.

9.4. ESC+BD: BARCODE (RATIO 2:5)

Barcode (Ratio 2:5)			ESC+BD
Hexadecimal Code	ESC	BD	Parameter
	<1B> ₁₆	<42> ₁₆ <44> ₁₆	abbcccn~n
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF	The set command is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

[Function]

Specifying a barcode with a ratio of 2:5 between narrow bar and wide bar.

[Format]

<BD>abbcccn~n

- Parameter

a: "Barcode type" = Refer to the table below
b: "Narrow bar width" = Valid range: 01 to 36 (dots)
c: "Height of barcode" = Valid range: 001 to 800 (dots)
n: "Print data" = Data

Barcode type (The ratio of the module composition may not be available depending on the barcode type.)

A	Barcode type	Description	Ratio
0	CODABAR(NW-7)	Set print data including the start and stop characters. Use [A, B, C, D, E, N, T, a, b, c, d, e, n, t] for the start and stop characters. However, note that use [D, B, A, A, B, C, D, D, B, A] if scan results of the characters are [E, N, T, a, b, c, d, e, n, t]. e.g.) When barcode print data is [123], specify [A123A]. The barcode character pitch becomes enabled. For print data, refer to the CODABAR(NW-7) code table.	2:5
1	CODE39	Set print data including the start and stop characters. User [*] for the start and stop characters. e.g.) When barcode print data is [12345], specify [*12345*]. The barcode character pitch becomes enabled. For print data, refer to the CODE39 code table.	2:5
2	ITF	Specify print data in even-numbered digit. If specifying in odd-numbered digit, add "0" to the head of print data. For print data, refer to the ITF code table.	2:5
3	JAN/EAN13	This barcode has no guard bars and no human-readable characters. For print data, refer to the JAN/EAN13 code table. Specify 11-digit, 12-digit or 13-digit data.	Fixed
4	JAN/EAN8	This barcode has no guard bars and no human-readable characters. For print data, refer to the JAN/EAN8 code table. Specify 7-digit or 8-digit data.	Fixed
5	Industrial 2 of 5	Barcode character pitch is enabled. For print data, refer to the Industrial 2 of 5 code table.	2:5

6	Matrix 2 of 5	Barcode character pitch is enabled. For print data, refer to the Matrix 2 of 5 code table.	2:5
H	UPC-A	This barcode has no guard bars and no human-readable characters. For print data, refer to the UPC-A code table.	Fixed

[Coding Example 1]

Barcode type: CODABAR (NW-7), Narrow bar width: 03, Height of barcode: 120, Print data: A1234A

<A>

<V>100<H>100<BD>003120A1234A

<Q>2

<Z>



[Coding Example 2]

Barcode type: ITF, Narrow bar width: 03, Height of barcode: 120, Print data: 98002345678163

<A>

<V>100<H>100<BD>20212098002345678163

<Q>2

<Z>



[Coding Example 3]

Barcode type: UPC-A, Narrow bar width: 03, Height of barcode: 120, Print data: 20123948573

<A>

<V>240<H>100<BD>H0312020123948573

<Q>2

<Z>



[Supplemental Explanation]

1. An intercharacter pitch of the barcode is valid at CODABAR(NW-7), CODE39, Industrial 2 of 5, and Matrix 2 of 5. The barcode intercharacter pitch is set by specifying the character pitch <P> immediately before. If not set, the intercharacter pitch will be of the same size as a narrow space and will become multiples of a narrow bar.

e.g.)

Command	Ratio	Narrow space width	<P>	Character pitch	
				Narrow bar width is [1]	Narrow bar width is [2]
<BD>	2:5	2	None	2	4
			<P>0	2	4
			<P>1	1	2
			<P>2	2	4
			<P>3	3	6
			<P>4	4	8

2. For print data of each barcode type, refer to the code tables of the barcode.
3. The barcode translation of following codes will be restricted to conditions below: JAN/EAN8, JAN/EAN13, UPC-A.

In case of 203 dpi (8dot/mm): A narrow bar width must be [02], [03].

In case of 305 dpi (12dot/mm): A narrow bar width must be [03], [04].

In case of 600 dpi (24dot/mm): A narrow bar width must be [xx], [xx].

HRI will not be printed if a value other than the listed above is specified.

[Point]

1. If a value other than the valid range is set, the barcode will not be printed.
2. The barcode will be printed even if the data exceed the printable area.
3. Increasing the narrow bar width may exceed the print area.
4. Matrix 2 of 5 will be expressed as Coop 2 of 5/NEC 2 of 5.
5. When CODABAR (NW-7) or CODE39 is specified and the start and stop characters are not included in the print data, the barcode is printed but cannot be read by a scanner.
6. When JAN/EAN13 or JAN/EAN8 is specified, if C/D is included in the print data, the correct calculated value must be set. If a wrong C/D is included, the barcode is printed but cannot be read by a scanner. If a value other than the valid range is set, a command error occurs and barcode printing is not performed.

9.5. ESC+BT: BARCODE RATIO REGISTRATION

Barcode Ratio Registration			ESC+BT
Hexadecimal Code	ESC	BT	Parameter
	<1B> ₁₆	<42> ₁₆ <54> ₁₆	abbccddee
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF	The set command is not maintained.
	Valid range within items	The set parameter is valid until the next valid setting.
	Valid range between items	The set parameter is valid until the next valid setting.

[Function]

Specifying the ratio of the narrow bar in regard to the wide bar.

[Format]

<BD>abbcccn~n

• Parameter

- a: "Barcode type" = 0: CODABAR (NW-7)
1: CODE39
2: ITF
5: Industrial 2 of 5
6: Matrix 2 of 5 (Coop 2 of 5, NEC 2 of 5)
- b: "Narrow space" = Valid range: 01 to 99 (dots)
- c: "Wide space" = Valid range: 01 to 99 (dots)
- d: "Narrow bar" = Valid range: 01 to 99 (dots)
- e: "Wide bar" = Valid range: 01 to 99 (dots)

[Coding Example]

Barcode type: CODE39, Narrow space: 03, Wide space: 05, Narrow bar: 03, Wide bar: 05

<A>

<BT>103050305

<V>100<H>200<BW>01233*ABCD*

<Q>2

<Z>

[Supplemental Explanation]

- To print a barcode with a specified ratio, insert the "Barcode print by specified ratio" command <BW> after this command.
- When the <BW> and Print Quantity <Q> commands are not specified, only the registration of the bar width ratio of narrow and wide bars specified by the barcode ratio specification the <BT> command will be performed.
- Only one ratio can be registered.
- If data other than those specified are set, this will not be registered.
- Matrix 2 of 5 is expressed as Coop 2 of 5 or NEC 2 of 5.

9.6. ESC+BW: BARCODE PRINT by SPECIFIED RATIO

Barcode Print by Specified Ratio			ESC+BW
Hexadecimal Code	ESC	D	Parameter
	<1B> ₁₆	<42> ₁₆ <57> ₁₆	aabbbn~n
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF	The set command is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

[Function]

Specifying a barcode ratio registered by <BT>.

[Format]

abbcccn~n

- Parameter

a: "Narrow bar width" = Valid range: 01 to 36 (dots)
b: "Height of barcode" = Valid range: 001 to 800 (dots)
n: "Print data" = Barcode data

[Coding Example] Narrow bar: 02, Height of Barcode: 120

<A>

<BT>103060306

<V>100<H>200<BW>02120*ABCD*

<Q>2

<Z>

[Supplemental Explanation]

1. The barcode character pitch is available for CODABAR(NW-7), CODE39, Industrial 2 of 5 and Matrix 2 of 5. To specify a barcode character pitch, insert Character Pitch <P> right before the barcode type. When <P> is omitted, a character pitch will be as same as a narrow space width set by the barcode ratio. e.g.)

Command	Ratio	Narrow space width	<P>	Character pitch	
				Narrow bar width is [1]	Narrow bar width is [2]
<BD>	3:5	3	None	3	6
			<P>0	3	6
			<P>1	1	2
			<P>2	2	4
			<P>3	3	6
			<P>4	4	8

2. If there is no Registration of Bar Width Ratio <BT>, a barcode based on the pre-registered bar width ratio of the narrow and wide bars will be printed. Note that specification of <BT> is required beforehand to print.
3. For print data for the barcode type, refer to the code tables of the barcode.

[Point]

1. If a value other than valid range is set, the barcode will not be printed.
2. The barcode will be printed even if the data exceed the printable area.
3. Increasing the narrow bar width may exceed the printable area.
4. Matrix 2 of 5 is expressed as Coop 2 of 5/NEC 2 of 5.
5. When CODABAR(NW-7) and CODE39 is specified and the start and stop characters are not included in the print data, the barcode is printed but not read by a scanner.

CODABAR(NW-7) Code table

					S1								S0							
				B8	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1
				B7	0	0	0	0	1	1	1	1	0	0	0	0	1	1	1	1
				B6	0	0	1	1	0	0	1	1	0	0	1	1	0	0	1	1
				B5	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1
B4	B3	B2	B1		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	0	0	0	0				0												
0	0	0	1	1				1	A		a									
0	0	1	0	2				2	B		b									
0	0	1	1	3				3	C		c									
0	1	0	0	4			\$	4	D	T	d	t								
0	1	0	1	5				5	E		e									
0	1	1	0	6				6												
0	1	1	1	7				7												
1	0	0	0	8				8												
1	0	0	1	9				9												
1	0	1	0	A			*	:												
1	0	1	1	B			+													
1	1	0	0	C																
1	1	0	1	D			-													
1	1	1	0	E			.		N		n									
1	1	1	1	F			/													

CODE39 Code table

					S1								S0							
				B8	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1
				B7	0	0	0	0	1	1	1	1	0	0	0	0	1	1	1	1
				B6	0	0	1	1	0	0	1	1	0	0	1	1	0	0	1	1
				B5	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1
B4	B3	B2	B1		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	0	0	0	0			SP	0		P										
0	0	0	1	1				1	A	Q										
0	0	1	0	2				2	B	R										
0	0	1	1	3				3	C	S										
0	1	0	0	4			\$	4	D	T										
0	1	0	1	5			%	5	E	U										
0	1	1	0	6				6	F	V										
0	1	1	1	7				7	G	W										
1	0	0	0	8				8	H	X										
1	0	0	1	9				9	I	Y										
1	0	1	0	A			*		J	Z										
1	0	1	1	B			+		K											
1	1	0	0	C					L											
1	1	0	1	D			-		M											
1	1	1	0	E			.		N											
1	1	1	1	F			/		O											

9.7. ESC+BC: CODE93 BARCODE

CODE93 Barcode			ESC+BC
Hexadecimal Code	ESC	BC	Parameter
	<1B> ₁₆	<42> ₁₆ <43> ₁₆	aabbbccn~n
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF	The set command is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

[Function]

Specifying the CODE93 barcode.

[Format]

<BC>aabbbccn~n

• Parameter

a: "Narrow bar width" = Valid range: 01 to 36 (dots)
b: "Height of barcode" = Valid range: 001 to 800 (dots)
c: "Digit No. of data" = Valid range: 01 to 99
n: "Print data" = Barcode data

[Coding Example]

Narrow bar width: 02, Height of barcode: 120, Number of digit: 12, Print data: ABCD123456xy

<A>

<V>100<H>200<BC>0212012ABCD123456xy

<Q>2

<Z>



[Supplemental Explanation]

1. C/D does auto-generation.
2. The start and stop codes will be automatically added.
3. The maximum entry digit number of data is 99.
4. [Digit No. of data] and the number of the input data have to be equal.
5. If the number of the input data is not the same as [Digit No. of data], it will not be printed.

CODE93 Code table

					S1								S0							
				B8	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1
				B7	0	0	0	0	1	1	1	1	0	0	0	0	1	1	1	1
				B6	0	0	1	1	0	0	1	1	0	0	1	1	0	0	1	1
				B5	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1
B4	B3	B2	B1		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	0	0	0	0			SP	0	@	P	`	p								
0	0	0	1	1			!	1	A	Q	a	q								
0	0	1	0	2			“	2	B	R	b	r								
0	0	1	1	3			#	3	C	S	c	s								
0	1	0	0	4			\$	4	D	T	d	t								
0	1	0	1	5			%	5	E	U	e	u								
0	1	1	0	6			&	6	F	V	f	v								
0	1	1	1	7			‘	7	G	W	g	w								
1	0	0	0	8			(	8	H	X	h	x								
1	0	0	1	9			)	9	I	Y	i	y								
1	0	1	0	A			*	:	J	Z	j	z								
1	0	1	1	B			+	;	K	[	k	{								
1	1	0	0	C			,	<	L	¥	l									
1	1	0	1	D			-	=	M	]	m	}								
1	1	1	0	E			.	>	N	^	n	~								
1	1	1	1	F			/	?	O	_	o	DEL								

From 00H to 7FH can be specified for CODE93.

9.8. ESC+BF: UPC ADD-on CODE (BOOKLAND)

UPC Add-on Code (Bookland)			ESC+BF
Hexadecimal Code	ESC	BF	Parameter
	<1B> ₁₆	<42> ₁₆ <46> ₁₆	aabbbn~n
Initial Value	Nil		

Valid range and Term of Command	When the power switch is OFF	The set command is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

[Function]

Specifying UPC Add-on code (BOOKLAND).

[Format]

<BF>aabbbn~n

- Parameter

a: "Narrow bar width" = Valid range: 01 to 36 (dots)
b: "Height of barcode" = Valid range: 001 to 800 (dots)
n: "Print data" = Numeric: 2 digits, 5 digits

[Coding Example] Narrow bar width: 03, Height of barcode: 120

```
<A>
<H>325<V>725<BD>H0315009827721123
<H>640<V>760<BF>0312021826
<H>655<V>730<OB>21826
<Q>1
<Z>
```



[Supplemental Explanation]

1. If a value other than 2 or 5 digits is specified, the barcode will be not printed.
2. Only numbers can be specified as print data. (Refer to the code table.)
3. No HRI
4. UPC add-on code specification <BF> cannot be scanned when printed alone. Scanning is possible only when <BF> and UPC code are printed as a set.

UPC Add-on Barcode Code table

					S1								S0							
				B8	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1
				B7	0	0	0	0	1	1	1	1	0	0	0	0	1	1	1	1
				B6	0	0	1	1	0	0	1	1	0	0	1	1	0	0	1	1
				B5	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1
B4	B3	B2	B1		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	0	0	0	0				0												
0	0	0	1	1				1												
0	0	1	0	2				2												
0	0	1	1	3				3												
0	1	0	0	4				4												
0	1	0	1	5				5												
0	1	1	0	6				6												
0	1	1	1	7				7												
1	0	0	0	8				8												
1	0	0	1	9				9												
1	0	1	0	A																
1	0	1	1	B																
1	1	0	0	C																
1	1	0	1	D																
1	1	1	0	E																
1	1	1	1	F																

9.9. ESC+BG: CODE128(128A,128B,128C) BARCODE

CODE128(128A,128B,128C) Barcode			ESC+BG
Hexadecimal Code	ESC	BG	Parameter
	<1B> ₁₆	<42> ₁₆ <47> ₁₆	aabbbn~n
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF	The set command is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

[Function]

Specifying the CODE128 barcode.

[Format]

<BG>aabbbn~n

● Parameter

a: "Narrow bar width" = Valid range: 01 to 36 (dots)
b: "Height of barcode" = Valid range: 001 to 800 (dots)
n: "Print data" = Barcode data (Refer to the CODE128 code table.)

[Coding Example]

Narrow bar width: 02, Height of barcode: 120, Print data: ABCD123456 (Start character A)

```
<A>
<V>100<H>200<BG>02120>GABCD123456
<Q>2
<Z>
```

[Supplemental Explanation]

- At the beginning of the print data, specify the type (A, B, C) "START code",
 - Start Code A = ">G"
 - Start Code B = ">H"
 - Start Code C = ">I"
- C/D does auto-generation.
- When using "Start Code C", specify the print data in even-numbered digits.
 - When "Start Code C" is set to print data in odd-number digits, specify "Start Code A" or "Start Code B" to change the first one character of the print data. Then specify the rest of the data with "Code Set Character C" to change them to even-numbered digits.
e.g. 1) 15 digits "123456789012345": 1<C>23456789012345
e.g. 2) 9 digits and alphanumeric 6 digits "123456789ABC123": <C>123456789ABC123
 - If using "Start Code C" to specify odd-numbered digits, a command error occurs and the barcode is not printed.
 - When the start code is omitted, the data will be printed with "Start Code B".

CODE128 Code table

VALUE	Code A	Code B	Code C
0	SP	SP	00
1	!	!	01
2	"	"	02
3	#	#	03
4	\$	\$	04
5	%	%	05
6	&	&	06
7	'	'	07
8	(	(	08
9	)	)	09
10	*	*	10
11	+	+	11
12	,	,	12
13	-	-	13
14	.	.	14
15	/	/	15
16	0	0	16
17	1	1	17
18	2	2	18
19	3	3	19
20	4	4	20
21	5	5	21
22	6	6	22
23	7	7	23
24	8	8	24
25	9	9	25
26	:	:	26
27	;	;	27
28	<	<	28
29	=	=	29
30	>(Note 4)	>(Note 4)	30
31	?	?	31
32	@	@	32
33	A	A	33
34	B	B	34
35	C	C	35
36	D	D	36
37	E	E	37

38	F	F	38
39	G	G	39
40	H	H	40
41	I	I	41
42	J	J	42
43	K	K	43
44	L	L	44
45	M	M	45
46	N	N	46
47	O	O	47
48	P	P	48
49	Q	Q	49
50	R	R	50
51	S	S	51
52	T	T	52
53	U	U	53
54	V	V	54
55	W	W	55
56	X	X	56
57	Y	Y	57
58	Z	Z	58
59	[	[	59
60	\	\	60
61	]	]	61
62	^	^	62
63	—	—	63
64	NUL >SP	' >SP	64
65	SOH > !	a > !	65
66	STX >"	b >"	66
67	ETX >#	c >#	67
68	EOT >\$	d >\$	68
69	ENQ >%	e >%	69
70	ACK >&	f >&	70
71	BEL >'	g >'	71
72	BS >(	h >(	72
73	HT >)	i >)	73
74	LF >*	j >*	74
75	VT >+	k >+	75
76	FF > ,	l > ,	76

77	CR >-	m >-	77
78	SO >.	n >.	78
79	SI >/	o >/	79
80	DLE >0	p >0	80
81	DC1 >1	q >1	81
82	DC2 >2	r >2	82
83	DC3 >3	s >3	83
84	DC4 >4	t >4	84
85	NAK >5	u >5	85
86	SYN >6	v >6	86
87	ETB >7	w >7	87
88	CAN >8	x >8	88
89	EM >9	y >9	89
90	SUB >:	z >:	90
91	ESC > ;	{ > ;	91
92	FS ><	><	92
93	GS >=	} >=	93
94	RS >>	~ >>	94
95	US > ?	DEL > ?	95
96	FNC3 >@	FNC3 >@	96
97	FNC2 >A	FNC2 >A	97
98	SHIFT >B	SHIFT >B	98
99	Code-C >C	Code-C >C	99
100	Code-B >D	FNC4 >D	Code-B >D
101	FNC4 >E	Code-A >E	Code-A >E
102	FNC1 >F	FNC1 >F	FNC1 >F
103	START CODE A >G		
104	B >H		
105	C >I		

Notes:

1. The Start Code must be sent.
2. The Stop Code is added in the printer automatically.
3. The code after VALUE64 in Code A and Code B should be specified as a 2-character code with ">" attached.
4. Specification code for ">" is ">J".

9.10. ESC+BI: GS1-128 (UCC/EAN128)

GS1-128(UCC/EAN128) <Standard Carton ID Only>			ESC+BI
Hexadecimal Code	ESC	BI	Parameter
	<1B> ₁₆	<42> ₁₆ <49> ₁₆	aabbbcn~n
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF	The set command is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

[Function]

Specifying the GS1-128(UCC/EAN128) barcode for the Standard Carton ID.

[Format]

<BI>aabbbcn~n

● Parameter

- a: "Narrow bar width" = Valid range: 01 to 36 (dots)
- b: "Height of barcode" = Valid range: 001 to 800 (dots)
- c: "Barcode expository font specification" = 0: No HRI
1: HRI is available (Upper part of barcode)
2: HRI is available (Under part of barcode)
- n: "Print data" = Barcode data (Fixed by 17 digits)

For barcode data, refer to the GS1-128 (UCC/EAN128) code table.

EAN128 (Barcode for Standard Carton ID)

- Identifier of a continuous code for freight packaging
- Type of packaging
- Country/manufacturer code
- Serial No. for shipping container
- C/D

* Note that C/D is automatically added; therefore, specify data in 17 digits excluding check digit.

[Coding Example]

Narrow bar width: 05, Height of barcode: 080, HRI: Available (Under part of barcode),

Print data: 12345678901234567

<A>
<V>100<H>200<BI>05080212345678901234567
<Q>2
<Z>



[Supplemental Explanation]

1. The UCC128 code is exclusive to Standard Carton ID. When printing in EAN128, designed for the markets in medical supplies, fresh food, flowers and plants, use CODE128 Barcode <BG> to specify print data with an application identification or separator that matches each specification.
2. The start character code, function character, end character code, and identification code (corresponds to [00] only) are added automatically.
3. The modulus 10 check character and modulus 103 check character are automatically generated.
4. The sequential number of the barcode data is available.
5. The line pitch between the barcode and the expository font is fixed at 10 dots
6. If the width of the expository font is wider than that of the barcode, printing is started from the print start position of the barcode.
7. If the width of the expository font is narrower than the barcode, the expository font will be aligned to the center of the barcode for printing.
8. Prints expository font in OCR-B.
9. If the expository font is outside the print area, it will not be printed. When selecting [HRI is available], specify Vertical Print Position <V> and Horizontal Print Position <H> in consideration of the print of the expository font.
10. When other than 0, 1, or 2 is specified as the barcode HRI font, it will be the same as the barcode HRI font specification "0".

ITF

Matrix 2 of 5

Industrial 2 of 5 UPC-A, JAN/EAN8 JAN/EAN13, UPC-E

GS1-128 (UCC/EAN128)

MSI Code table

					S1								S0							
				B8	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1
				B7	0	0	0	0	1	1	1	1	0	0	0	0	1	1	1	1
				B6	0	0	1	1	0	0	1	1	0	0	1	1	0	0	1	1
				B5	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1
B4	B3	B2	B1		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	0	0	0	0				0												
0	0	0	1	1				1												
0	0	1	0	2				2												
0	0	1	1	3				3												
0	1	0	0	4				4												
0	1	0	1	5				5												
0	1	1	0	6				6												
0	1	1	1	7				7												
1	0	0	0	8				8												
1	0	0	1	9				9												
1	0	1	0	A																
1	0	1	1	B																
1	1	0	0	C																
1	1	0	1	D																
1	1	1	0	E																
1	1	1	1	F																

9.11. ESC+BP: POSTNET

POSTNET			ESC+BP
Hexadecimal Code	ESC	BP	Parameter
	<1B> ₁₆	<42> ₁₆ <50> ₁₆	n~n
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF	The set command is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

[Function]

Specifying the POSTNET barcode.

[Format]

<BP>n~n

- Parameter

n = Print data (Refer to the POSTNET Code table.)
 * Note that the digits other than the following ones are not allowed.
 - 5 digits (POSTNET-32 format)
 - 6 digits (POSTNET-37 format)
 - 9 digits (POSTNET-52 format)
 - 11 digits (POSTNET-62 Delivery Point format)

[Coding Example] Postal code: 11 digits: 01234567890

<A>

<V>100<H>200<BP>01234567890

<Q>2

<Z>

[Supplemental Explanation]

1. If a value other than 5, 6, 9, and 11 digits is specified for print data, it will be ignored.
2. Only numbers can be specified as print data.

POSTNET Code table

					S1								S0							
				B8	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1
				B7	0	0	0	0	1	1	1	1	0	0	0	0	1	1	1	1
				B6	0	0	1	1	0	0	1	1	0	0	1	1	0	0	1	1
				B5	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1
B4	B3	B2	B1		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	0	0	0	0				0												
0	0	0	1	1				1												
0	0	1	0	2				2												
0	0	1	1	3				3												
0	1	0	0	4				4												
0	1	0	1	5				5												
0	1	1	0	6				6												
0	1	1	1	7				7												
1	0	0	0	8				8												
1	0	0	1	9				9												
1	0	1	0	A																
1	0	1	1	B																
1	1	0	0	C																
1	1	0	1	D																
1	1	1	0	E																
1	1	1	1	F																

9.12. ESC+BS: USPS BARCODE

USPS Barcode			ESC+BS
Hexadecimal Code	ESC	BS	Parameter
	<1B> ₁₆	<42> ₁₆ <53> ₁₆	aabbbccccccddddd(e~e)
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF	The set command is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

[Function]

Printing the USPS code.

[Format]

<BS>aabbbccccccddddd(e~e)

● Parameter

- a: "Barcode ID" = Fixed by 2 digits
* Note: 0 to 4 should be specified for the 2nd digit.
- b: "Service Type ID" = Fixed by 3 digits
- c: "Mailer ID" = Fixed by 6 digits
- d: "Serial Number" = Fixed by 9 digits
- e: "Routing Code" = Fixed by 5, 9 or 11 digits (omissible)

[Coding Example]

Barcode ID: 53, Service TypeID: 379, Customer Identifier: 777234

Serial Number: 994544928, Routing Code: 51135759461

<A>

<V>100 <H> 200 <BS> 5337977723499454492851135759461

<Q>1

<Z>

[Supplemental Explanation]

1. For the available parameter, refer to the USPS code table.

USPS Code table

					S1								S0							
				B8	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1
				B7	0	0	0	0	1	1	1	1	0	0	0	0	1	1	1	1
				B6	0	0	1	1	0	0	1	1	0	0	1	1	0	0	1	1
				B5	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1
B4	B3	B2	B1		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	0	0	0	0				0												
0	0	0	1	1				1												
0	0	1	0	2				2												
0	0	1	1	3				3												
0	1	0	0	4				4												
0	1	0	1	5				5												
0	1	1	0	6				6												
0	1	1	1	7				7												
1	0	0	0	8				8												
1	0	0	1	9				9												
1	0	1	0	A																
1	0	1	1	B																
1	1	0	0	C																
1	1	0	1	D																
1	1	1	0	E																
1	1	1	1	F																

9.13. ESC+EU: EAN, UCC COMPOSITE SYMBOL

EAN, UCC Composite Symbol			ESC+EU
Hexadecimal Code	ESC	EU	Parameter
	<1B> ₁₆	<45> ₁₆ <55> ₁₆	aaabbn~n
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF	The set command is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

[Function]

Specifying the composite symbol of EAN/UCC.

[Format 1]

<EU>aabbccn~n

- Parameter

a: "Type of composite symbol" = 01: GS1 DataBar Composite (CC-A/CC-B)
02: GS1 DataBar Truncated Composite (CC-A/CC-B)
03: GS1 DataBar Stacked Composite (CC-A/CC-B)
04: GS1 DataBar Stacked Omni-Directional (CC-A/CC-B)
05: GS1 DataBar Limited Composite (CC-A/CC-B)
06: GS1 DataBar Expanded Composite (CC-A/CC-B)
/GS1 DataBar Expanded Stacked (CC-A/CC-B)
07: UPC-A Composite (CC-A/CC-B)
08: UPC-E Composite (CC-A/CC-B)
09: EAN13 Composite (CC-A/CC-B)
10: EAN8 Composite (CC-A/CC-B)

b: "Narrow bar width" = 01 to 12 (dots)

c: "Segment width" = 04 to 22 (Even number only)

* Only GS1 DataBar Expanded Composite (CC-A/CC-B) is supported.

n: "Print data" = Data

Maximum number of digits for 1D barcode data

GS1 DataBar Composite (CC-A/CC-B)	13 digits
GS1 DataBar Truncated Composite (CC-A/CC-B)	13 digits
GS1 DataBar Stacked Composite (CC-A/CC-B)	13 digits
GS1 DataBar Stacked Omni-Directional (CC-A/CC-B)	13 digits
GS1 DataBar Limited Composite (CC-A/CC-B)	13 digits
GS1 DataBar Expanded Composite (CC-A/CC-B) /GS1 DataBar Expanded Stacked (CC-A/CC-B)	74 digits
UPC-A Composite (CC-A/CC-B)	11 digits
UPC-E Composite (CC-A/CC-B) Specifies 1D data in the form of "XX00000XXX"(X: variable)	Fixed by 10 digits
EAN13 Composite (CC-A/CC-B)	12 digits
EAN8 Composite (CC-A/CC-B)	7 digits

* The check digit is automatically calculated and added.

* To specify the print of composite symbol, delimit the 1D and 2D data with ' | ' (7CH).

Data = 1D data | 2D data

* For GS1 DataBar Expanded Composite (CC-A / CC-B), the GS1 DataBar Composite (CC-A / CC-B) data must be specified in the 1st to 16th digits.

* GS1 DataBar Expanded Composite (CC-A/CC-B) can contain GS1 DataBar Composite (CC-A/CC-B) data and 74 digits of numeric character and 41 digits of alphabet.

(In case of mixed letters and numbers, up to 41 digits including GS1 DataBar Composite (CC-A / CC-B) data can be specified.)

* For 1D data, when specified ones do not reach the maximum digits, the blank is filled by zero.

* 2D data can contain up to 338 digits, but the maximum number of digits that can be input varies depending on the type of the barcode.

* The barcode may not fit in the label depending on data and the number of digits, and thus a scanner cannot read it. Adjust print data beforehand so that the barcode can fit to the label.

* The number of data input digits in UPC-A Composite is only 11. But for compatibility reasons, EAN13 Composite (CC-A / CC-B) is generated when 12 digits are specified.

[Format 2]

<EU>aabbcccn~n

● Parameter

a: "Type of composite symbol" = 11: GS1-128 Composite (CC-A/CC-B)
12: GS1-128 Composite (CC-C)

b: "Narrow bar width" = 01 to 12 (dots)

c: "Height of barcode" = 001 to 500 (dots)

* Specify the barcode height when the narrow bar width is "1".

* When the narrow bar width "03" and Barcode height "100" are specified, it will be 300 dots.

n: "Print data" = Barcode data

Maximum number of digits for the 2D barcode

(There is a limit on the maximum number of digits for 1D data.)

GS1-128 (UCC/EAN128) with CC-A/B	338 digits
GS1-128 (UCC/EAN128) with CC-C	2000 digits

Maximum number of digits that can be specified for the 1D barcode

GS1-128 (UCC/EAN128) with CC-A/B	48 digits
GS1-128 (UCC/EAN128) with CC-C	48 digits

- * The check digit is automatically calculated and added.
- * To specify the print of composite symbol, delimit the 1D and 2D data with ' | ' (7CH).
Data = 1D data | 2D data
- * Use '#' (23H) to specify CC-A/B (Micro PDF), FNC1 (GS) of CC-C (for PDF417) as data.
- * 2D data for GS1-128 (UCC/EAN128) with CC-A/B can contain up to 338 digits.
- * When 2D data of GS1-128 (UCC/EAN 128) with CC-A/B are 56 digits or less, it is identified as CC-A.
When the data size is between 57 and 338 digits, it is identified as CC-B automatically.
- * The number of digits varies depending on the width of the barcode in GS1- 128 (UCC/EAN128) with CC-C,
and the maximum number of digits of combination of the 1D and 2D is 2048 digits.

[Coding Example 1]

Example of using specified command GS1 DataBar Composite (CC-A/CC-B)

```
<A>
<V>100<H>100
<EU>01040361234567890|11990102
<Q>1
<Z>
```



[Coding Example 2]

Example of using specified command GS1 DataBar Truncated Composite (CC-A/CC-B)

```
<A>
<V>100<H>100
<EU>02040361234567890|11990102
<Q>1
<Z>
```



[Coding Example 3]

Example of using specified command GS1 DataBar Stacked Composite (CC-A/CC-B)

```
<A>
<V>100<H>100
<EU>03040341234567890|17010200
<Q>1
<Z>
```



[Coding Example 4]

Example of using specified command GS1 DataBar Stacked Omni-Directional (CC-A/CC-B)

```
<A>
<V>100<H>100
<EU>04040341234567890|17010200
<Q>1
<Z>
```



[Coding Example 5]

Example of using specified command GS1 DataBar Limited Composite (CC-A/CC-B)

```
<A>
```



<V>100<H>100
<EU>05040351234567890|21ABCDEFGHIJKLMNOPQRSTUVWXYZ
 <Q>1
 <Z>

[Coding Example 6]

Example of using specified command GS1 DataBar Expanded Composite (CC-A/CC-B)

<A>
 <V>100<H>100
<EU>0605220104912345678904
 <Q>1
 <Z>



[Coding Example 7]

Example of using specified command GS1 DataBar Expanded Stacked (CC-A/CC-B)

<A>
 <V>100<H>100
<EU>0605020104912345678904
 <Q>1
 <Z>



[Coding Example 8]

Example of using specified command UPC-A Composite (CC-A/CC-B)

<A>
 <V>100<H>100
<EU>0704331234567890|991234-abcd
 <Q>1
 <Z>



[Coding Example 9]

Example of using specified command UPC-E Composite (CC-A/CC-B)

<A>
 <V>100<H>100
<EU>08041200000123|15021231
 <Q>1
 <Z>



[Coding Example 10]

Example of using specified command EAN13 Composite (CC-A/CC-B)

<A>
<V>100<H>100
<EU>0904331234567890|991234-abcd
<Q>1
<Z>



[Coding Example 11]

Example of using specified command EAN8 Composite (CC-A/CC-B)

<A>
<V>100<H>100
<EU>10041234567|21A12345678
<Q>1
<Z>



[Coding Example 12]

Example of using specified command GS1-128 Composite (CC-A/CC-B)

<A>
<V>100<H>100
<EU>11040260103212345678906|21A1B2C3D4E5F6G7H8
<Q>1
<Z>



[Coding Example 13]

Example of using specified command GS1-128 Composite (CC-C)

<A>
<V>100<H>100
<EU>120402600030123456789012340|02130123456789
093724#101234567ABCDEFG
<Q>1
<Z>



[Supplemental Explanation]

1. The parameter varies depending on the 1D barcode type. The segment width can be specified only for DataBar Expanded Composite (CC-A/CC-B) (EU06). The barcode height can be specified only for GS1-128(UCC/EAN-128) (EU11, EU12).
2. If a value suitable for the composite symbol type is not set in the data portion, the composite symbol is not printed.
3. The parameter for print data is available up to 2361 digits including 1D and 2D barcode data as a specification for this command. An available number for 2D barcode data varies depending on the type of 1D barcode and/or mixture of alphabets and numeric. When the specified data exceed the maximum digits, the barcode may not be printed properly.
4. The entire size of the composite symbol changes depending on the specification of the narrow bar width.
5. If the composite symbol exceeds the printable area, only the portion located within the area will be printed, and a scanner might read the value of such a composite symbol occasionally.
6. The height and width of 2D barcode of the composite symbol is adjusted by the 1D barcode data size. When the width of 1D barcode is narrow, it cannot be printed even if the size of the data is less than the maximum number of digits.
7. Printing of HRI cannot be designated with this command.
8. Rotation <%> is available, but Enlargement <L> is invalid.

9. When specifying 11 (production date), 12 (term of payment), 13 (packing date), 15 (sales period) and 17 (warranty period) for the application identifier, set the correct data YYMMDD. Otherwise, the print result cannot be guaranteed.
10. When specifying GS1 Databar as the barcode type, specify 2D barcode data with the format based on the application identifier.
11. GS1 DataBar Expanded Composite (CC-A/CC-B) is stacked automatically by the segment width and the data size and is printed as GS1 DataBar Expanded Stacked (CC-A/CC-B).

Composite symbol 2D code correspondence table

				S1								S0							
				B8	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1
				B7	0	0	0	0	1	1	1	1	0	0	0	0	1	1	1
				B6	0	0	1	1	0	0	1	1	0	0	1	1	0	0	1
				B5	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0
B4	B3	B2	B1		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E
0	0	0	0	0			SP	0		P		p							
0	0	0	1	1			!	1	A	Q	a	q							
0	0	1	0	2			"	2	B	R	b	r							
0	0	1	1	3				3	C	S	c	s							
0	1	0	0	4				4	D	T	d	t							
0	1	0	1	5			%	5	E	U	e	u							
0	1	1	0	6			&	6	F	V	f	v							
0	1	1	1	7			'	7	G	W	g	w							
1	0	0	0	8			(	8	H	X	h	x							
1	0	0	1	9			)	9	I	Y	i	y							
1	0	1	0	A			*	:	J	Z	j	z							
1	0	1	1	B			+	;	K		k								
1	1	0	0	C			,	<	L		l								
1	1	0	1	D			-	=	M		m								
1	1	1	0	E			.	>	N		n								
1	1	1	1	F			/	?	O		o								

* Use '#' (23H) to specify FNC1.

9.14. ESC+BL: UPC-A BARCODE SPECIFICATION (NO HRI)

UPC-A Barcode Specification (No HRI)			ESC+BL
Hexadecimal Code	ESC	BL	Parameter
	<1B> ₁₆	<42> ₁₆ <4C> ₁₆	aabbcccn~n
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF	The set command is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

[Function]

Making the character barcode top and bottom of the first and last digits the same length as the guard bar.

[Format]

<BL>aabbcccn~n

• Parameter

a: "Barcode type" = H: UPC-A ('H' fixed)
b: "Narrow bar width" = Valid range: 01 to 36 (dots)
c: "Barcode top and bottom" = Valid range: 001 to 800(dots)
n: "Print data" = Data: Fixed by 11 digits

[Coding Example]

Barcode type: UPC-A, Narrow bar width: 03, Barcode top and bottom: 120, Print data: 01234567890

<A>

<H>100<V>100<BL>H0312001234567890

<Q>2

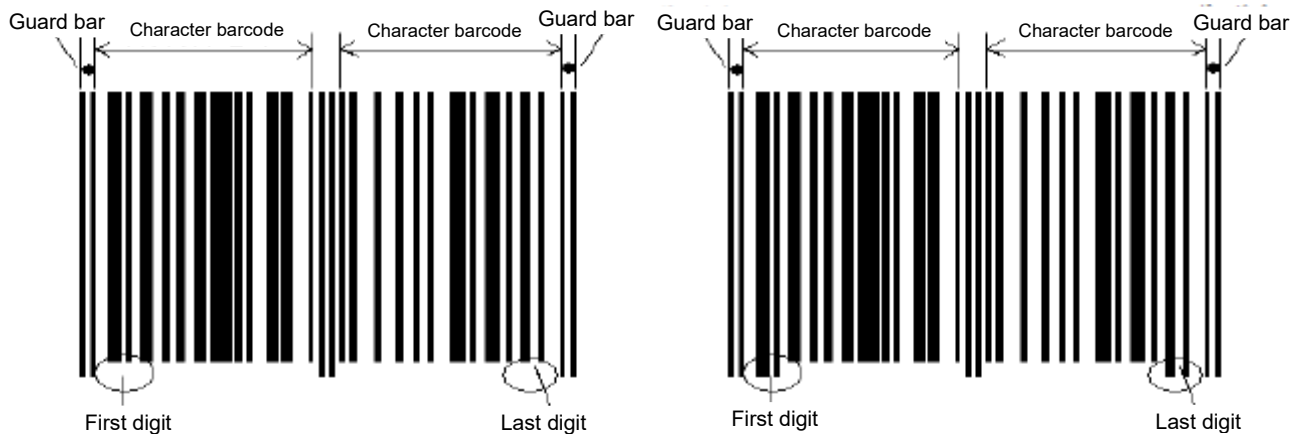
<Z>

[Supplemental Explanation]

1. This command only supports UPC-A. A command error will occur if a barcode type other than 'H' is specified.
2. The guard bar, HRI text, and ratio settings are as follows.

Guard bar	HRI text	Ratio
Available	Not available	Fixed

3. The operation is not supported when parameters outside the range are set.
4. When printing UPC-A using barcode designation <D>, the character barcode top and bottom are all the same length, but for UPC-A barcode designation <BL>, the first digit and the last digit and the barcode top of the digit character barcode is the same as the guard bar length.



Printing result by UPC-A barcode specification <D>

Printing result by UPC-A barcode specification <BL>

9.15. ESC+BL~ ESC+d: UPC-A BARCODE SPECIFICATION (HRI SPECIFICATION)

UPC-A Barcode Specification (HRI Specification)			ESC+BL~ ESC+d
Hexadecimal Code	ESC	BL~d	Parameter
	<1B>16	<42>16<4C>16~character type	abbcccn~n~<d>n~n
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF	The set command is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

[Function]

Making the character barcode top and bottom of the first and last digits the same length as the guard bar.

[Format]

<BL>abbcccn~n~<d>n~n

• Parameter

a: "Barcode type"	= H: UPC-A ('H' fixed)
b: "Narrow bar width"	= Valid range: 01 to 36 (dots)
c: "Barcode top and bottom"	= Valid range: 001 to 800 (dots)
n "Print data"	= Data: Fixed by 11 digits *1
d: "Character type designation"	= OA OB XU XS XM XB XL U S M WB WL
N: "Print data"	= HRI data: Fixed by 12 digits

[Coding Example]

Barcode type: UPC-A, Narrow bar width: 02, Barcode top and bottom: 120, Print data: 01234567890, Character type: XS, HRI data: 01234567890

<A>

<H>100<V>100<BL>H0212001234567890

<XS>01234567890

<Q>2

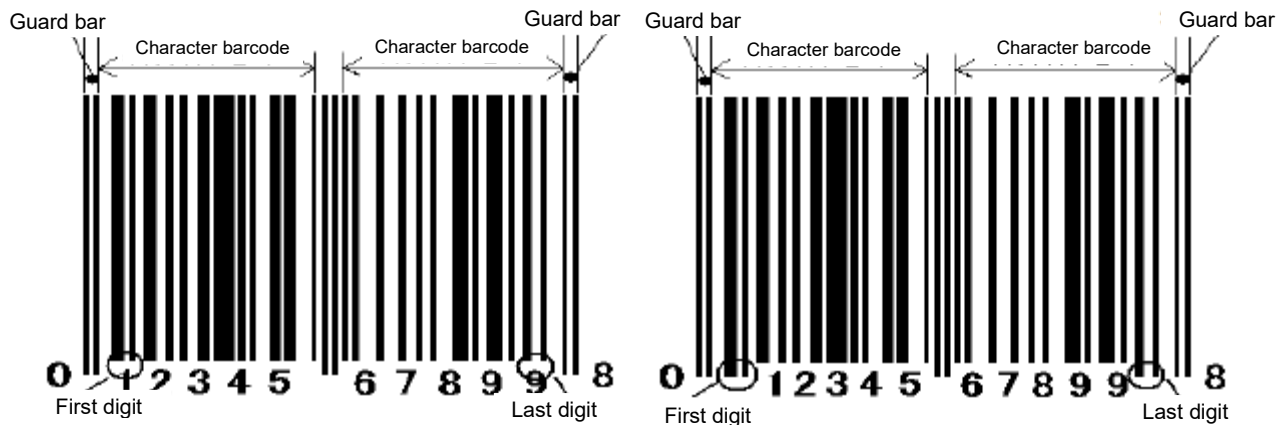
<Z>

[Supplemental Explanation]

1. This command only supports UPC-A. A command error will occur if a barcode type other than 'H' is specified.
2. It is appropriate to specify a narrow bar width value of "02" or "03" for the HRI character.
3. The check digit, which is the 12th digit of the HRI data, must be set correctly using the modulus 10.
4. The guard bar, HRI characters, and ratio settings are as follows.

Guard bar	HRI characters	Ratio
Available	Available	Fixed

5. The operation when a parameter outside the range is set is not supported.
6. When a barcode with HRI text is in error, no HRI text is printed.
7. All character barcodes have the same height when printing UPC-A specifying <D> and then <character type>. The first and the last character barcodes have the same height to the guard bar when printing UPC-A specifying <BL> and then <character type>. When printing UPC-A specifying <D> and <character type>, HRI can be printed under the first digit and the last digit because the height of the first digit and the last digit of the barcode is low. When printing UPC-A specifying <BL> and <character type>, the height of the first digit and the last digit of the barcode is high, and the font interval is narrower than the previous case.



UPC-A print result by specifying <character type> data after barcode specification <D>

UPC-A Barcode specification <BL> followed by <character type> data specification print result

9.16. ESC+BM: UPC-A BARCODE SPECIFICATION (with HRI)

UPC-A Barcode Specification (with HRI)			ESC+BM
Hexadecimal Code	ESC	BM	Parameter
	<1B> ₁₆	<42> ₁₆ <4D> ₁₆	abbcccn~n
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF	The set command is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

[Function]

Making the character barcode top and bottom of the first and last digits the same length as the guard bar.

[Format]

<BM>abbcccn~n

• Parameter

a: "Barcode type" = H: UPC-A ('H' fixed)
b: "Narrow bar width" = Valid range: 01 to 36 (dots)
c: "Barcode top and bottom" = Valid range: 001 to 800 (dots)
n: "Print data" = Data: Fixed by 11 digits

[Coding Example]

Barcode type: UPC-A, Narrow bar width: 02, Barcode top and bottom: 120, Print data: 20123948573

<A>

<H>100<V>100<BM>H0212020123948573

<Q>2

<Z>

[Supplemental Explanation]

1. This command only supports UPC-A. A command error will occur if a barcode type other than 'H' is specified.

2. The following conditions are required for HRI characters.

For 203 dpi (8 dots/mm): Specify the narrow bar width value as [02] or [03].

For 305 dpi (12 dots/mm): Specify the narrow bar width value as [03] or [04].

For 600 dpi (24 dots/mm): Specify the narrow bar width value as [06] or [07].

When a value other than the above is specified, automatic HRI text are not printed.

3. The guard bar, HRI characters, and ratio settings are as follows.

Guard bar	HRI characters	Ratio
Available	Available	Fixed

4. The operation is not supported when parameters outside the range are set.

5. When printing UPC-A using the barcode designation <BD>, the character barcode top and bottom are all the same length. However, in the case of UPC-A barcode designation <BM>, the character barcode length of the first digit and the last digit is the same as the guard bar length. In addition, when printing UPC-A using the barcode specification <BD>, the barcode character of the first and last digits of the character barcode is short, so the HRI string can be printed from the bottom of the first and last digits. However, in the case of UPC-A barcode specification <BM>, the character space is narrower than barcode specification <BD> because the top and bottom barcodes are long.



Printing result by UPC-A barcode specification
<BD>



Printing result by UPC-A barcode specification
<BM>

9.17. ESC+BZ: SPECIFY CUSTOMER BARCODE

Specify Customer Barcode			ESC+BZ
Hexadecimal Code	ESC	BZ	Parameter
	<1B> ₁₆	<42> ₁₆ <5A> ₁₆	aaaaaaa,n~n
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF	The set command is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

[Function]

Specifying the customer barcode.

[Format]

<BZ>aaaaaaa,n~n

• Parameter

a: "Postal code" = Number: 0000000 to 9999999 (Fixed by 7 digits fixed)

n: "Print data" = Data (Address display number) (Max. 13 digits)

(Refer to customer barcode code table.)

[Coding Example] Postal code: 3310043, Print data: 1-207

<A>

<V>100<H>200<BZ>3310043,1-207

<Q>2

<Z>



[Supplemental Explanation]

1. Alphanumeric characters and hyphens (-) can be specified as print data. (See the code table.)
2. If an alphabetic character is specified in the print data, a control code + English font code will be used and the calculation will be 2 digits. So, care must be taken not to exceed 13 digits in the print data.
3. When an alphabetic character is specified for the print data, one alphabetic character is handled as a control code + numeric code and becomes 2 digits of data. If 10 alphabetic characters "ABCDEFGHJIJ" are specified for the print data, a control code + numeric code 2 digits x 6 characters will be 12 digits of data up to the first 6 characters "ABCDEF". The seventh character "G" is valid up to a control code + numeric code up to 13 digits, so the control code is valid, but the remaining numeric code is invalid because it is the 14th digit. "HIJ" after the 8th character is invalid because it exceeds 13 digits.

For example, "ABCDEFGHJIJ"

(1) "ABCDEF": 6 characters x 2 digits (control code + numeric code), 12 digits in total

Data is valid for all 6 characters

(2) "G": 1 character x 2 digits (control code + numeric code), 2 digits in total

Within one character, the control code is valid within 13 digits, and the numeric code is invalid because it is the 14th digit.

(3) "HIJ": 3 characters x 2 digits (control code + numeric code), 6 digits in total

All are invalid because it exceeds 14 digits

4. The start and stop characters and C / D are automatically added.
5. When the number of print data digits is less than 13, the control code (CC4) is automatically added. If the number of print data digits exceeds 13, the data after the 14th digit will be invalid.
6. If a parameter other than those listed is specified or the number of print data does not match, the barcode may not be printed correctly or may not be read by the scanner.

Customer barcode code table

					S1								S0							
				B8	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1
				B7	0	0	0	0	1	1	1	1	0	0	0	0	1	1	1	1
				B6	0	0	1	1	0	0	1	1	0	0	1	1	0	0	1	1
				B5	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1
B4	B3	B2	B1		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	0	0	0	0				0		P										
0	0	0	1	1				1	A	Q										
0	0	1	0	2				2	B	R										
0	0	1	1	3				3	C	S										
0	1	0	0	4				4	D	T										
0	1	0	1	5				5	E	U										
0	1	1	0	6				6	F	V										
0	1	1	1	7				7	G	W										
1	0	0	0	8				8	H	X										
1	0	0	1	9				9	I	Y										
1	0	1	0	A					J	Z										
1	0	1	1	B					K											
1	1	0	0	C					L											
1	1	0	1	D			-		M											
1	1	1	0	E					N											
1	1	1	1	F					O											

10. DIMENSION CODE COMMAND

10.1. ESC+2D10: PDF417

PDF417			ESC+ 2D10
Hexadecimal Code	ESC	2D10	Parameter
	<1B> ₁₆	<32> ₁₆ <44> ₁₆ <31> ₁₆ <30> ₁₆	,aa,bb,c,dd,ee(,f)
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF	The set command is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

[Function]

Specifying the two-dimensional code PDF417.

[Format] (Setting part)

<2D10>,aa,bb,c,dd,ee(,f)

- Parameter

- a: "Minimum module width" = Valid range: 01 to 27 (dots)
- b: " Minimum module vertical dimension" = Valid range: 01 to 72 (dots)
- c: "Security level" = Valid range: 0 to 8
- d: "Number of data code words per line" = Valid range: 01 to 30
00: Automatic
(The horizontal size is variable depending on the number of specified data.)
- e: "Number of lines per symbol" = Valid range: 03 to 90
00: Automatic
(The vertical size is variable depending on the number of specified data.)
- f: "Code type" = 0: Usually When omitted: 0 (Optional)
1: Truncation type

[Format] (Data part)

<DN>mmmm,n~n

- Parameter

- m: "The number of data" = Valid range: 1 to 2000(bytes)
- n: "Print data" = Data

[Coding Example 1]

Minimum module width: 03 (dots), Minimum module vertical dimension: 09 (dots), Security level: 3, Number of data code words per line: 03, Number of lines per symbol: 18

<A>

<V>100<H>200<2D10>03,09,3,03,18

<DN>0010,0123456789

<Q>2

<Z>



[Coding Example 2]

Minimum module width: 03 (dots), Minimum module vertical dimension: 09 (dots), Security level: 3, Number of data code words per line: 03, Number of lines per symbol: 18, Code type: Truncation type

<A>

<V>100<H>200<2D10>03,09,3,03,18,1

<DN>0010,0123456789

<Q>2

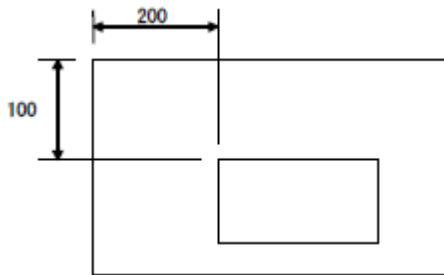
<Z>



[Supplemental Explanation]

1. Use print vertical position specification <V> and print horizontal position specification <H> to specify the print base position of PDF417.

<V>100<H>200<2D10>*****



2. When $d = e = 00$, the vertical and horizontal size (aspect ratio) becomes 1: 2 depending on the number of specified data.
3. If the d and e specifications do not match the number of data, printing may not be performed correctly.
4. If a large security level is specified, d or e must be specified large.
5. Since the minimum module width dimension and the minimum module height dimension may not be read, it is necessary to specify 02 dots or more when the head density is 203 dpi or 305 dpi and 04 dots or more when the head density is 600 dpi.

[Note]

1. A sequential number is not available.
2. The print position cannot be specified by automatic line feed.
3. The printing specification from 00H to FFH is possible.
4. The format registration is possible.
5. The print height is different for alphabetic characters only, numbers only, and alphanumeric characters.
6. If the number of data exceeds 2000 bytes, the barcode is not printed.

PDF417 code table

				S1								S0							
				B8	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1
				B7	0	0	0	0	1	1	1	1	0	0	0	0	1	1	1
				B6	0	0	1	1	0	0	1	1	0	0	1	1	0	0	1
				B5	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0
B4	B3	B2	B1		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E
0	0	0	0	0			SP	0	@	P	`	p							
0	0	0	1	1			!	1	A	Q	a	q							
0	0	1	0	2			“	2	B	R	b	r							
0	0	1	1	3			#	3	C	S	c	s							
0	1	0	0	4			\$	4	D	T	d	t							
0	1	0	1	5			%	5	E	U	e	u							
0	1	1	0	6			&	6	F	V	f	v							
0	1	1	1	7			‘	7	G	W	g	w							
1	0	0	0	8			(	8	H	X	h	x							
1	0	0	1	9			)	9	I	Y	i	y							
1	0	1	0	A			*	:	J	Z	j	z							
1	0	1	1	B			+	;	K	[	k	{							
1	1	0	0	C			,	<	L	¥	l								
1	1	0	1	D			-	=	M	]	m	}							
1	1	1	0	E			.	>	N	^	n	~							
1	1	1	1	F			/	?	O	_	o	DEL							

"00H to FFH" can be specified for PDF417.

10.2. ESC+2D12: MICRO PDF417

Micro PDF417			ESC+ 2D12
Hexadecimal Code	ESC	2D12	Parameter
	<1B> ₁₆	<32> ₁₆ <44> ₁₆ <31> ₁₆ <32> ₁₆	,aa,bb,c,dd,(e)
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF	The set command is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

[Function]

Specifying the 2D code micro PDF417.

[Format] (Setting part)

<2D12>,aa,bb,c,dd,(e)

• Parameter

- a: "Minimum module width" = Valid range: 01 to 27 (dots)
- b: "Minimum module vertical dimension" = Valid range: 01 to 72 (dots)
- c: "Number of data code words per line" (Cols) = Valid range: 1 to 4
- d: "Number of lines per symbol" (Rows) = Valid range: 2 digits
- e: "Binary mode specification" = 0: Usually, When omitted: 0 (Optional)
1: Binary mode (Not supported *1)

*1. Since the mode (number, alphabet, binary) is automatically determined based on the specified print data, specifying "binary mode" is not supported.

[Format] (Data part)

<DN>mmmm,n~n: When the binary mode is specified as "binary mode"

<DS>n~n: When the Binary mode specification is "normal"

• Parameter

- m: "The number of data" = Valid range: 1 to 0366 (bytes)
- n: "Print data" = Data

[Coding Example]

Module width dimensions: 02 (dots), Minimum module vertical dimension: 04 (dots)

Number of data code words per line: 1, Number of lines per symbol: 14

<A>

<V>100<H>200<2D12>_02,04,1,14

<DN>0010,0123456789

<Q>2

<Z>



[Supplemental Explanation]

1. The number of lines per the symbol is determined by specifying the number of the data code words per the line. For details, see "Micro PDF417 Symbol Size and Number of Data".

* The symbol size of Micro PDF417 is fixed to 34 types shown in the table below.

"Micro PDF417 symbol size and number of data"

Symbol sizes		Maximum number of data		
Cols(c)	Rows(d)	Alphabet (A to Z) only	Number only	Binary mode
1	11	6	8	3
	14	12	17	7
	17	18	26	10
	20	22	32	13
	24	30	44	18
	28	38	55	22
2	8	14	20	8
	11	24	35	14
	14	36	52	21
	17	46	67	27
	20	56	82	33
	23	64	93	38
	26	72	105	43
3	6	10	14	6
	8	18	26	10
	10	26	38	15
	12	34	49	20
	15	46	67	27
	20	66	96	39
	26	90	132	54
	32	114	167	68
	38	138	202	82
	44	162	237	97
4	4	14	20	8
	6	22	32	13
	8	34	49	20
	10	46	67	27
	12	58	85	34
	15	76	111	45
	20	106	155	63
	26	142	208	85
	32	178	261	106
	38	214	313	128
	44	250	366	150

* Mixing of alphabets (uppercase and lowercase), numbers and control codes will vary depending on the number of characters in the combination.

Micro PDF417 code table

					S1								S0							
				B8	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1
				B7	0	0	0	0	1	1	1	1	0	0	0	0	1	1	1	1
				B6	0	0	1	1	0	0	1	1	0	0	1	1	0	0	1	1
				B5	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1
B4	B3	B2	B1		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	0	0	0	0			SP	0	@	P	`	p								
0	0	0	1	1			!	1	A	Q	a	q								
0	0	1	0	2			“	2	B	R	b	r								
0	0	1	1	3			#	3	C	S	c	s								
0	1	0	0	4			\$	4	D	T	d	t								
0	1	0	1	5			%	5	E	U	e	u								
0	1	1	0	6			&	6	F	V	f	v								
0	1	1	1	7			‘	7	G	W	g	w								
1	0	0	0	8			(	8	H	X	h	x								
1	0	0	1	9			)	9	I	Y	i	y								
1	0	1	0	A			*	:	J	Z	j	z								
1	0	1	1	B			+	;	K	[	k	{								
1	1	0	0	C			,	<	L	¥	l									
1	1	0	1	D			-	=	M	]	m	}								
1	1	1	0	E			.	>	N	^	n	~								
1	1	1	1	F			/	?	O	_	o	DEL								

"00H to FFH" can be specified for Micro PDF417.

10.3. ESC+2D20: MAXI CODE

MAXI Code			ESC+ 2D20
Hexadecimal Code	ESC	2D20	Parameter
	<1B> ₁₆	<32> ₁₆ <44> ₁₆ <32> ₁₆ <30> ₁₆	,a(,bbb,ccc,d~d)
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF	The set command is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

[Function]

Specifying the 2D code MAXI code.

[Format] (Setting part)

<2D20>,a(,bbb,ccc,d~d)

- Parameter

a: "Mode" = 2: Delivery only (numbers only)
 3: Delivery only (alphanumeric)
 4: Standard symbol
 6: Dedicated to reader

* The following parameters must be specified when mode 2 or 3 is specified. When mode 4 or 6 is specified, the following parameters are omitted.

b: "Class of service" = Valid range: 001 to 999 (number)
 c: "Country code" = Valid range: 001 to 999 (number)
 d: "Postal code" = Valid range: 0 to 999999999 (Mode 2)
 000000 to 999999 (Mode 3)

* For mode 2: up to 9 digits (numeric only)
 For mode 3: 6 digits (alphabets are uppercase only).

[Format] (Data part)

<DN>mmmm,n~n

- Parameter

m: "The number of data" = Valid range: 1 to 93

n: "Print data" = Data

* "00H" cannot be specified.

can not be specified.

Mode	Service class	Country code	Postal code	Maximum number of print data	
				Number only	Alphanumeric
2	3 digits (fixed) (number only)	3 digits (fixed) (number only)	Max. 9 digits	123	84
3			6 digits (fixed) (alphanumeric)		
4	Omitted			138	93
6					

[Coding Example]

Mode: Delivery only (numbers only), Class of service: 003, Country code: 081, Postal code: 123456789

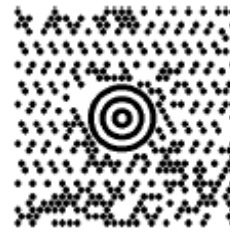
<A>

<V>100<H>200<2D20>,2,003,081,123456789

<DN>0010,0123456789

<Q>2

<Z>



[Supplemental Explanation]

1. In the MAXI code, the size of the MAXI code printed does not change depending on the number of print data.
2. Printing will not be performed if parameters other than those listed or the number of print data do not match.
3. When modes 4 and 6 are specified, the number of print data must be 12 or more. The MAXI code printed when the number of print data is specified as 11 or less cannot be read by the scanner.
4. When non-alphanumeric codes are used for print data, the maximum number of print data differs depending on the print data combination.
5. If the number of print digits exceeds 84 in modes 2 and 3, printing will not be performed.
6. If the number of print digits exceeds 93 in modes 4 and 6, printing will not be performed.

MAXI code table

				S1								S0							
				B8	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1
				B7	0	0	0	0	1	1	1	1	0	0	0	0	1	1	1
				B6	0	0	1	1	0	0	1	1	0	0	1	1	0	0	1
				B5	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0
B4	B3	B2	B1		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E
0	0	0	0	0			SP	0	@	P	`	p							
0	0	0	1	1			!	1	A	Q	a	q							
0	0	1	0	2			"	2	B	R	b	r							
0	0	1	1	3			#	3	C	S	c	s							
0	1	0	0	4			\$	4	D	T	d	t							
0	1	0	1	5			%	5	E	U	e	u							
0	1	1	0	6			&	6	F	V	f	v							
0	1	1	1	7			'	7	G	W	g	w							
1	0	0	0	8			(	8	H	X	h	x							
1	0	0	1	9			)	9	I	Y	i	y							
1	0	1	0	A			*	:	J	Z	j	z							
1	0	1	1	B			+	;	K	[	k	{							
1	1	0	0	C			,	<	L	¥	l								
1	1	0	1	D			-	=	M	]	m	}							
1	1	1	0	E			.	>	N	^	n	~							
1	1	1	1	F			/	?	O	_	o	DEL							

"01H to FFH" can be specified for the MAXI code.

10.4. ESC+2D30: QR CODE (MODEL 2)

QR Code (Model 2)			ESC+ 2D30
Hexadecimal Code	ESC	2D30	Parameter
	<1B> ₁₆	<32> ₁₆ <44> ₁₆ <33> ₁₆ <30> ₁₆	,a,bb,c,d(,ee,ff,gg)
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF	The set command is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

[Function]

Specifying the 2D code QR code (model 2).

[Format] (Setting part)

<2D30>,a,bb,c,d(,ee,ff,gg)

- Parameter

a: "Error correction level (Error correction)" = L: 7%
M: 15%
Q: 25%
H: 30%

b: "Specify the size of one side of a cell" = Valid range: 01 to 99 (dots)
* If the head density is 305 dpi, the scanner may not be able to read it unless you specify more than 02 dots.
For the stable operation, it is recommended to print 4 dots or more.
* If the head density is 600 dpi, the scanner may not be able to read it unless you specify more than 04 dots.
For the stable operation, it is recommended to print 8 dots or more.

c: "Data setting mode" = 0: Manual setting
1: Automatic setting
* Note that the print data specification differs depending on this setting.

d: "Concatenation mode" = 0: Normal mode
1: Concatenation mode

The following parameters must be specified when 1 (Concatenation mode) is specified in the Concatenation mode.

In the normal mode, the following parameters are omitted.

e: "Number of Concatenation mode divisions" = Valid range: 01 to 16
* The number of divisions specifies how many QR codes divided by the Concatenation mode are concatenated.

f: "Serial number divided in concatenation mode" = Valid range: 01 to 16
* The serial number specifies the number of the divided QR code.

g: "Concatenation mode parity data" = Valid range: 00 to FF
* Parity data specifies the data obtained by computing (exclusive logical sum XOR) all the divided QR code print data in hexadecimal characters.

[Format] (Data part)

When setting manually (Data setting mode)

<DS>k,n~n * Used when the input mode specification is number mode, alphanumeric mode specification, or kanji code specification.

<DN>mmmm,n~n * Used when specifying in binary.

When setting automatically (Data setting mode)

<DN>mmmm,n~n * The input mode specification is automatically switched according to the input data.

[Format] (Version specification)

<QV>pp * Used to specify the version.

- Parameter

k: "Input mode" = 1: Number mode
2: Alphanumeric mode
3: Kanji mode (shift JIS Kanji code)

* This setting is specified only when manual setting is specified in the data setting mode.

* In addition to the above, this setting has binary specification, but it must be noted that the data specification command is different.

m: "The number of data" = Valid range: 1 to 2000

* This setting is set when the automatic setting is specified in the data setting mode or when the manual setting binary is specified.

n: "Print data" = Data

pp: "Version specification" = 00 to 40 (Model 2)

* This specification is used when the QR symbol size is fixed in the version specification. Automatic if not specified. Even if 00 is specified, it is automatic. Parameter errors do not occur in the range of 00 to 40.

[Supplemental Explanation 1]

1. When Kanji is specified in <DN>, select the size of the number of Kanji characters x 2.
2. When <DN> is specified during automatic setting, if data of 80H to 9FH or E0H to FFH is specified, it will be handled in the Kanji mode and cannot be specified as binary.

[Coding Example 1]

Error collection level: 7%, Size of one side of a cell: 05, Data setting mode: Manual setting, Concatenation mode: Usually

<A>
<V>100<H>200<2D30>,L,05,0,0
<DS>1,012345
<Q>2
<Z>



[Supplemental Explanation 2]

1. Printing will not be performed if parameters other than those listed or the number of print data do not match.
2. The data part has different data designation commands depending on the setting of the parameter part and the contents of the designated data.

[Coding Example 2]

Error collection level: 7%, Size of one side of a cell: 04,
Manual setting (Data setting mode) mixed specification

In the manual setting, data in the input mode (number, alphanumeric, kanji, binary) specified in the data section can be selected continuously.

<A>
<V>100<H>200
<2D30>,L,04,0,0
<DS>3,SATO
<DN>0010,0123456789
<DS>1,123
<Q>1
<Z>

[Supplemental Explanation 3]

1. The data part is specified after the parameter part. Data parts are also specified in succession. If you do not specify it continuously, it may not print correctly.
2. Set the total number of data (n) in this specification to 7000 bytes or less. In addition, the maximum number of blocks in the data portion to be specified subsequently is 200 blocks.

[Coding Example 3]

Error collection level: 7%, Size of one side of a cell: 05,

Data setting mode: Manual setting, Concatenation mode: Usually, printed with version 5

<A>

<V>100<H>200<2D30>,L,05,0,0

<QV>5

<DS>1,012345

<DN>0004,6789

<Q>1

<Z>

[Supplemental Explanation 4]

1. The <QV> command is specified between <2Dxx> and <DN> / <DS>.
2. If a parameter error occurs, it will be treated as if it was not specified.
3. A parameter error does not occur in the range of 00 to 40. (Set the value within the range corresponding to the model.) In model 2, it becomes 00 to 40.
4. This command is ignored if data exceeding the upper limit data size of the specified version is sent.

QR code data size list (For model 2)

Version	Error correction	Number	Alphanumeric	Kanji	Binary
1 21×21	L	41	25	10	17
	M	34	20	8	14
	Q	27	16	7	11
	H	17	10	4	7
2 25×25	L	77	47	20	32
	M	63	38	16	26
	Q	48	29	12	20
	H	34	20	8	14
3 29×29	L	127	77	32	53
	M	101	61	26	42
	Q	77	47	20	32
	H	58	35	15	24
4 33×33	L	187	114	48	78
	M	149	90	38	62
	Q	111	67	28	46
	H	82	50	21	34
5 37×37	L	255	154	65	106
	M	202	122	52	84
	Q	144	87	37	60
	H	106	64	27	44
6 41×41	L	322	195	82	134
	M	255	154	65	106
	Q	178	108	45	74
	H	139	84	36	58
7 45×45	L	370	224	95	154
	M	293	178	75	122
	Q	207	125	53	86
	H	154	93	39	64
8 49×49	L	461	279	118	192
	M	365	221	93	152
	Q	259	157	66	108
	H	202	122	52	84
9 53×53	L	552	335	141	230
	M	432	262	111	180
	Q	312	189	80	130
	H	235	143	60	98
10 57×57	L	652	395	167	271
	M	513	311	131	213
	Q	364	221	93	151
	H	288	174	74	119

Version	Error correction	Number	Alphanumeric	Kanji	Binary
11 61×61	L	772	468	198	321
	M	604	366	155	251
	Q	427	259	109	177
	H	331	200	85	137
12 65×65	L	883	535	226	367
	M	691	419	177	287
	Q	489	296	125	203
	H	374	227	96	155
13 69×69	L	1022	619	262	425
	M	796	483	204	331
	Q	580	352	149	241
	H	427	259	109	177
14 73×73	L	1101	667	282	458
	M	871	528	223	362
	Q	621	376	159	258
	H	468	283	120	194
15 77×77	L	1250	758	320	520
	M	991	600	254	412
	Q	703	426	180	292
	H	530	321	136	220
16 81×81	L	1408	854	361	586
	M	1082	656	277	450
	Q	775	470	198	322
	H	602	365	154	250
17 85×85	L	1548	938	397	644
	M	1212	734	310	504
	Q	876	531	224	364
	H	674	408	173	280
18 89×89	L	1725	1046	442	718
	M	1346	816	345	560
	Q	948	574	243	394
	H	746	452	191	310
19 93×93	L	1903	1153	488	792
	M	1500	909	384	624
	Q	1063	644	272	442
	H	813	493	208	338
20 97×97	L	2061	1249	528	858
	M	1600	970	410	666
	Q	1159	702	297	482
	H	919	557	235	382

QR code data size list (For model 2)

Version	Error correction	Number	Alphanumeric	Kanji	Binary
21 101×101	L	2232	1352	572	929
	M	1708	1035	438	711
	Q	1224	742	314	509
	H	969	587	248	403
22 105×105	L	2409	1460	618	1003
	M	1872	1134	480	779
	Q	1358	823	348	565
	H	1056	640	270	439
23 109×109	L	2620	1588	672	1091
	M	2059	1248	528	857
	Q	1468	890	376	611
	H	1108	672	284	461
24 113×113	L	2812	1704	721	1171
	M	2188	1326	561	911
	Q	1588	963	407	661
	H	1228	744	315	511
25 117×117	L	3057	1853	784	1273
	M	2395	1451	614	997
	Q	1718	1041	440	715
	H	1286	779	330	535
26 121×121	L	3283	1990	842	1367
	M	2544	1542	652	1059
	Q	1804	1094	462	751
	H	1425	864	365	593
27 125×125	L	3517	2132	902	1465
	M	2701	1637	692	1125
	Q	1933	1172	496	805
	H	1501	910	385	625
28 129×129	L	3669	2223	940	1528
	M	2857	1732	732	1190
	Q	2085	1263	534	868
	H	1581	958	405	658
29 133×133	L	3909	2369	1002	1628
	M	3035	1839	778	1264
	Q	2181	1322	559	908
	H	1677	1016	430	698
30 137×137	L	4158	2520	1066	1732
	M	3289	1994	843	1370
	Q	2358	1429	604	982
	H	1782	1080	457	742

Version	Error correction	Number	Alphanumeric	Kanji	Binary
31 141×141	L	4417	2677	1132	1840
	M	3486	2113	894	1452
	Q	2473	1499	634	1030
	H	1897	1150	486	790
32 145×145	L	4686	2840	1201	1952
	M	3693	2238	947	1538
	Q	2670	1618	684	1112
	H	2022	1226	518	842
33 149×149	L	4965	3009	1273	2068
	M	3909	2369	1002	1628
	Q	2805	1700	719	1168
	H	2157	1307	553	898
34 153×153	L	5253	3183	1347	2188
	M	4134	2506	1060	1722
	Q	2949	1787	756	1228
	H	2301	1394	590	958
35 157×157	L	5529	3351	1417	2303
	M	4343	2632	1113	1809
	Q	3081	1867	790	1283
	H	2361	1431	605	983
36 161×161	L	5836	3537	1496	2431
	M	4588	2780	1176	1911
	Q	3244	1966	832	1351
	H	2524	1530	647	1051
37 165×165	L	6153	3729	1577	2563
	M	4775	2894	1224	1989
	Q	3417	2071	876	1423
	H	2625	1591	673	1093
38 169×169	L	6479	3927	1661	2699
	M	5039	3054	1292	2099
	Q	3599	2181	923	1499
	H	2735	1658	701	1139
39 173×173	L	6743	4087	1729	2809
	M	5313	3220	1362	2213
	Q	3791	2298	972	1579
	H	2927	1774	750	1219
40 177×177	L	7089	4296	1817	2953
	M	5596	3391	1435	2331
	Q	3993	2420	1024	1663
	H	3057	1852	784	1273

10.5. ESC+2D31: QR CODE (MODEL 1)

QR Code (Model 1)			ESC+ 2D31
Hexadecimal Code	ESC	2D31	Parameter
	<1B> ₁₆	<32> ₁₆ <44> ₁₆ <33> ₁₆ <31> ₁₆	,a,bb,c,d(,ee,ff,gg)
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF	The set command is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

[Function]

Specifying the 2D code QR code (Model 1).

[Format] (Setting part)

<2D31>,a,bb,c,d(,ee,ff,gg)

- Parameter

- a: "Error correction level (Error correction) 2" = L: 7%
M: 15%
Q: 25%
H: 30%
- b: "Specify the size of one side of a cell" = Valid range: 01 to 99 (dots)
* If the head density is 305 dpi, the scanner may not be able to read it unless you specify more than 02 dots.
For the stable operation, it is recommended to print 4 dots or more.
* If the head density is 600 dpi, the scanner may not be able to read it unless you specify more than 04 dots.
For the stable operation, it is recommended to print 8 dots or more.
- c: "Data setting mode" = 0: Manual setting
1: Automatic setting
* Note that the print data specification differs depending on this setting.
- d: "Concatenation mode" = 0: Normal mode
1: Concatenation mode

The following parameters must be specified when 1 (concatenation mode) is selected in the concatenation mode.
In the normal mode, the following parameters are omitted.

- e: "Number of concatenation mode divisions" = Valid range: 01 to 16
* The number of divisions specifies how many QR codes divided by the concatenation mode are concatenated.
- f: "Serial number divided in concatenation mode" = Valid range: 01 to 16
* The serial number specifies the number of the divided QR code.
- g: "Concatenation mode parity data" = Valid range: 00 to FF
* Parity data is specified by hexadecimal characters as data obtained by computing (exclusive logical sum XOR) of all the divided QR code print data.

[Format] (Data part)

When setting manually (Data setting mode)

<DS>k,n~n * Used when the input mode specification is the number mode, alphanumeric mode specification, or kanji code specification.

<DN>mmmm,n~n * Used when specifying in binary.

When setting automatically (Data setting mode)

<DN>mmmm,n~n * The input mode designation is automatically switched according to the input data.

[Format] (Version specification) (Not supported)

<QV>pp * Specifying this when you want to set the version. (If the version setting is specified, it is ignored.)

- Parameter

k: "Input mode" = 1: Number mode
2: Alphanumeric mode
3: Kanji mode (Shift JIS Kanji code)

* This setting is specified only when manual setting is specified in the data setting mode.

* In addition to the above, this setting has binary specification; however, it must be noted that the data specification command is different.

m: "The number of data" = Valid range: 1 to 486

* This setting is set when automatic setting is specified in the data setting mode or when binary setting is specified manually.

n: "Print data" = Data

pp: "Version specification" = 00 to 14 (Model 1) (Not supported)

* Even if the version setting is specified, it is ignored. Therefore, the size of the counter machine and the barcode may be different.

[Supplemental Explanation 1]

1. When Kanji is specified in <DN>, specify the size of the number of Kanji characters x 2.
2. When <DN> is specified during automatic setting, if data of 80H to 9FH or E0H to FFH is specified, it will be handled in Kanji mode and cannot be specified as binary.

[Coding Example 1]

Error collection level: 7%, Size of one side of a cell: 05, Data setting mode: Manual setting, Concatenation mode: Usually

<A>

<V>100<H>200<2D31>,<L>05,0,0

<DS>1,012345

<Q>2

<Z>



[Supplemental Explanation 2]

1. Printing will not be performed if parameters other than those listed or the number of print data do not match.
2. The data specification command for the data part differs depending on the setting of the parameter part and the content of the specified data.

[Coding Example 2]

Error collection level: 7%, Size of one side of a cell: 04,

Manual setting (Data setting mode) mixed specification

In the manual setting, data in the input mode (number, alphanumeric, kanji, binary) specified in the data section can be selected continuously.

<A>

<V>100<H>200

<2D31>,L,04,0,0

<DS>3,SATO

<DN>0010,0123456789

<DS>1,123

<Q>1

<Z>

[Supplemental Explanation 3]

1. The data part is specified after the parameter part. Data parts are also specified in succession. If you do not specify it continuously, it may not print correctly.

10.6. ESC+2D32: MICRO QR CODE

Micro QR Code			ESC+ 2D32
Hexadecimal Code	ESC	2D32	Parameter
	<1B> ₁₆	<32> ₁₆ <44> ₁₆ <33> ₁₆ <32> ₁₆	,a,bb,c
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF	The set command is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

[Function]

Specifying the 2D code QR code (micro QR code).

[Format] (Setting part)

<2D32>,a,bb,c

- Parameter

- a: "Error correction level (Error correction)" = L: 7%
M: 15%
Q: 25%
- b: "Specify the size of one side of a cell" = Valid range: 01 to 99 (dots)
- c: "Data setting mode" = 0: Manual setting
1: Automatic setting

[Format] (Data part)

When setting manually (Data setting mode)

<DS>k,n~n * Used when the input mode specification is number mode, alphanumeric mode specification, or kanji code specification.

<DN>mmmm,n~n * Used when specifying in binary.

When setting automatically (Data setting mode)

<DN>mmmm,n~n * The input mode designation is automatically switched according to the input data.

[Format] (Version specification) (Not supported)

<QV>pp * Use this when you want to specify a version. (If the version setting is specified, it is ignored.)

- Parameter

- k: "Input mode" = 1: Number mode
2: Alphanumeric mode
3: Kanji mode (Shift JIS Kanji code)

* In addition to the above, this setting has the binary specification, but care must be taken because the data specification command is different.

- m: "The number of data" = Valid range: 1 to 15

* This setting is set when the automatic setting is specified in the data setting mode.

- n: "Print data" = Data

- pp: "Version specification" = 00 to 04 (MicroQR M1 to M4) (Not supported)

* If the version setting is specified, it is ignored. Therefore, the size of the counter machine and the barcode may be different.

[Supplemental Explanation 1]

1. When Kanji is specified in <DN>, specify the size of the number of Kanji characters x 2.
2. When <DN> is specified during the automatic setting, if data of 80H to 9FH or E0H to FFH is specified, it will be handled in the Kanji mode and cannot be specified as binary.

[Coding Example 1]

Error collection level: 7%, Size of one side of a cell: 04

<A>

<V>100<H>200<2D32>,L,04,0

<DS>1,012345

<Q>2

<Z>

[Supplemental Explanation 2]

1. Printing will not be performed if parameters other than those listed or the number of print data do not match.
2. The data specification command for the data part differs depending on the setting of the parameter part and the content of the specified data.

[Coding Example 2]

Error collection level: 7%, Size of one side of a cell: 04,

Manual setting (Data setting mode) mixed specification

In manual setting, data in the input mode (number, alphanumeric, kanji, binary) specified in the data part can be specified continuously.

<A>

<V>100<H>200

<2D32>,L,04,0

<DS>3,SATO

<DN>0006,012345

<DS>1,123

<Q>1

<Z>

QR code (number mode) code table

					S1								S0							
				B8	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1
				B7	0	0	0	0	1	1	1	1	0	0	0	0	1	1	1	1
				B6	0	0	1	1	0	0	1	1	0	0	1	1	0	0	1	1
				B5	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1
B4	B3	B2	B1		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	0	0	0	0				0												
0	0	0	1	1				1												
0	0	1	0	2				2												
0	0	1	1	3				3												
0	1	0	0	4				4												
0	1	0	1	5				5												
0	1	1	0	6				6												
0	1	1	1	7				7												
1	0	0	0	8				8												
1	0	0	1	9				9												
1	0	1	0	A																
1	0	1	1	B																
1	1	0	0	C																
1	1	0	1	D																
1	1	1	0	E																
1	1	1	1	F																

QR code (alphanumeric mode) code table

					S1								S0							
				B8	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1
				B7	0	0	0	0	1	1	1	1	0	0	0	0	1	1	1	1
				B6	0	0	1	1	0	0	1	1	0	0	1	1	0	0	1	1
				B5	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1
B4	B3	B2	B1		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	0	0	0	0			SP	0		P										
0	0	0	1	1				1	A	Q										
0	0	1	0	2				2	B	R										
0	0	1	1	3				3	C	S										
0	1	0	0	4			\$	4	D	T										
0	1	0	1	5			%	5	E	U										
0	1	1	0	6				6	F	V										
0	1	1	1	7				7	G	W										
1	0	0	0	8				8	H	X										
1	0	0	1	9				9	I	Y										
1	0	1	0	A			*	:	J	Z										
1	0	1	1	B			+		K											
1	1	0	0	C					L											
1	1	0	1	D			-		M											
1	1	1	0	E			.		N											
1	1	1	1	F			/		O											

QR code (binary mode) code table

					S1								S0							
				B8	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	
				B7	0	0	0	0	1	1	1	1	0	0	0	0	1	1	1	
				B6	0	0	1	1	0	0	1	1	0	0	1	1	0	0	1	
				B5	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	
B4	B3	B2	B1		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	0	0	0	0			SP	0	@	P	`	p								
0	0	0	1	1			!	1	A	Q	a	q								
0	0	1	0	2			“	2	B	R	b	r								
0	0	1	1	3			#	3	C	S	c	s								
0	1	0	0	4			\$	4	D	T	d	t								
0	1	0	1	5			%	5	E	U	e	u								
0	1	1	0	6			&	6	F	V	f	v								
0	1	1	1	7			‘	7	G	W	g	w								
1	0	0	0	8			(	8	H	X	h	x								
1	0	0	1	9			)	9	I	Y	i	y								
1	0	1	0	A			*	:	J	Z	j	z								
1	0	1	1	B			+	;	K	[	k	{								
1	1	0	0	C			,	<	L	¥	l									
1	1	0	1	D			-	=	M	]	m	}								
1	1	1	0	E			.	>	N	^	n	~								
1	1	1	1	F			/	?	O	_	o	DEL								

"00H to 7FH" and "A0H to DFH" can be specified for the QR code.

QR code (Kanji mode) code table

	Shift JIS	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
Symbol	813F		SP	,	。	,	.	・	:	;	?	!	”	°	’	`	˘
	814F	^	—	—	ゝ	ゝ	>	ゞ	”	全	々	ㄥ	○	—	—	-	/
	815F	\	~	//		...	..	‘	‘	“	”	(	)	[	]	[	]
	816F	{	}	<	>	《	》	「	」	『	』	【	】	+	—	±	×
	8180	÷	=	≠	<	>	≤	≥	∞	∴	♂	♀	°	’	”	℃	¥
	8190	\$	¢	£	%	#	&	*	@	\$	☆	★	◦	●	◎	◇	
	819E		◆	□	■	△	▲	▽	▼	*	〒	→	←	↑	↓	≡	
Alphanumeric	824F	0	1	2	3	4	5	6	7	8	9						
	825F		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
	826F	P	Q	R	S	T	U	V	W	X	Y	Z					
	8280		a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
	8290	p	q	r	s	t	u	v	w	x	y	z					
Hiragana	829E		あ	あ	い	い	う	う	え	え	お	お	か	が	き	ぎ	く
	82AE	ぐ	け	げ	こ	ご	さ	ざ	し	じ	す	ず	せ	ぜ	そ	ぞ	た
	82BE	だ	ち	ぢ	っ	っ	づ	て	で	と	ど	な	に	ぬ	ね	の	は
	82CE	ば	ぱ	ひ	び	び	ふ	ぶ	ふ	へ	べ	ぺ	ほ	ぼ	ぽ	ま	み
	82DE	む	め	も	や	や	ゆ	ゆ	よ	よ	ら	り	る	れ	ろ	わ	わ
	82EE	ゐ	ゑ	を	ん	ゐ											
Katakana	833F		ア	ア	イ	イ	ウ	ウ	エ	エ	オ	オ	カ	ガ	キ	ギ	ク
	834F	グ	ケ	ゲ	コ	ゴ	サ	ザ	シ	ジ	ス	ズ	セ	ゼ	ソ	ゾ	タ
	835F	ダ	チ	チ	ツ	ツ	ヅ	テ	デ	ト	ド	ナ	ニ	ヌ	ネ	ノ	ハ
	836F	バ	パ	ヒ	ビ	ピ	フ	ブ	プ	ヘ	ベ	ペ	ホ	ボ	ポ	マ	ミ
	8380	ム	メ	モ	ヤ	ヤ	ユ	ユ	ヨ	ヨ	ラ	リ	ル	レ	ロ	ワ	ワ
	8390	ヰ	ヱ	ヲ	ン	ヅ	カ	ケ									
Greek letters	839E		A	B	Γ	Δ	E	Z	H	Θ	I	K	Λ	M	N	Ξ	O
	83AE	Π	P	Σ	T	Υ	Φ	X	Ψ	Ω							
	83BE		α	β	γ	δ	ε	ζ	η	θ	ι	κ	λ	μ	ν	ξ	ο
	83CE	π	ρ	σ	τ	υ	φ	χ	ψ	ω							
Russian letters	843F		A	Б	В	Г	Д	Е	Ё	Ж	З	И	Й	К	Л	М	Н
	844F	О	П	Р	С	Т	У	Ф	Х	Ц	Ч	Ш	Щ	Ъ	Ы	Ь	Э
	845F	Ю	Я														
	846F		a	б	в	г	д	е	ё	ж	з	и	й	к	л	м	н
	8480	о	п	р	с	т	у	ф	х	ц	ч	ш	щ	ъ	ы	ь	э
	8490	ю	я														

	Shift JIS	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
ア	889E		亜	啞	娃	阿	哀	愛	挨	始	逢	葵	茜	穉	惡	握	渥
	88AE	旭	葦	芦	鰲	梓	压	幹	扱	宛	姐	虻	飴	絢	綾	鮎	或
	88BE	粟	裕	安	庵	按	暗	案	闇	鞍	杏						
イ	88BE											以	伊	位	依	偉	囿
	88CE	夷	委	威	尉	惟	意	慰	易	椅	為	畏	異	移	維	緯	胃
	88DE	萎	衣	謂	違	遺	医	井	亥	域	育	郁	磯	一	壺	溢	逸
	88EE	稻	茨	芋	鰯	允	印	咽	員	因	姻	引	飲	淫	胤	蔭	
	893F		院	陰	隱	韻	吋										
ウ	893F							右	宇	烏	羽	迂	雨	卯	鵜	窺	丑
	894F	碓	臼	渦	噓	唄	鬱	蔚	鰻	姥	廐	浦	瓜	閨	嚙	云	運
	895F	雲															
エ	895F		荏	餌	叡	營	嬰	影	映	曳	榮	永	泳	洩	瑛	盈	穎
	896F	穎	英	衛	詠	銳	液	疫	益	駅	悅	謁	越	閱	榎	厭	円
	8980	園	堰	奄	宴	延	怨	掩	援	沿	演	炎	焰	煙	燕	猿	縁
	8990	艶	苑	園	遠	鉛	鴛	塩									
オ	8990								於	汚	甥	凹	央	奧	往	応	於
	899E		押	旺	横	欧	殴	王	翁	襖	薦	鷗	黄	岡	冲	荻	億
	89AE	屋	憶	臆	桶	牡	乙	俺	卸	恩	温	穩	音				
カ	89AE													下	化	仮	何
	89BE	伽	伽	佳	加	可	嘉	夏	嫁	家	寡	科	暇	果	架	歌	河
	89CE	火	珂	禍	禾	稼	箇	花	苛	茄	荷	華	菓	蝦	課	嘩	貨
	89DE	迦	過	霞	蚊	俄	峨	我	牙	画	臥	芽	蛾	賀	雅	餓	駕
	89EE	介	会	解	回	塊	壞	迴	快	怪	悔	恢	懷	戒	拐	改	
	8A3F		魁	晦	械	海	灰	界	皆	絵	芥	蟹	開	階	貝	凱	効
	8A4F	外	咳	害	崖	慨	概	涯	碍	蓋	街	該	鎧	骸	湮	馨	蛙
	8A5F	垣	柿	蛎	鈎	劃	嚇	各	廓	拡	攪	格	核	殼	獲	確	穫
	8A6F	覚	角	赫	較	郭	閤	隔	革	学	岳	桀	額	顎	掛	笠	攄
	8A80	櫃	梶	鰺	渴	割	喝	恰	括	活	渴	滑	葛	褐	轄	且	鯉
	8A90	叶	栴	樺	鞆	株	兜	竈	蒲	釜	鎌	嚙	鴨	栢	茅	萱	
	8A9E		粥	刈	苧	瓦	乾	侃	冠	寒	刊	勘	勸	卷	喚	堪	姦
	8AAE	完	官	寬	干	幹	患	感	慣	憾	換	敢	柑	桓	棺	款	飲
	8ABE	汗	漢	澗	淮	環	甘	監	看	竿	管	簡	緩	缶	翰	肝	艦
	8ACE	莞	觀	諫	貫	還	鑑	間	閑	閑	陷	韓	館	舘	丸	含	岸
	8ADE	巖	玩	癌	眼	岩	翫	贖	雁	頑	顔	願					

	Shift JIS	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
キ	8ADE												企	伎	危	喜	器
	8AEE	基	奇	嬉	寄	岐	希	幾	忌	揮	机	旗	既	期	棋	棄	
	8B3F		機	帰	毅	気	汽	畿	祈	季	稀	紀	徽	規	記	貴	起
	8B4F	軌	輝	飢	騎	鬼	亀	偽	儀	妓	宜	戲	技	擬	欺	犧	疑
	8B5F	祇	義	蟻	誼	議	掬	菊	鞠	吉	吃	喫	桔	橘	詰	砧	杵
	8B6F	黍	却	客	脚	虐	逆	丘	久	仇	休	及	吸	宮	弓	急	救
	8B80	朽	求	汲	泣	灸	球	究	窮	笈	級	糾	給	旧	牛	去	居
	8B90	巨	拒	拋	拳	渠	虚	許	距	鋸	漁	禦	魚	亨	享	京	
	8B9E		供	俠	僑	兇	競	共	凶	協	匡	卿	叫	喬	境	峽	強
	8BAE	彊	怯	恐	恭	挾	教	橋	況	狂	狹	矯	胸	脅	興	蕎	郷
	8BBE	鏡	響	饗	驚	仰	凝	堯	曉	業	局	曲	極	玉	桐	籽	僅
	8BCE	勤	均	巾	錦	斤	欣	欽	琴	禁	禽	筋	緊	芹	菌	衿	襟
	8BDE	謹	近	金	吟	銀											
ク	8BDE						九	俱	句	区	狗	玖	矩	苦	軀	驅	駙
	8BEE	駒	具	愚	虞	喰	空	偶	寓	遇	隅	串	櫛	釧	屑	屈	
	8C3F		掘	窟	沓	靴	轡	窪	熊	隈	桑	栗	繰	桑	鋤	勲	君
	8C4F	薰	訓	群	軍	郡											
ケ	8C4F						卦	袈	祁	係	傾	刑	兄	啓	圭	珪	型
	8C5F	契	形	徑	恵	慶	慧	憩	掲	携	敬	景	桂	溪	畦	稽	系
	8C6F	経	繼	繫	罍	莖	荊	蚩	計	詣	警	輕	頸	鷄	芸	迎	鯨
	8C80	劇	戟	擊	激	隙	桁	傑	欠	決	潔	穴	結	血	訣	月	件
	8C90	俟	倦	健	兼	券	劍	喧	圈	堅	嫌	建	憲	懸	拳	捲	
	8C9E		検	権	牽	犬	献	研	硯	絹	梟	肩	見	謙	賢	軒	遣
	8CAE	鍵	険	顕	験	鹼	元	原	嚴	幻	弦	減	源	玄	現	絃	舷
	8CBE	言	諺	限													
コ	8CBE				乎	個	古	呼	固	姑	孤	己	庫	弧	戸	故	枯
	8CCE	湖	狐	糊	袴	股	胡	菰	虎	誇	跨	鈷	雇	顧	鼓	五	互
	8CDE	伍	午	呉	吾	娛	後	御	悟	梧	檣	瑚	碁	語	誤	護	醐
	8DEE	乞	鯉	交	佼	侯	候	倖	光	公	功	効	勾	厚	口	向	
	8D3F		后	喉	坑	垢	好	孔	孝	宏	工	巧	巷	幸	広	庚	康
	8D4F	弘	恒	慌	抗	拘	控	攻	昂	晃	更	杭	校	梗	構	江	洪
	8D5F	浩	港	溝	甲	皇	硬	稿	糠	紅	紘	絞	綱	耕	考	肯	肱
	8D6F	腔	膏	航	荒	行	衡	講	貢	購	郊	酵	鉉	砒	鋼	閤	降
	8D80	項	香	高	鴻	剛	劫	号	合	壕	拷	濠	豪	轟	趨	克	刻
	8D90	告	国	穀	酷	鵠	黒	獄	漉	腰	甌	忽	惚	骨	狛	込	
	8D9E		此	頃	今	困	坤	壘	婚	恨	懇	昏	昆	根	梱	混	痕
	8DAE	紺	艮	魂													

	Shift JIS	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
サ	8DAE				些	佐	又	唆	嵯	左	差	查	沙	磋	砂	詐	鎖
	8DBE	娑	坐	座	挫	債	催	再	最	哉	塞	妻	宰	彩	才	採	栽
	8DCE	歲	濟	災	采	犀	碎	砦	祭	齋	細	菜	裁	載	際	劑	在
	8DDE	材	罪	財	冚	坂	阪	堺	榊	肴	咲	崎	埼	碕	鷺	作	削
	8DEE	咋	搾	昨	朔	柵	窄	策	索	錯	桜	鮭	笹	匙	冊	刷	
	8E3F		察	拶	撮	擦	札	殺	薩	雜	皐	鯖	捌	鯖	鮫	皿	晒
	8E4F	三	傘	參	山	慘	撒	散	棧	燦	珊	産	算	纂	蚕	讚	贊
	8E5F	酸	餐	斬	暫	殘											
シ	8E5F						仕	仔	伺	使	刺	司	史	嗣	四	士	始
	8E6F	姉	姿	子	屍	市	師	志	思	指	支	攷	斯	施	旨	枝	止
	8E80	死	氏	獅	祉	私	糸	紙	紫	肢	脂	至	視	詞	詩	試	誌
	8E90	諮	資	賜	雌	飼	齒	事	似	侍	児	字	寺	慈	持	時	
	8E9E		次	滋	治	爾	璽	痔	磁	示	而	耳	自	蒔	辭	汐	鹿
	8EAE	式	識	鳴	竺	軸	穴	零	七	叱	執	失	嫉	室	悉	湿	漆
	8EBE	疾	質	実	蔀	篠	僂	柴	芝	屢	蕊	縞	舍	写	射	捨	赦
	8ECE	斜	煮	社	紗	者	謝	車	遮	蛇	邪	借	勺	尺	杓	灼	爵
	8EDE	酌	积	錫	若	寂	弱	惹	主	取	守	手	朱	殊	狩	珠	種
	8EEE	腫	趣	酒	首	儒	受	呪	寿	授	樹	綬	需	囚	収	周	
	8F3F		宗	就	州	修	愁	拾	洲	秀	秋	終	繡	習	臭	舟	菟
	8F4F	衆	襲	讐	蹴	輯	週	酋	酬	集	醜	什	住	充	十	從	戎
	8F5F	柔	汁	渋	獸	縱	重	銃	叔	夙	宿	淑	祝	縮	肅	塾	熟
	8F6F	出	術	述	俊	峻	春	瞬	竣	舜	駿	准	循	旬	楯	殉	淳
	8F80	準	潤	盾	純	巡	遵	醇	順	処	初	所	暑	曙	渚	庶	緒
	8F90	署	書	薯	諸	諸	助	叙	女	序	徐	恕	鋤	除	傷	償	
	8F9E		勝	匠	升	召	哨	商	唱	嘗	獎	妾	娼	宵	将	小	少
	8FAE	尚	庄	床	廠	彰	承	抄	招	掌	捷	昇	昌	昭	晶	松	梢
	8FBE	樟	樵	沼	消	涉	湘	燒	焦	照	症	省	硝	礁	祥	称	章
	8FCE	笑	粧	紹	肖	莒	蔣	蕉	衝	裳	訟	証	詔	詳	象	賞	醬
	8FDE	鉦	鍾	鐘	障	鞞	上	丈	丞	乘	冗	刺	城	場	壤	孃	常
	8FEE	情	擾	条	杖	淨	狀	畳	穰	蒸	讓	釀	錠	囑	埴	飾	
	903F		拭	植	殖	燭	織	職	色	舐	食	蝕	辱	尻	伸	信	侵
	904F	唇	娠	寝	審	心	慎	振	新	晋	森	榛	浸	深	申	疹	真
	905F	神	秦	紳	臣	芯	薪	親	診	身	辛	進	針	震	人	仁	刃
	906F	塵	壬	尋	甚	尽	腎	訊	迅	陣	靱						

	Shift JIS	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
入	906F											筍	諏	須	酢	囧	厨
	9080	逗	吹	垂	帥	推	水	炊	睡	粹	翠	衰	遂	醉	錐	鍾	随
	9090	瑞	髓	崇	嵩	数	枢	趨	雛	据	杉	梠	菅	頗	雀	裾	
	909E		澄	摺	寸												
セ	909E					世	瀬	畝	是	淒	制	勢	姓	征	性	成	政
	90AE	整	星	晴	棲	栖	正	清	牲	生	盛	精	聖	声	製	西	誠
	90BE	誓	請	逝	醒	青	静	斉	税	脆	隻	席	惜	戚	斥	昔	析
	90CE	石	積	籍	績	脊	責	赤	跡	蹟	碩	切	拙	接	摂	折	設
	90DE	窃	節	説	雪	絶	舌	蟬	仙	先	千	占	宣	專	尖	川	戦
	90EE	扇	撰	栓	栴	泉	浅	洗	染	潜	煎	煽	旋	穿	箭	線	
	913F		織	羨	腺	舛	船	薦	詮	賤	踐	選	遷	錢	銑	閃	鮮
	914F	前	善	漸	然	全	禪	繕	膳	糲							
ソ	914F										噌	塑	岨	措	曾	曾	楚
	915F	狙	疏	疎	礎	祖	租	粗	素	組	蘇	訴	阻	遡	鼠	僧	創
	916F	双	叢	倉	喪	壮	奏	爽	宋	層	匝	惣	想	搜	掃	挿	搔
	9180	操	早	曹	巢	槍	槽	漕	燥	争	瘦	相	窓	槽	総	綜	聡
	9190	草	莊	葬	蒼	藻	装	走	送	遭	鎗	霜	騷	像	増	憎	
	919E		臧	蔵	贈	造	促	側	則	即	息	捉	束	測	足	速	俗
	91AE	属	賊	族	続	卒	袖	其	揃	存	孫	尊	損	村	遜		
夕	91AE															他	多
	91BE	太	汰	訖	唾	墮	妥	惰	打	柁	舵	橈	陀	駄	駢	体	堆
	91CE	対	耐	岱	帶	待	怠	態	戴	替	泰	滯	胎	腿	苔	袋	貸
	91DE	退	逮	隊	黛	鯛	代	台	大	第	醍	題	鷹	淹	瀧	卓	啄
	91EE	宅	托	扱	拓	沢	濯	琢	託	鐸	濁	諾	茸	夙	蛸	只	
	923F		叩	但	達	辰	奪	脱	巽	豎	辿	棚	谷	狸	鱒	樽	誰
	924F	丹	単	嘆	坦	担	探	旦	歎	淡	湛	炭	短	端	筆	綻	耽
	925F	胆	蛋	誕	鍛	団	壇	彈	断	暖	檀	段	男	談			
子	925F														値	知	地
	926F	弛	恥	智	池	痴	稚	置	致	蚰	遲	馳	築	畜	竹	筑	蓄
	9280	逐	秩	窒	茶	嫡	着	中	仲	宙	忠	抽	昼	柱	注	虫	衷
	9290	註	酎	鑄	駐	樗	瀦	猪	苧	著	貯	丁	兆	凋	喋	寵	
	929E		帖	帳	庁	弔	張	彫	徵	懲	挑	暢	朝	潮	牒	町	眺
	92AE	聴	脹	腸	蝶	調	謀	超	跳	銚	長	頂	烏	勅	抄	直	朕
	92BE	沈	珍	賃	鎮	陳											

	Shift JIS	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
ツ	92BE						津	墜	椎	槌	追	鎚	痛	通	塚	柁	搦
	92CE	槻	佃	漬	柘	辻	薦	綴	鏝	椿	漬	坪	壺	孀	紬	爪	吊
	92DE	釣	鶴														
テ	92DE			亭	低	停	偵	剃	貞	呈	堤	定	帝	底	庭	廷	弟
	92EE	悌	抵	挺	提	梯	汀	碇	禎	程	締	艇	訂	諦	蹄	逋	
	933F		邸	鄭	釘	鼎	泥	摘	擢	敵	滴	的	笛	適	鎬	溺	哲
	934F	徹	撤	轍	迭	鉄	典	填	天	展	店	添	纏	甜	貼	軫	顛
	935F	点	伝	殿	澱	田	電										
ト	935F							禿	吐	堵	塗	妬	屠	徒	斗	杜	渡
	936F	登	菟	賭	途	都	鍍	砥	砺	努	度	土	奴	怒	倒	党	冬
	9380	凍	刀	唐	塔	塘	套	宕	島	嶋	悼	投	搭	東	桃	栲	棟
	9390	盜	淘	湯	涛	灯	燈	当	痘	禱	等	答	筒	糖	統	到	
	939E		董	蕩	藤	討	騰	豆	踏	逃	透	鐙	陶	頭	騰	鬪	働
	93AE	動	同	堂	導	懂	撞	洞	瞳	童	胴	苟	道	銅	峠	錫	匿
	93BE	得	德	洩	特	督	禿	篤	毒	独	読	栃	橡	凸	突	楸	届
	93CE	鳶	苫	寅	酉	瀨	噸	屯	惇	敦	沌	豚	遁	頓	吞	曇	鈍
ナ	93DE	奈	那	内	乍	凧	薙	謎	灘	捺	鍋	櫓	馴	縄	暇	南	楠
	93EE	軟	難	汝													
ニ	93EE				二	尼	弍	迹	匂	賑	肉	虹	廿	日	乳	入	
	943F		如	尿	菲	任	妊	忍	認								
ヌ	943F									濡							
ネ	943F										襦	祢	寧	葱	猫	熱	年
	944F	念	捻	撚	燃	粘											
ノ	944F						乃	迺	之	埜	囊	悩	濃	納	能	脳	膿
	945F	農	覗	蚤													
ハ	945F				巴	把	播	霸	杷	波	派	琶	破	婆	罵	芭	馬
	946F	俳	廃	拝	排	敗	杯	盃	牌	背	肺	輩	配	倍	培	媒	梅
	9480	煤	煤	猥	買	売	賠	陪	這	蠅	秤	矧	荻	伯	剥	博	拍
	9490	柏	泊	白	箔	粕	舶	薄	迫	曝	漠	爆	縛	莫	駁	麦	
	949E		函	箱	谿	箸	肇	筈	櫨	幡	肌	畑	畠	八	鉢	澆	爰
	94AE	醜	髮	伐	罰	拔	筏	閥	鳩	嘶	塙	蛤	隼	伴	判	半	反
	94BE	叛	帆	搬	斑	板	汜	汎	版	犯	班	畔	繁	般	藩	販	範
	94CE	采	煩	頒	飯	挽	晩	番	盤	磐	蕃	蚕					

	Shift JIS	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
匕	94CE												匪	卑	否	妃	庇
	94DE	彼	悲	扉	批	披	斐	比	泌	疲	皮	碑	秘	緋	罷	肥	被
	94EE	誹	費	避	非	飛	樋	簸	備	尾	微	枇	毘	琵	眉	美	
	953F		鼻	柎	稗	匹	疋	髭	彦	膝	菱	肘	粥	必	畢	筆	逼
	954F	桧	姬	媛	紐	百	謬	依	彪	標	氷	漂	瓢	票	表	評	豹
	955F	廟	描	病	秒	苗	錨	鉦	蒜	蛭	鰭	品	彬	斌	浜	瀕	貧
	956F	賓	頻	敏	瓶												
フ	956F					不	付	埠	夫	婦	富	富	布	府	怖	扶	敷
	9580	斧	普	浮	父	符	腐	膚	芙	譜	負	賦	赴	阜	附	侮	撫
	9590	武	舞	葡	蕪	部	封	楓	風	葦	落	伏	副	復	幅	服	
	959E		福	腹	複	覆	淵	弗	払	沸	仏	物	鮪	分	吻	噴	墳
	95AE	憤	扮	焚	奮	粉	糞	紛	雰	文	聞						
ハ	95AE											丙	併	兵	塀	幣	平
	95BE	弊	柄	並	蔽	閉	陛	米	頁	僻	壁	癖	碧	別	瞥	蔑	篋
	95CE	偏	變	片	篇	編	辺	返	遍	便	勉	婉	弁	鞭			
ホ	95CE														保	舗	鋪
	95DE	圃	捕	步	甫	補	輔	穗	募	墓	慕	戊	暮	母	簿	菩	倣
	95EE	倅	包	呆	報	奉	宝	峰	峯	崩	庖	抱	捧	放	方	朋	
	963F		法	泡	烹	砲	縫	胞	芳	萌	蓬	蜂	褒	訪	豐	邦	鋒
	964F	飽	鳳	鵬	乏	亡	傍	剖	坊	妨	帽	忘	忙	房	暴	望	某
	965F	棒	冒	紡	肪	膨	謀	貌	貿	鉉	防	吠	頰	北	僕	卜	墨
	966F	撲	朴	牧	睦	穆	釦	勃	沒	殆	堀	幌	奔	本	翻	凡	盆
マ	9680	摩	磨	魔	麻	埋	妹	昧	枚	每	哩	楨	幕	膜	枕	鮪	枉
	9690	鱒	桡	亦	俣	又	抹	末	沫	迄	俦	蘭	麇	万	慢	滿	
	969E		漫	蔓													
ミ	969E				味	未	魅	巳	箕	岬	密	蜜	湊	蓑	稔	脈	妙
	96AE	耗	民	眠													
ム	96AE				務	夢	無	牟	矛	霧	鵠	棕	娟	娘			
メ	96AE														冥	名	命
	96BE	明	盟	迷	銘	鳴	姪	牝	滅	免	棉	綿	緬	面	麵		
モ	96BE															摸	模
	96CE	茂	妄	孟	毛	猛	盲	網	耗	蒙	儲	木	默	目	杳	勿	餅
	96DE	尤	戾	粂	貴	問	悶	紋	門	匆							
ヤ	96DE										也	冶	夜	爺	耶	野	弥
	96EE	矢	厄	役	約	藥	訖	躍	靖	柳	薺	鍵					

	Shift JIS	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
ㄣ	96EE												愉	愈	油	癒	
	973F		諭	輸	唯	佑	優	勇	友	宥	幽	悠	憂	揖	有	柚	湧
	974F	涌	猶	猷	由	祐	裕	誘	遊	邑	郵	雄	融	夕			
ヨ	974F														予	余	与
	975F	誉	輿	預	備	幼	妖	容	庸	揚	揺	擁	曜	楊	樣	洋	溶
	976F	熔	用	窯	羊	耀	葉	蓉	要	謠	踊	遙	陽	養	慾	抑	欲
	9780	沃	浴	翌	翼	淀											
ヲ	9780						羅	螺	裸	来	萊	賴	雷	洛	絡	落	酪
	9790	乱	卵	嵐	欄	濫	藍	蘭	覽								
リ	9790									利	吏	履	李	梨	理	璃	
	979E		痢	裏	裡	里	離	陸	律	率	立	律	掠	略	劉	流	溜
	97AE	琉	留	硫	粒	隆	竜	龍	侶	慮	旅	虜	了	亮	僚	両	凌
	97BE	寮	料	梁	涼	獵	療	瞭	稜	糧	良	諒	遼	量	陵	領	力
	97CE	緑	倫	厘	林	淋	熾	琳	臨	輪	隣	鱗	麟				
ル	97CE													瑠	壘	淚	累
	97DE	類															
レ	97DE		令	伶	例	冷	勵	嶺	伶	玲	礼	苓	鈴	隸	零	靈	麗
	97EE	齡	曆	歴	列	劣	烈	裂	廉	恋	憐	漣	煉	簾	練	聯	
	983F		蓮	連	鍊												
ロ	983F					呂	魯	櫓	炉	賂	路	露	勞	婁	廊	弄	朗
	984F	楼	榔	浪	漏	牢	狼	籠	老	聾	蠟	郎	六	麓	禄	肋	録
	985F	論															
ワ	985F		倭	和	話	歪	賄	脇	惑	杵	鷺	瓦	亘	鰐	詫	藁	蕨
	986F	椀	湾	碗	腕												

	Shift JIS	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
一	989E		弌	𠂇	丕												
丨	989E					个	𠂇										
丶	989E							丶	井								
丿	989E									丿	乂	乖	乘				
乙	989E													亂			
丿	989E														丿	豫	爭
	98AE	舒															
二	98AE		弌	于	亞	亟											
一	98AE						一	亢	京	毫	亶						
人	98AE											从	仍	仄	仆	仂	仗
	98BE	仂	仂	仂	价	伉	佚	估	佛	佝	佗	佇	佖	侈	侏	佗	佻
	98CE	佩	佰	侑	伴	來	侖	儘	倪	俟	俎	俘	俛	俑	俚	俐	倂
	98DE	俚	倚	倨	倔	倪	倥	倅	倅	倝	倡	倩	倬	倭	倭	俯	們
	98EE	偃	假	會	偕	修	偈	倣	倣	倣	倣	倣	倣	倣	倣	倣	倣
	993F		僉	僊	傳	僂	僂	僂	僂	僂	僂	僂	僂	僂	僂	僂	僂
	994F	僂	僂	僂	僂	僂	僂	僂	僂	僂	僂	僂	僂	僂	僂	僂	僂
儿	994F										儿	兀	兒	兌	免	兢	競
入	995F	兩	兪														
八	995F			兮	冀												
冂	995F					冂	冂	册	冉	冂	冂	冂	冂				
一	995F													一	冤	冠	冢
	996F	寫	冢														
丷	996F			丷	決	冂	冲	冰	况	冽	涸	凉	凜				
几	996F													几	處	夙	凭
	9980	風															
冂	9980		冂	函													
刀	9980				刃	刊	刂	刂	刂	刪	刮	刮	剝	剝	剝	剝	剝
	9990	剝	剔	剪	剝	剩	剝	剝	剝	剝	剝	剝	剝	剝	剝	剝	剝
	999E		辦														
力	999E			劬	劬	劬	劬	劬	劬	劬	劬	劬	劬	劬	劬	劬	劬
	99AE	勸															
勹	99AE		勹	勿	匈	甸	甸	甸	甸								
匕	99AE									匕							
匚	99AE										匚	匚	匚	匚	匚		
匚	99AE															匚	區
十	99BE	𠂇	卅	卅	卅	卅	卅	卅									

	Shift JIS	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
卜	99BE							卞									
𠂇	99BE								𠂇	卮	𠂇	卻	卷				
𠂇	99BE													𠂇	𠂇	廁	廈
	99CE	厥	廝	廠													
厶	99CE				厶	參	纂										
又	99CE							雙	叟	曼	變						
口	99CE											叮	叨	叭	叭	吁	吡
	99DE	呀	听	吭	吼	吮	呐	吩	吝	呖	咏	呵	咎	咤	呱	呷	些
	99EE	咒	呻	咀	嗽	咄	咐	咆	哇	号	咸	啞	咬	哄	哈	咨	
	9A3F		咫	晒	咤	咤	𠂇	𠂇	哥	哦	唏	唔	哽	哮	哭	哺	
	9A4F	啞	哇	啞	啞	售	啜	啞	啞	啞	啞	啞	啞	啞	啞	啞	啞
	9A5F	啞	啞	啞	啞	啞	啞	啞	啞	啞	啞	啞	啞	啞	啞	啞	啞
	9A6F	啞	啞	啞	啞	啞	啞	啞	啞	啞	啞	啞	啞	啞	啞	啞	啞
	9A80	噫	噤	嘯	啞	噪	噤	噤	噤	噤	噤	噤	噤	噤	噤	噤	噤
	9A90	噤	噤	噤	噤	噤	噤	噤	噤								
口	9A90									口	𠂇	𠂇	𠂇	𠂇	𠂇	𠂇	
	9A9E		𠂇	國	圍	圓	團	圖	𠂇	圓							
土	9A9E										𠂇	𠂇	𠂇	𠂇	𠂇	𠂇	𠂇
	9AAE	𠂇	垂	𠂇	坡	𠂇	𠂇	𠂇	𠂇	𠂇	𠂇	𠂇	𠂇	𠂇	𠂇	𠂇	𠂇
	9ABE	𠂇	望	𠂇	𠂇	𠂇	𠂇	𠂇	𠂇	𠂇	𠂇	𠂇	𠂇	𠂇	𠂇	𠂇	𠂇
	9ACE	墅	𠂇	墟	𠂇	𠂇	𠂇	𠂇	𠂇	𠂇	𠂇	𠂇	𠂇	𠂇	𠂇	𠂇	𠂇
	9ADE	𠂇	𠂇	𠂇													
土	9ADE				壯	壺	壺	壺	壺	壽							
久	9ADE										久						
久	9ADE											久	𠂇				
夕	9ADE													𠂇	𠂇	𠂇	
大	9ADE																夫
	9AEE	天	𠂇	夸	夾	奇	奕	𠂇	奎	奚	𠂇	奢	𠂇	奧	獎	𠂇	
女	9B3F		奸	𠂇	妝	𠂇	𠂇	𠂇	𠂇	𠂇	𠂇	姜	𠂇	𠂇	姚	娥	娟
	9B4F	娑	娜	娉	𠂇	𠂇	𠂇	𠂇	𠂇	𠂇	𠂇	𠂇	𠂇	𠂇	𠂇	𠂇	𠂇
	9B5F	媽	媽	𠂇	𠂇	𠂇	𠂇	𠂇	𠂇	𠂇	𠂇	𠂇	𠂇	𠂇	𠂇	𠂇	𠂇
	9B6F	𠂇	𠂇	𠂇													
子	9B6F				子	孕	孚	𠂇	𠂇	孩	孰	𠂇	𠂇	學	𠂇	孺	

	Shift JIS	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
宀	9B6F																宀
	9B80	它	宦	宸	冤	寇	雀	寔	寐	寤	實	寢	寔	寥	寫	寰	寶
	9B90	寶															
寸	9B90		尅	將	專	對											
小	9B90						尔	尠									
尢	9B90								尢	尠							
尸	9B90										尸	尹	屁	屈	屎	肩	
	9B9E		屐	屛	屛	屬											
屮	9B9E						屮										
山	9B9E							屮	方	屹	岌	岑	岔	岌	岫	岷	岫
	9BAE	岬	岷	岬	岬	岬	岬	岬	岬	岬	岬	岬	岬	岬	岬	岬	岬
	9BBE	崑	崑	崑	崑	崑	崑	崑	崑	崑	崑	崑	崑	崑	崑	崑	崑
	9BCE	嶺	嶺	嶺	嶺	嶺	嶺	嶺	嶺	嶺	嶺	嶺	嶺	嶺	嶺	嶺	嶺
ㄱ	9BCE																ㄱ
工	9BDE	巫															
巳	9BDE		巳	巳													
巾	9BDE				帛	帛	帛	帛	帛	帛	帛	帛	帛	帛	帛	帛	帛
	9BEE	幟	幟	幣	幫												
干	9BEE					干	井										
么	9BEE							么	麼								
广	9BEE									广	庠	廁	廂	厦	廐	廐	
	9C3F		廖	廣	廐	廚	廐	廢	廐	廐	廐	廐	廐	廐	廐	廐	
廐	9C3F															廐	廐
升	9C4F	升	弃	井	井	井											
弋	9C4F						弋	弋									
弓	9C4F								弓	弩	弭	弭	弭	彈	彌	彎	弯
亓	9C5F	亓	彖	彖	彖												
彖	9C5F					彖	彭										
彖	9C5F							彖	徬	徬	徬	徬	徬	徬	徬	徬	徬
	9C6F	徬	徬	徬	徬	徬	徬										
心	9C6F							忖	忖	忖	忖	忖	忖	忖	忖	忖	忖
	9C80	忖	忖	忖	忖	忖	忖	忖	忖	忖	忖	忖	忖	忖	忖	忖	忖
	9C90	協	恆	恍	恣	恃	恤	恣	恣	恣	恣	恣	恣	恣	恣	恣	恣
	9C9E		恣	恣	恣	恣	恣	恣	恣	恣	恣	恣	恣	恣	恣	恣	恣
	9CAE	恣	恣	恣	恣	恣	恣	恣	恣	恣	恣	恣	恣	恣	恣	恣	恣
	9CBE	恣	恣	恣	恣	恣	恣	恣	恣	恣	恣	恣	恣	恣	恣	恣	恣
	9CCE	恣	恣	恣	恣	恣	恣	恣	恣	恣	恣	恣	恣	恣	恣	恣	恣
	9CDE	恣	恣	恣	恣	恣	恣	恣	恣	恣	恣	恣	恣	恣	恣	恣	恣
	9CEE	恣	恣	恣	恣	恣	恣	恣	恣	恣	恣	恣	恣	恣	恣	恣	恣

	Shift JIS	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
戈	9CEE										戈	戔	戕	戕	戔	戔	
	9D3F		戔	戔	戔	戔	戔	戔	戔								
戸	9D3F									扁							
手	9D3F										扎	扌	扌	扌	扌	扌	扌
	9D4F	扌	扌	扌	扌	扌	扌	扌	扌	扌	扌	扌	扌	扌	扌	扌	扌
	9D5F	扌	扌	扌	扌	扌	扌	扌	扌	扌	扌	扌	扌	扌	扌	扌	扌
	9D6F	扌	扌	扌	扌	扌	扌	扌	扌	扌	扌	扌	扌	扌	扌	扌	扌
	9D80	扌	扌	扌	扌	扌	扌	扌	扌	扌	扌	扌	扌	扌	扌	扌	扌
	9D90	扌	扌	扌	扌	扌	扌	扌	扌	扌	扌	扌	扌	扌	扌	扌	扌
	9D9E		扌	扌	扌	扌	扌	扌	扌	扌	扌	扌	扌	扌	扌	扌	扌
	9DAE	扌	扌	扌	扌	扌	扌	扌	扌	扌	扌	扌	扌	扌			
支	9DAE														支	支	支
	9DBE	收	攸	攸	攸	攸	攸	攸	攸	攸	攸	攸	攸	攸	攸	攸	攸
斗	9DBE																斛
	9DCE	斛															
斤	9DCE		斫	斫													
方	9DCE				旃	旃	旃	旃	旃	旃	旃	旃	旃	旃			
无	9DCE												无	无			
日	9DCE														旱	旱	旱
	9DDE	旻	旻	旻	旻	旻	旻	旻	旻	旻	旻	旻	旻	旻	旻	旻	旻
	9DEE	旻	旻	旻	旻	旻	旻	旻	旻	旻	旻	旻	旻	旻	旻	旻	旻
	9E3F		曄	曄	曄	曄	曄	曄	曄	曄	曄	曄	曄	曄	曄	曄	曄
日	9E3F										日	日	日				
月	9E3F													月	月	月	月
	9E4F	朙	霸														
木	9E4F			朮	朮	朮	朮	朮	朮	朮	朮	朮	朮	朮	朮	朮	朮
	9E5F	朮	朮	朮	朮	朮	朮	朮	朮	朮	朮	朮	朮	朮	朮	朮	朮
	9E6F	朮	朮	朮	朮	朮	朮	朮	朮	朮	朮	朮	朮	朮	朮	朮	朮
	9E80	朮	朮	朮	朮	朮	朮	朮	朮	朮	朮	朮	朮	朮	朮	朮	朮
	9E90	朮	朮	朮	朮	朮	朮	朮	朮	朮	朮	朮	朮	朮	朮	朮	朮
	9E9E		朮	朮	朮	朮	朮	朮	朮	朮	朮	朮	朮	朮	朮	朮	朮
	9EAE	朮	朮	朮	朮	朮	朮	朮	朮	朮	朮	朮	朮	朮	朮	朮	朮
	9EBE	朮	朮	朮	朮	朮	朮	朮	朮	朮	朮	朮	朮	朮	朮	朮	朮
	9ECE	朮	朮	朮	朮	朮	朮	朮	朮	朮	朮	朮	朮	朮	朮	朮	朮
	9EDE	朮	朮	朮	朮	朮	朮	朮	朮	朮	朮	朮	朮	朮	朮	朮	朮
	9EEE	朮	朮	朮	朮	朮	朮	朮	朮	朮	朮	朮	朮	朮	朮	朮	朮
	9F3F		朮	朮	朮	朮	朮	朮	朮	朮	朮	朮	朮	朮	朮	朮	朮
	9F4F	朮	朮	朮	朮	朮	朮	朮	朮	朮	朮	朮	朮	朮	朮	朮	朮

	Shift JIS	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
欠	9F4F								欸	欵	盜	欵	飲	歇	歃	歉	歐
	9F5F	歃	獻	歛	歟	歡											
止	9F5F						歸										
歹	9F5F							歹	殳	殳	殄	殃	殍	殘	殍	殍	殍
	9F6F	殄	殄	殄	殄	殄											
殳	9F6F						殳	殷	殷	毆							
母	9F6F										母	毓					
毛	9F6F												毫	毳	毫	毳	毳
	9F80	麾	毳														
氏	9F80			氐													
气	9F80				气	氛	氫	氣									
水	9F80								汞	汕	汩	汪	沂	洹	汩	沁	沛
	9F90	汾	汨	汨	沒	沐	泄	決	泓	沽	泗	泗	沂	洹	汩	汩	
	9F9E		汨	泛	混	汨	汨	洩	衍	洵	洳	洽	洸	洳	洵	洳	泗
	9FAE	洳	洳	洳	宏	浚	浹	浙	涎	涕	濤	湮	淹	洳	淵	涵	淇
	9FBE	湓	湓	湓	淬	淞	淌	淨	淒	淞	淺	淞	淤	淞	淞	淮	渭
	9FCE	湮	滄	渙	渙	渙	渙	渣	湫	渫	渫	湫	渫	渫	渫	渫	渫
	9FDE	滿	渝	游	洌	溪	湓	混	湮	滓	渫	渫	渫	渫	渫	渫	渫
	9FEE	溥	滂	溟	潁	溉	灌	滬	滄	滾	漿	滲	漱	滯	漲	滌	
	E03F		漾	漓	滷	澆	滌	清	澁	澁	澁	潛	潛	潭	澁	澁	潘
	E04F	澎	溜	濂	潦	澳	潞	澡	澤	澹	漬	滯	濟	濕	濬	潏	潏
	E05F	濱	濮	濠	瀉	瀋	濺	瀑	養	瀏	濾	瀛	瀚	渚	瀝	瀝	瀝
	E06F	瀾	瀾	激	灑	灣											
火	E06F						炙	炒	炯	炯	炬	炸	炳	炮	烟	然	烝
	E080	烙	焉	烽	焜	焙	煥	熙	熙	煦	煢	煌	煖	煬	熏	燠	熄
	E090	煥	熨	熬	爛	熹	熾	燒	燉	燔	燎	燠	燠	燠	燠	燠	
	E09E		燠	燠	燠	燠	燠	燠									
爪	E09E								爭	爬	爰	爲					
爰	E09E												爰	爰			
爰	E09E														爰	爰	牆
	E0AE	牋	牋														
牛	E0AE			牋	牋	犁	犁	犇	犇	犇	犇	犇					
犬	E0AE												犹	豺	狃	狃	狄
	E0BE	狎	狎	狎	狎	狎	狎	狎	狎	狎	狎	狎	狎	狎	狎	狎	狎
	E0CE	狎	狎	狎	狎	狎	狎	狎	狎	狎	狎	狎	狎	狎	狎	狎	狎

	Shift JIS	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
王	E0CE														珈	玳	玳
	E0DE	玻	珀	珥	珮	珞	璫	琅	瑯	琥	珏	琲	珙	瑕	璿	瑟	璫
	E0EE	璫	瑜	瑩	瑰	瑣	瑪	瑤	瑾	璋	璞	璧	瓊	瓏	璣	玟	
瓜	E13F		瓠	瓣													
瓦	E13F				𡗗	𡗘	盆	𡗚	𡗛	𡗜	𡗝	瓷	甄	瓮	甌	甌	甌
	E14F	甌	甌	甌													
甘	E14F				𡗞												
生	E14F					甞											
用	E14F						甬										
田	E14F							𡗟	𡗠	𡗡	𡗢	𡗣	𡗤	𡗥	𡗦	𡗧	𡗨
疒	E15F	𡗩	𡗪	𡗫	𡗬	𡗭	𡗮	𡗯	𡗰	𡗱	𡗲	𡗳	𡗴	𡗵	𡗶	𡗷	𡗸
	E15F												疔	疔	疔	疔	疔
	E16F	痂	疖	痃	疵	疽	疽	疼	疱	痍	痊	痒	痲	痣	痞	痼	痼
	E180	痼	瘁	痰	痺	痲	痲	瘋	瘍	癰	癰	瘡	瘡	瘡	癰	瘤	瘡
	E190	瘰	癭	癰	癰	癰	癰	癰	癰	癰	癰	癰	癰	癰	癰	癰	癰
	E19E		癰														
𡗙	E19E			𡗙	癸	發											
白	E19E						𡗚	兒	𡗛	𡗜	𡗝	𡗞	𡗟	𡗠	𡗡	𡗢	𡗣
皮	E19E															𡗤	𡗥
	E1AE	𡗦	𡗧	𡗨													
皿	E1AE				孟	盍	盍	盒	盞	盞	盞	盞	盞	盞			
目	E1AE														𡗟	𡗠	𡗡
	E1BE	𡗢	𡗣	𡗤	眞	𡗥	𡗦	𡗧	𡗨	𡗩	𡗪	𡗫	𡗬	𡗭	𡗮	𡗯	𡗰
	E1CE	𡗱	𡗲	𡗳	𡗴	𡗵	𡗶	𡗷	𡗸	𡗹	𡗺	𡗻	𡗼	𡗽	𡗾	𡗿	𡗿
	E1DE	𡗿	𡗿														
矛	E1DE			矜													
矢	E1DE				矣	矮											
石	E1DE						𡗟	砌	𡗡	𡗢	𡗣	𡗤	𡗥	𡗦	𡗧	𡗨	𡗩
	E1EE	𡗪	𡗫	𡗬	𡗭	𡗮	𡗯	𡗰	𡗱	𡗲	𡗳	𡗴	𡗵	𡗶	𡗷	𡗸	𡗹
	E23F		𡗺	𡗻	𡗼	𡗽	𡗾	𡗿	𡗿	𡗿	𡗿	𡗿					
示	E23F												祀	祠	祇	崇	祚
	E24F	祕	祕	祺	祿	禊	禊	禊	齋	禪	禮	禳					
禺	E24F												禹	禺			
禾	E24F														秉	秝	秝
	E25F	𡗟	秝	秝	秝	稍	秝	秝	秝	稟	稟	稱	稻	稟	稟	稟	稟
	E26F	稟	稟	稟	稟	稟	稟										

	Shift JIS	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
穴	E26F							穹	弃	窈	窗	窀	窘	窘	窩	竈	窖
	E280	窶	窸	窹	隆	邃	竇	竊									
立	E280								𡵓	𡵔	𡵕	𡵖	站	𡵘	竝	竝	𡵚
	E290	竝	竭	𡵔													
竹	E290				笄	笈	笊	笊	笊	笊	笊	笊	笊	笊	笊	笊	
	E29E		笊	笊	笊	笊	笊	笊	笊	笊	笊	笊	笊	笊	笊	笊	笊
	E2AE	筭	筭	筭	筭	筭	筭	筭	筭	筭	筭	筭	筭	筭	筭	筭	筭
	E2BE	筭	筭	筭	筭	筭	筭	筭	筭	筭	筭	筭	筭	筭	筭	筭	筭
	E2CE	筭	筭	筭	筭	筭	筭	筭	筭	筭	筭	筭	筭	筭	筭	筭	筭
	E2DE	筭	筭														
米	E2DE			𡵓	𡵔	𡵕	𡵖	𡵗	𡵘	𡵙	𡵚	𡵛	𡵜	𡵝	𡵞	𡵟	𡵠
	E2EE	𡵡	𡵢	𡵣	𡵤	𡵥	𡵦	𡵧	𡵨	𡵩	𡵪	𡵫	𡵬	𡵭	𡵮		
糸	E2EE														𡵰	𡵱	
	E33F		𡵲	𡵳	𡵴	𡵵	𡵶	𡵷	𡵸	𡵹	𡵺	𡵻	𡵼	𡵽	𡵾	𡵿	𡶀
	E34F	𡶁	𡶂	𡶃	𡶄	𡶅	𡶆	𡶇	𡶈	𡶉	𡶊	𡶋	𡶌	𡶍	𡶎	𡶏	𡶐
	E35F	𡶑	𡶒	𡶓	𡶔	𡶕	𡶖	𡶗	𡶘	𡶙	𡶚	𡶛	𡶜	𡶝	𡶞	𡶟	𡶠
	E36F	𡶂	𡶃	𡶄	𡶅	𡶆	𡶇	𡶈	𡶉	𡶊	𡶋	𡶌	𡶍	𡶎	𡶏	𡶐	𡶑
	E380	𡶒	𡶓	𡶔	𡶕	𡶖	𡶗	𡶘	𡶙	𡶚	𡶛	𡶜	𡶝	𡶞	𡶟	𡶠	𡶡
	E390	𡶢	𡶣	𡶤	𡶥	𡶦	𡶧	𡶨	𡶩	𡶪	𡶫	𡶬	𡶭	𡶮			
缶	E390														𡶰	𡶱	
	E39E		𡶲	𡶳	𡶴	𡶵	𡶶	𡶷									
网	E39E							𡶹	𡶺	𡶻	𡶼	𡶽	𡶾	𡶿	𡷀	𡷁	𡷂
	E3AE	𡷃	𡷄	𡷅	𡷆	𡷇											
羊	E3AE						𡷈	𡷉	𡷊	𡷋	𡷌	𡷍	𡷎	𡷏	𡷐	𡷑	𡷒
	E3BE	𡷓	𡷔														
羽	E3BE			𡷕	𡷖	𡷗	𡷘	𡷙	𡷚	𡷛	𡷜	𡷝	𡷞	𡷟			
老	E3BE														𡷠	𡷡	𡷢
耒	E3CE	耒	耒	耒	耒	耒	耒										
耳	E3CE							𡷣	𡷤	𡷥	𡷦	𡷧	𡷨	𡷩	𡷪	𡷫	𡷬
	E3DE	𡷭	𡷮	𡷯	𡷰	𡷱	𡷲										
聿	E3DE							𡷳	𡷴	𡷵	𡷶						
肉	E3DE											𡷷	𡷸	𡷹	𡷺	𡷻	𡷼
	E3EE	𡷽	𡷾	𡷿	𡸀	𡸁	𡸂	𡸃	𡸄	𡸅	𡸆	𡸇	𡸈	𡸉	𡸊	𡸋	𡸌
	E43F		𡸍	𡸎	𡸏	𡸐	𡸑	𡸒	𡸓	𡸔	𡸕	𡸖	𡸗	𡸘	𡸙	𡸚	𡸛
	E44F	𡸜	𡸝	𡸞	𡸟	𡸠	𡸡	𡸢	𡸣	𡸤	𡸥	𡸦	𡸧	𡸨	𡸩	𡸪	𡸫
	E45F	𡸬	𡸭	𡸮	𡸯	𡸰	𡸱	𡸲	𡸳	𡸴							

	Shift JIS	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
臣	E45F										臧						
至												臺	臻				
臼	E45F													臾	舁	舂	舅
	E46F	與	舊														
舌	E46F			舍	舐	舖											
舟	E46F						舩	舫	舸	舫	舫	舫	舫	舫	舫	舫	舫
	E480	舫	舫	舫	舫	舫											
艮	E480						艮										
色	E480							艷									
艸	E480								艸	艾	芍	芒	芫	芟	芻	芬	苡
	E490	苴	苟	苒	苴	苴	苴	苴	范	苻	苻	苞	茆	苜	茆	茆	
	E49E		茵	茴	茗	茲	茱	苟	茹	苻	荅	茯	茫	茗	荔	莅	莛
	E4AE	莪	荅	莢	莖	莫	莎	助	莊	茶	菟	荳	葱	莠	莉	莨	菴
	E4BE	萱	董	崑	菽	萃	崧	萋	菁	蒂	萵	菠	菲	萍	范	萌	莽
	E4CE	莢	菱	林	葭	葭	萵	萵	冠	葦	胡	菊	葭	蒂	葩	葆	萬
	E4DE	葯	施	蒿	蒟	葢	蒹	蒿	蒟	座	菁	弱	蓀	蓀	秦	蓀	葩
	E4EE	芳	蔡	蓓	蓓	蓓	蓓	蓓	蓓	蓓	蓓	蓓	蓓	蓓	蓓	蓓	
	E53F		蓓	蓓	蓓	蓓	蓓	蓓	蓓	蓓	蓓	蓓	蓓	蓓	蓓	蓓	蓓
	E54F	蓓	蓓	蓓	蓓	蓓	蓓	蓓	蓓	蓓	蓓	蓓	蓓	蓓	蓓	蓓	蓓
	E55F	蓓	蓓	蓓	蓓	蓓	蓓	蓓	蓓	蓓	蓓	蓓	蓓	蓓	蓓	蓓	蓓
虎	E55F									虎	帀	虔	號	虧			
虫	E55F														虱	蚋	蚣
	E56F	蚩	蚪	蚋	蚌	蚶	蚯	蛄	蛆	蚰	蛉	螭	蚰	蚰	蛞	蛞	蛞
	E580	蛟	蛛	蛭	蛭	蛭	蜈	蜀	蜃	蛻	蜃	蜃	蜃	蜃	蜃	蜃	蜃
	E590	蜃	蜻	蜥	蜥	蜥	蝠	蜥	蜥	蜥	蜥	蜥	蜥	蜥	蜥	蜥	蜥
	E59E		蜥	蜥	蜥	蜥	蜥	蜥	蜥	蜥	蜥	蜥	蜥	蜥	蜥	蜥	蜥
	E5AE	蜥	蜥	蜥	蜥	蜥	蜥	蜥	蜥	蜥	蜥	蜥	蜥	蜥	蜥	蜥	蜥
	E5BE	蜥	蜥	蜥	蜥	蜥	蜥	蜥	蜥	蜥	蜥	蜥	蜥	蜥	蜥	蜥	蜥
血	E5BE									衄	衄						
行	E5BE											衄	衄	衄	衄		
衣	E5BE															衫	袁
	E5CE	衄	衄	衄	衄	衄	衄	衄	衄	衄	衄	衄	衄	衄	衄	衄	衄
	E5DE	衄	衄	衄	衄	衄	衄	衄	衄	衄	衄	衄	衄	衄	衄	衄	衄
	E5EE	衄	衄	衄	衄	衄	衄	衄	衄	衄	衄	衄	衄	衄	衄	衄	衄
	E63F		襦	襦	襦	襦	襦	襦	襦								
西	E63F									西	覃	覈	羈				

	Shift JIS	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
見	E63F													覓	覘	覡	覢
	E64F	覣	覤	覥	覦	覧	覨	覩	覣								
角	E64F									觚	觔	觚	觔	觚	觔		
言	E64F															訃	訖
	E65F	訃	訖	訖	訖	訖	訖	訖	訖	訖	訖	訖	訖	訖	訖	訖	訖
	E66F	訖	訖	訖	訖	訖	訖	訖	訖	訖	訖	訖	訖	訖	訖	訖	訖
	E680	訖	訖	訖	訖	訖	訖	訖	訖	訖	訖	訖	訖	訖	訖	訖	訖
	E690	訖	訖	訖	訖	訖	訖	訖	訖	訖	訖	訖	訖	訖	訖	訖	訖
	E69E		訖	訖	訖	訖	訖	訖	訖	訖	訖	訖	訖	訖	訖	訖	訖
谷	E69E															𪛗	𪛘
	E6AE	𪛙															
豆	E6AE		豈	𪛚	豈	豈											
豕	E6AE						豕	豕	豕								
豕	E6AE									豕	豕	豕	豕	豕	豕	豕	豕
	E6BE	豕	豕	豕													
貝	E6BE				賤	賤	賤	賤	賤	貳	貳	貳	賈	賈	賤	賈	賈
	E6CE	賈	賈	賈	賈	賈	賈	賈	賈	賈	賈	賈	賈	賈	賈	賈	賈
赤	E6CE																赧
	E6DE	赧															
走	E6DE		𪛛	𪛛	𪛛	𪛛											
足	E6DE						𪛜	𪛜	𪛜	𪛜	𪛜	𪛜	𪛜	𪛜	𪛜	𪛜	𪛜
	E6EE	𪛜	𪛜	𪛜	𪛜	𪛜	𪛜	𪛜	𪛜	𪛜	𪛜	𪛜	𪛜	𪛜	𪛜	𪛜	𪛜
	E73F		𪛝	𪛝	𪛝	𪛝	𪛝	𪛝	𪛝	𪛝	𪛝	𪛝	𪛝	𪛝	𪛝	𪛝	𪛝
	E74F	𪛝	𪛝	𪛝	𪛝	𪛝	𪛝	𪛝	𪛝	𪛝	𪛝	𪛝					
身	E74F												𪛞	𪛞	𪛞	𪛞	𪛞
	E75F	𪛞	𪛞														
車	E75F			𪛟	𪛟	𪛟	𪛟	𪛟	𪛟	𪛟	𪛟	𪛟	𪛟	𪛟	𪛟	𪛟	𪛟
	E76F	𪛟	𪛟	𪛟	𪛟	𪛟	𪛟	𪛟	𪛟	𪛟	𪛟	𪛟	𪛟	𪛟	𪛟	𪛟	𪛟
	E780	𪛟	𪛟	𪛟													
辛	E780				𪛟	𪛟	𪛟	𪛟	𪛟								
𪛟	E780									𪛟	𪛟	𪛟	𪛟	𪛟	𪛟	𪛟	𪛟
	E790	𪛟	𪛟	𪛟	𪛟	𪛟	𪛟	𪛟	𪛟	𪛟	𪛟	𪛟	𪛟	𪛟	𪛟	𪛟	𪛟
	E79E		𪛟	𪛟	𪛟	𪛟	𪛟	𪛟	𪛟	𪛟	𪛟	𪛟	𪛟	𪛟	𪛟	𪛟	𪛟
	E7AE	𪛟	𪛟	𪛟	𪛟	𪛟	𪛟	𪛟									
邑	E7AE								𪛟	𪛟	𪛟	𪛟	𪛟	𪛟	𪛟	𪛟	𪛟
	E7BE	𪛟	𪛟	𪛟	𪛟												

	Shift JIS	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
酉	E7BE					酏	酖	酸	酣	酥	醅	醑	醒	醋	醉	醢	醅
	E7CE	醫	醢	醃	醄	醅	醆	醇	醈								
采	E7CE									糝	釋						
里	E7CE											釐					
金	E7CE												釒	釓	釓	釓	釓
	E7DE	釒	鉈	鉉	鉊	鉋	鉌	鉍	鉎	鉏	鉑	鉒	鉓	鉔	鉕	鉖	鉗
	E7EE	鉉	鉊	鉋	鉌	鉍	鉎	鉏	鉑	鉒	鉓	鉔	鉕	鉖	鉗	鉘	鉙
	E83F		鉚	鉛	鉜	鉝	鉞	鉟	鉠	鉡	鉢	鉣	鉤	鉥	鉦	鉧	鉨
	E84F	鉩	鉪	鉫	鉬	鉭	鉮	鉯	鉰	鉱	鉲	鉳	鉴	鉵	鉶	鉷	鉸
	E85F	鉹	鉺	鉻	鉼	鉽	鉾	鉿	鉿	鑀	鑁	鑂	鑃	鑄	鑅	鑆	鑇
	E86F	鑈	鑉	鑊	鑋	鑌	鑍	鑎	鑏	鑑							
門	E86F										門	閉	問	問	問	問	問
	E880	閏	閏	閏	閏	閏	閏	閏	閏	閏	閏	閏	閏	閏	閏	閏	閏
	E890	關	關	關	關												
阜	E890					阡	阢	阣	阥	阦	阧	阨	阩	阪	阫	阬	阭
	E89E		陝	陟	陟	陞	陞	陞	陞	隕	隕	隕	隕	隕	隕	隕	隕
隶	E8AE	隶	隸														
隹	E8AE			隹	隹	隹	隹	隹	隹	隹	隹	隹	隹	隹	隹	隹	隹
雨	E8AE												雹	霄	霆	霈	竟
	E8BE	雲	霑	霏	霖	雲	雷	霆	霰	霹	霽	霆	霽	霆	靈	靈	靈
青	E8CE	靜															
非	E8CE		靠														
面	E8CE			皀	靦	靨											
革	E8CE						勒	鞞	鞞	鞞	鞞	鞞	鞞	鞞	鞞	鞞	鞞
	E8DE	鞞	鞞	鞞	鞞	鞞	鞞	鞞	鞞	鞞	鞞						
韋	E8DE											韋	韋				
韭	E8DE													韭	齏	齏	
音	E8DE																竟
	E8EE	韶	韵														
頁	E8EE			頤	頤	頤	頤	頤	頤	頤	頤	頤	頤	頤	頤	頤	頤
	E93F		頤	頤	頤												
風	E93F					風	颯	颯	颯	颯	颯	颯					
食	E93F												飰	飰	餃	餉	餉
	E94F	餉	餘	餉	飭	餞	飮	餅	餬	餐	餽	餽	餽	饅	饅	饅	饅
	E95F	饑	饒	饒	饒												
首	E95F					旭	馘										

	Shift JIS	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
香	E95F							馥									
馬	E95F								馭	馮	馭	駟	駛	駝	駘	驚	駭
	E96F	駁	駱	駟	駢	駮	駢	駢	駢	駢	駢	駢	駢	駢	駢	駢	駢
	E980	駢	駢	駢	駢	駢	駢	駢	駢	駢	駢	駢	駢				
骨	E980													𩑦	𩑦	𩑦	𩑦
	E990	體	體	體	體												
高	E990					𩑦											
髟	E990						髟	髟	髟	髟	髟	髟	髟	髟	髟	髟	髟
	E99E		髟	髟	髟	髟	髟	髟	髟								
鬥	E99E									鬥	鬪	鬪	鬪	鬪	鬪		
鬯	E99E															鬯	
鬲	E99E																鬲
鬼	E9AE	𩑦	𩑦	𩑦	𩑦	𩑦	𩑦	𩑦									
魚	E9AE								𩑦	𩑦	𩑦	𩑦	𩑦	𩑦	𩑦	𩑦	𩑦
	E9BE	𩑦	𩑦	𩑦	𩑦	𩑦	𩑦	𩑦	𩑦	𩑦	𩑦	𩑦	𩑦	𩑦	𩑦	𩑦	𩑦
	E9CE	𩑦	𩑦	𩑦	𩑦	𩑦	𩑦	𩑦	𩑦	𩑦	𩑦	𩑦	𩑦	𩑦	𩑦	𩑦	𩑦
	E9DE	𩑦	𩑦	𩑦	𩑦	𩑦	𩑦	𩑦	𩑦	𩑦	𩑦						
鳥	E9DE											𩑦	𩑦	𩑦	𩑦	𩑦	
	E9EE	𩑦	𩑦	𩑦	𩑦	𩑦	𩑦	𩑦	𩑦	𩑦	𩑦	𩑦	𩑦	𩑦	𩑦	𩑦	𩑦
	EA3F		𩑦	𩑦	𩑦	𩑦	𩑦	𩑦	𩑦	𩑦	𩑦	𩑦	𩑦	𩑦	𩑦	𩑦	𩑦
	EA4F	𩑦	𩑦	𩑦	𩑦	𩑦	𩑦	𩑦	𩑦	𩑦	𩑦	𩑦	𩑦	𩑦	𩑦	𩑦	𩑦
	EA5F	𩑦	𩑦	𩑦													
鹵	EA5F				鹵	鹵	鹽										
鹿	EA5F							鹿	麋	麋	麋	麋	麋	麋	麋	麋	
麥	EA5F															麥	麩
	EA6F	𩑦	𩑦	𩑦													
麻	EA6F				𩑦												
黃	EA6F					𩑦											
黍	EA6F						𩑦	𩑦	𩑦								
黑	EA6F									𩑦	𩑦	𩑦	𩑦	𩑦	𩑦	𩑦	𩑦
	EA80	𩑦	𩑦	𩑦													
𩑦	EA80				𩑦	𩑦	𩑦										
𩑦	EA80							𩑦	𩑦	𩑦							
𩑦	EA80										𩑦	𩑦					
鼠	EA80												𩑦	𩑦			
鼻	EA80														𩑦		

	Shift JIS	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
齊	EA80															齊	
齒	EA80																齒
	EA90	齒	齒	齒	齒	齒	齒	齒	齒	齒	齒	齒	齒	齒			
龍	EA90													龕			
龜	EA90														龜		
龕	EA90															龕	

10.7. ESC+2D33: SQR CODE

SQR Code			ESC+ 2D33
Hexadecimal Code	ESC	2D33	Parameter
	<1B> ₁₆	<32> ₁₆ <44> ₁₆ <33> ₁₆ <33> ₁₆	,a,bb,c,d
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF	The set command is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

[Function]

Specifying the dimension code security QR code.

[Format] (Setting part)

<2D33>,a,bb,c,d

- Parameter

- a: "Error correction level (Error correction)" = L: 7%
M: 15%
Q: 25%
H: 30%
- b: "Specify the size of one side of a cell" = Valid range: 01 to 99 (dots)
- c: "Data setting mode" = 0: Manual setting
1: Automatic setting
- * Note that the print data specification differs depending on this setting.
- d: "Concatenation mode" = 0: Normal mode (fixed)

[Format] (Data part)

Encryption key data specification

<DK>o~o

The input mode specification is automatically switched according to the print data.

When setting manually (Data setting mode)

[Cryptographic part]

<DR>k,n~n * Used when the input mode specification is number mode, alphanumeric mode specification, or kanji code specification.

<DJ>mmmm,n~n * Used when specifying in binary.

[Non-encrypted part]

<DS>k,n~n * Used when the input mode specification is number mode, alphanumeric mode specification, or kanji code specification.

<DN>mmmm,n~n * Used when specifying in binary.

Automatic setting (Data setting mode)

[Cryptographic part]

<DJ>mmmm,n~n * The input mode designation is automatically switched according to the input data.

[Non-encrypted part]

<DN>mmmm,n~n * The input mode designation is automatically switched according to the input data.

- Parameter

- o: "Encryption key" = Encryption key (Fixed by hexadecimal 16 digits)
 * This setting is specified only when the encryption key is specified in the data setting mode.
 * Since the setting is fixed to 16 hexadecimal digits, an error will occur if any other value is specified.
- k: "Input mode" = 1: Number mode
 2: Alphanumeric mode
 3: Kanji mode (Shift JIS Kanji code)
 * This setting is specified only when the manual setting is specified in the data setting mode.
 * In addition to the above, this setting has the binary specification, but care must be taken because the data specification command is different.
- m: "The number of data" = Valid range: 0001 to 0486
 * This setting is set when automatic setting is specified in the data setting mode or when binary setting is specified manually.
- n: "Print data" = Data

[Supplemental Explanation 1]

1. If a Kanji character is specified in <DN> or <DJ>, select the size of the number of Kanji characters x 2.
2. When <DN> or <DJ> is specified during the automatic setting, if data of 80H to 9FH or E0H to FFH is specified, it will be handled in the Kanji mode and cannot be specified as binary.
3. The security QR code does not support the connection mode.
4. Data must be specified in the order of key, encryption part, and non-encryption.
5. The data read result is in the order of the non-encrypted part and the encrypted part.
6. If the encryption key is not specified when the power is turned on, the encryption key is "0000000000000000".
7. If an error occurs when specifying an encryption key, the previously specified one is applied.
8. When specifying the non-encrypted part without specifying the encrypted part in the data specification, the QR code is printed. However, if only the encryption part is specified without specifying the non-encryption part, the QR code is not printed.

[Coding Example 1]

Error collection level: 7%, Size of one side of a cell: 05, Data setting mode: Manual setting

<A>

<V>100<H>200

<2D33>,L,05,0,0

<DK>0123456789ABCDEF

<DR>1,012345

<DS>1,012345

<Q>2

<Z>

[Supplemental Explanation 2]

1. Printing will not be performed if parameters other than those listed or the number of print data do not match.
2. The data specification command for the data part differs depending on the setting of the parameter part and the content of the specified data.

[Coding Example 2]

Error collection level: 7%, Size of one side of a cell: 04

In the manual setting by specifying the mixture of the manual setting (data setting mode), data in the input mode (number, alphanumeric, kanji, binary) specified in the data part can be selected continuously.

<A>

<V>100<H>200

<2D33>,L,04,0,0

<DK>1234567890ABCDEF

<DR>3,Corporation

<DJ>0010,0123456789

<DR>1,123

<DS>3,SATO

<DN>0010,0123456789

<DS>1,123

<Q>1

<Z>

[Supplemental Explanation 3]

1. The data part is specified after the parameter part. Data parts are also specified in succession. If you do not specify it continuously, it may not be printed correctly.
2. The total number of data (n) in this specification is set to a maximum of 7000 bytes. In addition, the maximum number of blocks in the data part to be specified subsequently is 200 blocks.

QR data size list (for model 2)

Version	Error correction	Number	Alphanumeric	Kanji	Binary
1 21×21	L	41	25	10	17
	M	34	20	8	14
	Q	27	16	7	11
	H	17	10	4	7
2 25×25	L	77	47	20	32
	M	63	38	16	26
	Q	48	29	12	20
	H	34	20	8	14
3 29×29	L	127	77	32	53
	M	101	61	26	42
	Q	77	47	20	32
	H	58	35	15	24
4 33×33	L	187	114	48	78
	M	149	90	38	62
	Q	111	67	28	46
	H	82	50	21	34
5 37×37	L	255	154	65	106
	M	202	122	52	84
	Q	144	87	37	60
	H	106	64	27	44
6 41×41	L	322	195	82	134
	M	255	154	65	106
	Q	178	108	45	74
	H	139	84	36	58
7 45×45	L	370	224	95	154
	M	293	178	75	122
	Q	207	125	53	86
	H	154	93	39	64
8 49×49	L	461	279	118	192
	M	365	221	93	152
	Q	259	157	66	108
	H	202	122	52	84
9 53×53	L	552	335	141	230
	M	432	262	111	180
	Q	312	189	80	130
	H	235	143	60	98
10 57×57	L	652	395	167	271
	M	513	311	131	213
	Q	364	221	93	151
	H	288	174	74	119

Version	Error correction	Number	Alphanumeric	Kanji	Binary
11 61×61	L	772	468	198	321
	M	604	366	155	251
	Q	427	259	109	177
	H	331	200	85	137
12 65×65	L	883	535	226	367
	M	691	419	177	287
	Q	489	296	125	203
	H	374	227	96	155
13 69×69	L	1022	619	262	425
	M	796	483	204	331
	Q	580	352	149	241
	H	427	259	109	177
14 73×73	L	1101	667	282	458
	M	871	528	223	362
	Q	621	376	159	258
	H	468	283	120	194
15 77×77	L	1250	758	320	520
	M	991	600	254	412
	Q	703	426	180	292
	H	530	321	136	220
16 81×81	L	1408	854	361	586
	M	1082	656	277	450
	Q	775	470	198	322
	H	602	365	154	250
17 85×85	L	1548	938	397	644
	M	1212	734	310	504
	Q	876	531	224	364
	H	674	408	173	280
18 89×89	L	1725	1046	442	718
	M	1346	816	345	560
	Q	948	574	243	394
	H	746	452	191	310
19 93×93	L	1903	1153	488	792
	M	1500	909	384	624
	Q	1063	644	272	442
	H	813	493	208	338
20 97×97	L	2061	1249	528	858
	M	1600	970	410	666
	Q	1159	702	297	482
	H	919	557	235	382

Version	Error correction	Number	Alpha numeric	Kanji	Binary
21 101×101	L	2232	1352	572	929
	M	1708	1035	438	711
	Q	1224	742	314	509
	H	969	587	248	403
22 105×105	L	2409	1460	618	1003
	M	1872	1134	480	779
	Q	1358	823	348	565
	H	1056	640	270	439
23 109×109	L	2620	1588	672	1091
	M	2059	1248	528	857
	Q	1468	890	376	611
	H	1108	672	284	461
24 113×113	L	2812	1704	721	1171
	M	2188	1326	561	911
	Q	1588	963	407	661
	H	1228	744	315	511
25 117×117	L	3057	1853	784	1273
	M	2395	1451	614	997
	Q	1718	1041	440	715
	H	1286	779	330	535
26 121×121	L	3283	1990	842	1367
	M	2544	1542	652	1059
	Q	1804	1094	462	751
	H	1425	864	365	593
27 125×125	L	3517	2132	902	1465
	M	2701	1637	692	1125
	Q	1933	1172	496	805
	H	1501	910	385	625
28 129×129	L	3669	2223	940	1528
	M	2857	1732	732	1190
	Q	2085	1263	534	868
	H	1581	958	405	658
29 133×133	L	3909	2369	1002	1628
	M	3035	1839	778	1264
	Q	2181	1322	559	908
	H	1677	1016	430	698
30 137×137	L	4158	2520	1066	1732
	M	3289	1994	843	1370
	Q	2358	1429	604	982
	H	1782	1080	457	742

Version	Error correction	Number	Alpha numeric	Kanji	Binary
31 141×141	L	4417	2677	1132	1840
	M	3486	2113	894	1452
	Q	2473	1499	634	1030
	H	1897	1150	486	790
32 145×145	L	4686	2840	1201	1952
	M	3693	2238	947	1538
	Q	2670	1618	684	1112
	H	2022	1226	518	842
33 149×149	L	4965	3009	1273	2068
	M	3909	2369	1002	1628
	Q	2805	1700	719	1168
	H	2157	1307	553	898
34 153×153	L	5253	3183	1347	2188
	M	4134	2506	1060	1722
	Q	2949	1787	756	1228
	H	2301	1394	590	958
35 157×157	L	5529	3351	1417	2303
	M	4343	2632	1113	1809
	Q	3081	1867	790	1283
	H	2361	1431	605	983
36 161×161	L	5836	3537	1496	2431
	M	4588	2780	1176	1911
	Q	3244	1966	832	1351
	H	2524	1530	647	1051
37 165×165	L	6153	3729	1577	2563
	M	4775	2894	1224	1989
	Q	3417	2071	876	1423
	H	2625	1591	673	1093
38 169×169	L	6479	3927	1661	2699
	M	5039	3054	1292	2099
	Q	3599	2181	923	1499
	H	2735	1658	701	1139
39 173×173	L	6743	4087	1729	2809
	M	5313	3220	1362	2213
	Q	3791	2298	972	1579
	H	2927	1774	750	1219
40 177×177	L	7089	4296	1817	2953
	M	5596	3391	1435	2331
	Q	3993	2420	1024	1663
	H	3057	1852	784	1273

10.8. ESC+2D50: DATA MATRIX(ECC200)

Data Matrix(ECC200)			ESC+ 2D50
Hexadecimal Code	ESC	2D50	Parameter
	<1B> ₁₆	<32> ₁₆ <44> ₁₆ <35> ₁₆ <30> ₁₆	,aa,bb,ccc,ddd
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF	The set command is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

[Function]

Specifying the 2D code data matrix (ECC200).

[Format] (Setting part)

<2D50>,aa,bb,ccc,ddd

- Parameter

a: "Horizontal cell size" = Valid range: 01 to 99 (dots)

b: "Vertical cell size" = Valid range: 01 to 99 (dots)

c: "Number of cells in a row" = Valid range: 010 to 144
000: (Automatic setting)

d: "Number of cell rows" = Valid range: 008 to 144
000: (Automatic setting)

[Format] (Data part)

<DN>mmmm,n~n

- Parameter

m: "Number of data" = Valid range: 1 to 2000

n: "Print data" = Data

* To print 7EH, specify "7EH, 7EH".

* Printing will not be performed if parameters other than those listed or the number of print data do not match.

[Coding Example: Horizontal cell size: 3 dots, Vertical cell size: 3 dots]

<A>

<V>100<H>200<2D50>,03,03,000,000

<DN>0010,0123456789

<Z>

[Supplemental Explanation]

1. Printing will not be performed if parameters other than those listed or the number of print data do not match.
2. When the print format is specified, it is necessary to leave a margin of 2 mm or more on the four sides of the data matrix as a margin for scanning with a scanner.
3. If the print data is "7EH", specify "7EH, 7EH". The number of data is "0002".
4. When the automatic setting (000) is set for "Number of cells in one line" and "Number of cells", a square data matrix is printed.

	Data form	Number of data
Data form	Number	2000
	Alphanumeric	2000
	binary (00H to FFH)	1556

* The symbol size of the data matrix (ECC200) is fixed to 30 types as shown in the table below.

Data matrix (ECC200) symbol size and number of data

Symbol size			Max. number of data digits		
Number of cells in a row (c)	Number of cell rows (d)	Blocks	Number	Alphanumeric	Binary
10	10	1	6	3	1
12	12	1	10	6	3
14	14	1	16	10	6
16	16	1	24	16	10
18	18	1	36	25	16
20	20	1	44	31	20
22	22	1	60	43	28
24	24	1	72	52	34
26	26	1	88	64	42
32	32	4	124	91	60
36	36	4	172	127	84
40	40	4	228	169	112
44	44	4	288	214	142
48	48	4	348	259	172
52	52	4	408	304	202
64	64	16	560	418	278
72	72	16	736	550	366
80	80	16	912	682	454
88	88	16	1152	862	574
96	96	16	1392	1042	694
104	104	16	1632	1222	814
120	120	36	2100	1573	1048
132	132	36	2608	1954	1302
144	144	36	3116	2335	1556
18	8	1	10	6	3
32	8	2	20	13	8
26	12	1	32	22	14
36	12	2	44	31	20
36	16	2	64	46	30
48	16	2	98	72	47

* Mixing of numbers, alphanumeric characters and control codes will vary depending on the number of characters in the combination.

Data matrix code table

					S1								S0							
				B8	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1
				B7	0	0	0	0	1	1	1	1	0	0	0	0	1	1	1	1
				B6	0	0	1	1	0	0	1	1	0	0	1	1	0	0	1	1
				B5	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1
B4	B3	B2	B1		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	0	0	0	0			SP	0	@	P	`	p								
0	0	0	1	1			!	1	A	Q	a	q								
0	0	1	0	2			“	2	B	R	b	r								
0	0	1	1	3			#	3	C	S	c	s								
0	1	0	0	4			\$	4	D	T	d	t								
0	1	0	1	5			%	5	E	U	e	u								
0	1	1	0	6			&	6	F	V	f	v								
0	1	1	1	7			‘	7	G	W	g	w								
1	0	0	0	8			(	8	H	X	h	x								
1	0	0	1	9			)	9	I	Y	i	y								
1	0	1	0	A			*	:	J	Z	j	z								
1	0	1	1	B			+	;	K	[	k	{								
1	1	0	0	C			,	<	L	¥	l									
1	1	0	1	D			-	=	M	]	m	}								
1	1	1	0	E			.	>	N	^	n	~								
1	1	1	1	F			/	?	O	_	o	DEL								

"00H to FFH" can be specified for the data matrix.

"7EH, 7EH" is specified in the case of 7EH.

10.9. ESC+2D51: GS1 DATA MATRIX

GS1 Data Matrix			ESC+ 2D51
Hexadecimal Code	ESC	2D51	Parameter
	<1B>16	<32>16<44>16<35>16<31>16	,aa,bb,ccc,ddd
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF	The set command is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

[Function]

Specifying the 2D code GS1 data matrix.

[Format] (Setting part)

<2D51>,aa,bb,ccc,ddd

- Parameter

a: "Horizontal cell size" = Valid range: 01 to 99 (dots)

b: "Vertical cell size" = Valid range: 01 to 99 (dots)

c: "Number of cells in a row" = Valid range: 010 to 144
000: (Automatic setting)

d: "Number of cell rows" = Valid range: 008 to 144
000: (Automatic setting)

[Format] (Data part)

<DN>mmmm,n~n

- Parameter

m: "Number of data" = Valid range: 1 to 2000

n: "Print data" = Data

* To print 7EH, specify "7EH, 7EH".

* To print 1BH, specify "1BH, 1BH".

* To print FNC1, specify "1BH, 31H".

* If you specify a parameter other than those listed or the number of print data does not match, the print contents are not guaranteed.

[Coding Example] Horizontal cell size: 3 dots, Vertical cell size: 3 dots

<A>

<V>100<H>200<2D51>,03,03,000,000

<DN>0014,<1B>161100123456789

<Q>2

<Z>

*<1B> 16 indicates 1BH of the character code.

[Supplemental Explanation]

1. Printing will not be performed if parameters other than those listed or if the number of digits specified in "Number of data" does not match the number of digits in "print data" in the print data.
2. When specifying the print format, it is necessary to secure a margin of 2 mm or more in the four sides of the symbol as a margin for reading the symbol with a scanner.
3. If the print data is "7EH", specify "7EH, 7EH". The number of data is "0002".
4. If "7EH" is specified alone, a command error occurs and printing is not performed.
5. If the print data is "1BH", specify "1BH, 1BH". The number of data is "0002".
6. If the print data is "FNC1", specify "1BH, 31H". The number of data is "0002".
7. When "1BH" is specified alone, printing and printing contents are not guaranteed.
8. When "000 cells per line" and "cell lines" are set to 000 (automatic setting), square symbols are printed.
9. When the same number other than 000 is set for "Number of cells in one row" and "Number of cells in row" (manual setting), a square symbol is printed.
10. When a different value other than 000 is set for "Number of cells in one line" and "Number of cells in line" (manual setting), a rectangular symbol is printed.
11. The number of data that can be specified in the data part depends on the data format. The number of data that can be specified is as shown in the table below.

(When automatically setting the number of cells or specifying the maximum number of cells):

	Data form	Number of data
Data form	Number	2000
	Alphanumeric	2000
	Binary (00H to FFH)	1556

12. The symbol size that can be specified in the GS1 data matrix is only 30 types of "symbol size" in the table. In addition, the upper limit of the number of data that can be specified for each symbol size is determined and is as shown in the table "Maximum number of digits of data".
13. Be sure to specify 1BH and 31H at the beginning of the data section.

GS1 data matrix symbol size and number of data

Symbol size			Max. number of data digits		
Number of cells in a row (c)	Number of cell rows (d)	Blocks	Number	Alphanumeric	Binary
10	10	1	6	3	1
12	12	1	10	6	3
14	14	1	16	10	6
16	16	1	24	16	10
18	18	1	36	25	16
20	20	1	44	31	20
22	22	1	60	43	28
24	24	1	72	52	34
26	26	1	88	64	42
32	32	4	124	91	60
36	36	4	172	127	84
40	40	4	228	169	112
44	44	4	288	214	142
48	48	4	348	259	172
52	52	4	408	304	202
64	64	16	560	418	278
72	72	16	736	550	366
80	80	16	912	682	454
88	88	16	1152	862	574
96	96	16	1392	1042	694
104	104	16	1632	1222	814
120	120	36	2100	1573	1048
132	132	36	2608	1954	1302
144	144	36	3116	2335	1556
18	8	1	10	6	3
32	8	2	20	13	8
26	12	1	32	22	14
36	12	2	44	31	20
36	16	2	64	46	30
48	16	2	98	72	47

* Mixing of numbers, alphanumeric characters and control codes will vary depending on the number of characters in the combination.

GS1 data matrix code table

					S1								S0							
				B8	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1
				B7	0	0	0	0	1	1	1	1	0	0	0	0	1	1	1	1
				B6	0	0	1	1	0	0	1	1	0	0	1	1	0	0	1	1
				B5	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1
B4	B3	B2	B1		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	0	0	0	0			SP	0	@	P	`	p								
0	0	0	1	1			!	1	A	Q	a	q								
0	0	1	0	2			“	2	B	R	b	r								
0	0	1	1	3			#	3	C	S	c	s								
0	1	0	0	4			\$	4	D	T	d	t								
0	1	0	1	5			%	5	E	U	e	u								
0	1	1	0	6			&	6	F	V	f	v								
0	1	1	1	7			‘	7	G	W	g	w								
1	0	0	0	8			(	8	H	X	h	x								
1	0	0	1	9			)	9	I	Y	i	y								
1	0	1	0	A			*	:	J	Z	j	z								
1	0	1	1	B			+	;	K	[	k	{								
1	1	0	0	C			,	<	L	¥	l									
1	1	0	1	D			-	=	M	]	m	}								
1	1	1	0	E			.	>	N	^	n	~								
1	1	1	1	F			/	?	O	_	o	DEL								

	Data n	Data n+1
FNC1	1BH	31H

"00H to FFH" can be specified for the GS1 data matrix.

"7EH, 7EH" is specified in the case of 7EH.

"1BH, 1BH" is specified in the case of 1BH,

"1BH, 31H" is specified when FNC1 is selected.

10.10. ESC+2D70: Aztec BARCODE

Aztec Barcode			ESC+ 2D70
Hexadecimal Code	ESC	2D70	Parameter
	<1B> ₁₆	<32> ₁₆ <44> ₁₆ <37> ₁₆ <30> ₁₆	,a,bb,cc,ss,e,f~f
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF	The set command is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

[Function]

Specifying the Aztec barcode.

[Format] (Setting part)

<2D70>,a,bb,cc,dd,e,f~f

- Parameter

- a: "Symbol type"
 - = 0: Full range symbol
 - 1: Compact symbol
- b: "Error correction percentage"
 - = 0: Default error correction level
 - 01 to 99: Error correction percentage
- c: "Symbol size"
 - = 0: Automatic minimization
 - 1 to 4: 1 to 4 layers (compact symbol)
 - * See the symbol size table.
 - 4 to 32: 4 to 32 layers (full range symbol)
 - * See the symbol size table.
- d: "Number of symbols for append"
 - = 0: Encode without appending
 - 1: Automatic setting
 - 2 to 26: Number of structured append blocks
- e: "Message ID"
 - = Y: Specify message ID
 - N: Do not add message ID
- f: "Message ID of structured append symbol"
 - = Printable ASCII character string (0x21 to 0x7E), Up to 24 bytes

[Format] (Data part)

<DS>n~n // For ASCII data

<DN>mmmm, n~n //For binary data

- Parameter

- m: "The number of data" = 0001 to 1914
 - Set this parameter when the print data is in a binary format.
- n: "Print data" = data
 - To select [1BH], specify [1BH, 1BH].
 - To select [FNC1], specify [1BH, 30H].
 - To select [ECI], be sure to write [1BH, *]. (* specifies a value between 31H and 36H.)

[Coding Example]

Symbol type: compact, ECC percentage: initial value, Symbol size: 2 layers,
Number of symbols for append: Encode without appending, message ID: none,
structured append symbol message ID: None, Barcode data: THIS IS TEST

<A>

<V>0100<H>0100<L>0404

<2D70>,1,0,2,0,N,<DS>THIS IS TEST

<Q>1

<Z>

[Supplemental Explanation]

1. If parameters other than those described are specified, symbols may not be printed.
2. If the Aztec code size is small, the symbol may not be read depending on the performance of the scanner. In that case, use the <ESC> L command with the same vertical and horizontal enlargement ratios to enlarge the symbol size so that it is sufficient.
3. The Aztec code can be set within the range of (00H-FFH). For binary data, the user needs to set the number of data correctly using the <ESC> DN command. If the number of data and print data do not match, the symbol cannot be printed correctly.
4. If the print data is [1BH], write [1BH, 1BH]. At that time, the number of data is [0002].
5. When expressing the extended channel interpretation (ECI), use [1BH, *] in pairs in the input data. '*' is specified by a value between 31H and 36H. The numerical part of FLG (1) to FLG (6) below indicates the number of digits of data used in ECI.

<ESC>1→FLG(1) ECI data to be specified is 1 digit

<ESC>2→FLG(2) ECI data to be specified is 2 digits

<ESC>3→FLG(3) ECI data to be specified is 3 digits

<ESC>4→FLG(4) ECI data to be specified is 4 digits

<ESC>5→FLG(5) ECI data to be specified is 5 digits

<ESC>6→FLG(6) ECI data to be specified is 6 digits

Example) Data for <ESC> 4: <ESC> 41111ABCDE

Scan data for <ESC> 4: ¥001111ABCDE ('¥' differs depending on the scanner setting.)

(1) Since <ESC> 4 is FLG (4), the following "1111 (4 digits)" is treated as ECI data.

(2) Since the number of digits is insufficient, it is padded with 0 at the beginning and becomes "¥ 001111".

6. The message ID is automatically set by the number of append symbols and is valid only when divided and printed as a result of specifying the number of structured append blocks.

Aztec code table

					S1								S0								
				B8	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1
				B7	0	0	0	0	1	1	1	1	0	0	0	0	1	1	1	1	
				B6	0	0	1	1	0	0	1	1	0	0	1	1	0	0	1	1	
				B5	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	
B4	B3	B2	B1		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	
0	0	0	0	0			SP	0	@	P	`	p									
0	0	0	1	1			!	1	A	Q	a	q									
0	0	1	0	2			“	2	B	R	b	r									
0	0	1	1	3			#	3	C	S	c	s									
0	1	0	0	4			\$	4	D	T	d	t									
0	1	0	1	5			%	5	E	U	e	u									
0	1	1	0	6			&	6	F	V	f	v									
0	1	1	1	7			‘	7	G	W	g	w									
1	0	0	0	8			(	8	H	X	h	x									
1	0	0	1	9			)	9	I	Y	i	y									
1	0	1	0	A			*	:	J	Z	j	z									
1	0	1	1	B			+	;	K	[	k	{									
1	1	0	0	C			,	<	L	¥	l										
1	1	0	1	D			-	=	M	]	m	}									
1	1	1	0	E			.	>	N	^	n	~									
1	1	1	1	F			/	?	O	_	o	DEL									

	Data n	Data n+1
FNC1	1BH	30H
ECI	1BH	30H to 36H

"00H to FFH" can be specified for the Aztec code.

To set 1BH, specify [1BH, 1BH].

To set FNC1, specify [1BH, 30H].

To set ECI, specify [1BH, *]. (* refers to values from 31H to 36H.)

10.11. ESC+BQ: QR FONT SPECIFICATION (COMPATIBLE COMMANDS)

QR Font Specification (Compatible Commands)			ESC+ BQ
Hexadecimal Code	ESC	BQ	Parameter
	<1B> ₁₆	<42> ₁₆ <51> ₁₆	Manual setting: abcc,(ddeeff,)g(hhhh)n Automatic setting: abcc,(ddeeff,)gn
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF	The set command is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

[Function]

Specifying the 2D QR code.

[Format] (Setting part)

Manual setting: <BQ>abcc,(ddeeff,)g(hhhh)n

Automatic setting: <BQ>abcc,(ddeeff,)0n

- Parameter

- a: "Error correction level (Error correction)" = 1: 7% High density level (L)
2: 15% Standard level (M)
3: 30% Ultra high reliability level (H)
4: 25% High reliability level (Q)
- b: "Concatenation mode" = 0: Normal mode
1: Concatenation mode
- c: "Cell 1 side size" = Effective range: 01 to 99 (dots)

Example) When cc = 04



- d: "Number of connected mode divisions" = Effective range: 01 to 16
- e: "Serial number divided in connection mode" = Effective range: 01 to 16
- f: "Concatenated mode parity data" = Effective range: 00 to FF
- g: "Character mode" = 0: Automatic setting mode
1: Number mode
2: Alphanumeric mode
3: Binary mode
4: Kanji mode
- h: "The number of data" = Effective range: 0001 to 2000 (dots)
- n: Print data" = Data

[Coding Example] Error collection level: 30%, Concatenation mode: Normal, Cell 1 side size: 10

<A>

<V>100<H>200<BQ>3010,112345

<Q>2

<Z>

[Supplemental Explanation]

1. Parity data specifies the data obtained by computing all the print data of the divided 2D symbol (QR code) (operation exclusive logic XOR) with hexadecimal characters.
2. When the character mode is other than the binary mode, the data number parameter does not need to be set.

[Precautions]

Since it is an old specification command, it is recommended to use <2D31>.

10.12. ESC+BV: MAXI CODE SPECIFICATION (COMPATIBLE COMMAND)

MAXI Code Specification (Compatible Command)			ESC+ BV
Hexadecimal Code	ESC	BV	Parameter
	<1B> ₁₆	<42> ₁₆ <56> ₁₆	a,b,c,ddddddddd,eee,fff,n~n
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF	The set command is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

[Function]

Specifying the 2D code MAXI code.

[Format]

<BV>a,b,c,ddddddddd,eee,fff,n~n

● Parameter

a: "Symbol number" = Effective range: 1 to 8

b: "Number of symbol digits" = Effective range: 1 to 8

c: "Mode" = 2: Delivery only

3: Delivery only

4: Standard symbol

6: Dedicated to reader

d: "Postal code" = Effective range: 0 to 999999999 (mode 2)
000000 to 999999 (mode 3)

* For mode 2: Up to 9 digits (numeric only)

* For mode 3: Specify 6 digits

(alphabetic characters are uppercase only).

e: "Country code" = Effective range: 001 to 999

f: "Class of service" = Effective range: 001 to 999

n: "Low priority message" = Alphanumeric, symbols

Mode	Service class	Country code	Postal code	Maximum number of print data	
				Number only	Alphanumeric
2	3 digits (fixed) (number only)	3 digits (fixed) (number only)	Max. 9 digits	84	84
3			6 digits (fixed) (alphanumeric)		
4	Omitted			93	93
6					

[Coding Example]

<A>

<V>100<H>200<BV>1,1,2,123456789,001,002,SAHTHA

<Q>2

<Z>

[Supplemental Explanation]

1. With the MAXI code, the size of the MAXI code printed does not change according to the number of print data.
2. Printing will not be performed if parameters other than those listed or the number of print data do not match.
3. When modes 4 and 6 are specified, the number of print data must be 12 or more. The MAXI code printed when the number of print data is specified as 11 or less cannot be read by a scanner.

[Precautions]

1. Since it is an old specification command, it is recommended to use <2D20>.

10.13. ESC+BK: PDF417 (COMPATIBLE COMMAND)

PDF417 (Compatible Command)			ESC+ BK
Hexadecimal Code	ESC	BK	Parameter
	<1B> ₁₆	<42> ₁₆ <4B> ₁₆	aabbcddeefffg~g(,h)
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF	The set command is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

[Function]

Specifying the 2D code PDF417.

[Format] (Setting part)

<BK>aabbcddeefffg~g(,h)

- Parameter

- a: "Minimum module width" = Effective range: 01 to 27 (dots)
- b: "Minimum module vertical dimension" = Effective range: 01 to 72 (dots)
- c: "Security level" = Effective range: 0 to 8
- d: "Number of data code words per line" (cols) = Effective range: 01 to 30
00: Automatic
(The horizontal size is variable depending on the number of specified data.)
- e: "Number of lines per symbol" (rows) = Effective range: 03 to 90
00: Automatic
(The vertical size is variable depending on the number of specified data.)
- f: "Number of data digits" = Effective range: 0001 to 2000
- g: "Print data" = Data
- h: "PDF code type" = When omitted: PDF417
T: Truncation mold
M: Micro PDF

[Coding Example]

Minimum module width: 03 (dots), Minimum module vertical dimension: 09 (dots), Security level: 3, Number of data code words per line: 03, Number of lines per symbol: 18

```
<A>
<V>100<H>200<BK>0309303180010PDF1234567
<Q>2
<Z>
```

[Supplemental Explanation]

1. If both the data codeword per line and the number of lines per symbol are specified as 00, the aspect ratio will be 1: 2 depending on the number of print data.
2. When the security level is increased, it is necessary to specify a large number of lines per symbol or data codeword per line.
3. The maximum number of data digits is 2681, but depends on the minimum module dimensions, security level and print data type designation.
4. If the parameter settings and the number of data do not match, printing is not performed.
5. When Micro PDF is specified for the PDF type, the number per symbol is specified by the number of data codeword per line, and accordingly the maximum number of data digit is specified. For details, refer to "Micro PDF symbol size and number of data".
6. When Micro PDF is specified for the PDF type, the security level specification is invalid.

[Point]

1. A sequential number is not available.
2. The print position cannot be specified by automatic line feed.
3. The printing specification from 00H to FFH is possible.
4. The format registration is possible.
5. The print height is different for alphabetic characters only, numbers only, and alphanumeric characters.

[Precautions]

1. Since it is an old command, it is recommended to use <2D10>.

* The symbol size of Micro PDF417 is fixed to 34 types shown in the table below.

[Micro PDF417 symbol size and number of data]

Symbol size		Max. number of data		
Cols(c)	Rows(d)	Alphabets (A to Z) only	Numbers only	Binary mode
1	11	6	8	3
	14	12	17	7
	17	18	26	10
	20	22	32	13
	24	30	44	18
	28	38	55	22
2	8	14	20	8
	11	24	35	14
	14	36	52	21
	17	46	67	27
	20	56	82	33
	23	64	93	38
	26	72	105	43
3	6	10	14	6
	8	18	26	10
	10	26	38	15
	12	34	49	20
	15	46	67	27
	20	66	96	39
	26	90	132	54
	32	114	167	68
	38	138	202	82
	44	162	237	97
4	4	14	20	8
	6	22	32	13
	8	34	49	20
	10	46	67	27
	12	58	85	34
	15	76	111	45
	20	106	155	63
	26	142	208	85
	32	178	261	106
	38	214	313	128
	44	250	366	150

* Mixing of alphabetic characters (uppercase letters, lowercase letters), numbers, and control codes will vary depending on the number of characters in the combination.

Micro PDF417 code table

					S1								S0							
				B8	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1
				B7	0	0	0	0	1	1	1	1	0	0	0	0	1	1	1	1
				B6	0	0	1	1	0	0	1	1	0	0	1	1	0	0	1	1
				B5	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1
B4	B3	B2	B1		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	0	0	0	0			SP	0	@	P	`	p								
0	0	0	1	1			!	1	A	Q	a	q								
0	0	1	0	2			“	2	B	R	b	r								
0	0	1	1	3			#	3	C	S	c	s								
0	1	0	0	4			\$	4	D	T	d	t								
0	1	0	1	5			%	5	E	U	e	u								
0	1	1	0	6			&	6	F	V	f	v								
0	1	1	1	7			‘	7	G	W	g	w								
1	0	0	0	8			(	8	H	X	h	x								
1	0	0	1	9			)	9	I	Y	i	y								
1	0	1	0	A			*	:	J	Z	j	z								
1	0	1	1	B			+	;	K	[	k	{								
1	1	0	0	C			,	<	L	¥	l									
1	1	0	1	D			-	=	M	]	m	}								
1	1	1	0	E			.	>	N	^	n	~								
1	1	1	1	F			/	?	O	_	o	DEL								

"00H to FFH" can be specified for Micro PDF417.

10.14. ESC+BX: DATA MATRIX(ECC200) (COMPATIBLE COMMAND)

Data Matrix(ECC200) (Compatible Command)			ESC+ BX
Hexadecimal Code	ESC	BX	Parameter
	<1B> ₁₆	<42> ₁₆ <58> ₁₆	aabbccddeeeffghh
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF	The set command is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

[Function]

Specifying the 2D code data matrix (ECC200).

[Format] (Setting part)

<BX>aabbccddeeeffghh

● Parameter

- a: "Format ID" = Effective range: 01 (fixed)
- b: "Error correction level (error correction)" = Effective range: 20 (fixed)
- c: "Cell width size" = Effective range: 01 to 16 (dots/cell)
- d: "Cell pitch size" = Effective range: 01 to 16 (dots/cell)
- e: "Number of cells in one row" = Effective range: 010 to 144
000: (Automatic setting)
- F: "Number of cell rows" = Effective range: 008 to 414
000: (Automatic setting)
- g: "Mirror image" = Effective range: 0 (fixed)
- h: "Guide cell size" = Effective range: 01 (fixed)

[Supplemental Explanation]

- When 000 is specified for both the number of cells and cell lines in one row, the optimal matrix size is automatically set according to the number of data.

[Precautions]

- Since it is an old specification command, it is recommended to use <2D50>.

10.15. ESC+DC: DATA MATRIX(ECC200) DATA SPECIFICATION (COMPATIBLE COMMAND)

Data Matrix(ECC200) Data Specification (Compatible Command)			ESC+ DC
Hexadecimal Code	ESC	DC	Parameter
	<1B> ₁₆	<44> ₁₆ <43> ₁₆	n~n
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF	The set command is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

[Function]

Specifying the 2D code data matrix (ECC200) data.

[Format] (Setting part)

<DC>n~n

• Parameter

n: "Print data" = Data

[Coding Example]

Cell width size: 02, Cell pitch size: 02, Number of cells in a row: 000 (Automatic setting),

Number of cell lines: 000 (Automatic setting), Print data: 1234567890

<A>

<V>100<H>200

<BX>01200202000000001

<DC>1234567890

<Q>2

<Z>

[Supplemental Explanation]

- 00H to FFH can be specified for the data matrix (ECC200). However, 05H, 10H, 11H, 18H and 1BH cannot be specified because they are printer control codes. Use data matrix <2D50> to specify the control codes for data.

	Data format	Number of data
Data format	Number	2000
	Alphanumeric	2000
	Binary (00H to FFH)	1556

* The numerical values in the above table represent the maximum number of data that can be specified as barcode data.

[Precautions]

- Since it is an old specification command, it is recommended to use <2D50>.

10.16. ESC+FX: DATA MATRIX(ECC200) SEQUENTIAL NUMBER DESIGNATION (COMPATIBLE COMMAND)

Data Matrix(ECC200) Sequential Number Designation (Compatible Command)			ESC+ FX
Hexadecimal Code	ESC	FX	Parameter
	<1B> ₁₆	<46> ₁₆ <58> ₁₆	aaabcccdddeee
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF	The set command is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

[Function]

Specifying the sequential number of the 2D code data matrix.

[Format] (Data specification part)

<FX>aaabcccdddeee

● Parameter

- a: "Number of cards issued with the same content" = Effective range: 001 to 999
- b: "Increase/decrease flag" = +: Increase
-: Decrease
- c: "Number of changes" = Effective range: 001 to 999
- d: "Specify digit position" = Effective range: 001 to 999
- e: "Number of digits" = Effective range :001 to 999

[Coding Example]

Number of cards issued with the same content: 001, Increase/decrease flag: + ,
Number of changes: 001, Specify digit position: 005, Number of digits: 003

<A>

<V>100<H> 200

<FX>001+001005003

<BX>01100202000000001

<DC>00006000

<Q>2

<Z>

[Precautions]

1. Since it is an old specification command, it is recommended to use <2D50>.

GS1 Data matrix(ECC200) Code table (When <DC> is specified)

					S1								S0								
				B8	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1
				B7	0	0	0	0	1	1	1	1	0	0	0	0	1	1	1	1	
				B6	0	0	1	1	0	0	1	1	0	0	1	1	0	0	1	1	
				B5	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	
B4	B3	B2	B1		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	
0	0	0	0	0			SP	0	@	P	`	p									
0	0	0	1	1			!	1	A	Q	a	q									
0	0	1	0	2			“	2	B	R	b	r									
0	0	1	1	3			#	3	C	S	c	s									
0	1	0	0	4			\$	4	D	T	d	t									
0	1	0	1	5			%	5	E	U	e	u									
0	1	1	0	6			&	6	F	V	f	v									
0	1	1	1	7			‘	7	G	W	g	w									
1	0	0	0	8			(	8	H	X	h	x									
1	0	0	1	9			)	9	I	Y	i	y									
1	0	1	0	A			*	:	J	Z	j	z									
1	0	1	1	B			+	;	K	[	k	{									
1	1	0	0	C			,	<	L	¥	l										
1	1	0	1	D			-	=	M	]	m	}									
1	1	1	0	E			.	>	N	^	n	~									
1	1	1	1	F			/	?	O	_	o	DEL									

"00H to FFH" can be specified for the GS1 data matrix(ECC200).

(However, 05H, 10H, 11H, 18H and 1BH cannot be specified because they are printer control codes.)

To se 7EH, specify "7EH, 7EH".

11. GRAPHIC COMMAND

11.1. ESC+G: GRAPHIC PRINTING DESIGNATION

Graphic Printing Designation			ESC+G
Hexadecimal Code	ESC	G	Parameter
	<1B> ₁₆	<47> ₁₆	abbbcccn~n
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF	The set command is not maintained.
	Valid range within items	The set command is valid until the next valid setting.
	Valid range between items	The set command is valid until the next valid setting.

[Function]

Specifying graphic printing.

[Format]

<G> abbbcccn~n

- Parameter

- a: "Specify data in hexadecimal or binary" = H: Hexadecimal data
Specify graphic data with ASCII 0-F as 8 dots per 2 characters. Output as ASCII compatible hexadecimal code.
B: Binary data
Designate graphic data as 1 byte 8 dots in binary.
- b: "Specifies the horizontal graphic area in bytes" See the table.
- c: "Specifies the vertical graphic area in bytes" See the table.
- n: "Graphic data"

[Coding Example 1] "H: HEX data" is specified for "Data specification by HEX and binary"

"□" is printed for the following specifications.

<A>

<V>50<H>50

<G>H001001<46463831383138313831383138314646>₁₆

<Q>1

<Z>

[Coding Example 2] "B: Binary data" is specified for "Data specification by HEX and binary"

"□" is printed for the following specifications.

<A>

<V>50<H>50

<G>B001001<FF818181818181FF>₁₆

<Q>1

<Z>

[Supplemental Explanation]

1. The “B” designation is advantageous in the terms of capacity because the graphic data program description is shorter and the transmission data is halved compared to the “H” designation.
2. Enlargement <L> is possible.
3. When specifying enlargement <L>, it is necessary to specify it immediately before the graphic printing specification <G>.
4. The maximum horizontal byte and the maximum vertical byte are defined in the following table.
5. The size of the graphic data is calculated as “horizontal maximum byte x vertical maximum byte x 8”.
6. Graphic printing is printed only at 0-degree rotation.

[Parameter initial value and specified range]

Model		Max. horizontal bytes	Max. vertical bytes
S Mode	203 dpi	BA400: 104 BV400: 108	400
	305 dpi	156	600
	600 dpi	308	1200
CL4NX-J	203dpi	104	400
	305dpi	156	600

11.2. ESC+GM: BMP FILE PRINTING SPECIFICATION

BMP File Printing Specification			ESC+GM
Hexadecimal Code	ESC	GM	Parameter
	<1B> ₁₆	<47> ₁₆ <4D> ₁₆	aaaaa,n~n
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF	The set command is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

[Function]

Specifying printing of BMP files created with a paint brush on Windows.

[Format]

<GM>aaaaa,n~n

- Parameter

a: "Total bytes of BMP file"

n: "Data"

[Coding Example]

<A>

<V>50<H>50<GM>04500,<424D00~00>₁₆

<Q>2

<Z>

[Supplemental Explanation]

1. Data is transmitted as binary data (Outputs as 1 byte 8 dots in binary all at once). (The file size of the BMP file is the total bytes, and the BMP file data is the data.)
2. If the total bytes in the BMP file do not match the transferred data, it may cause an abnormal operation.
3. The total bytes are the file size displayed in the properties.
4. BMP files can only be used in the black-and-white mode. A BMP file in the color mode is not printed due to a command error.
The BMP compression type is not supported. Make sure that the file extension is "BMP" before printing.
5. Enlargement <L> is possible.
6. When enlargement <L>, it must be specified immediately before BMP file specification <GM>.
7. Graphic printing is printed only at 0-degree rotation.

11.3. ESC+GP: PCX FILE PRINTING SPECIFICATION

PCX File Printing Specification			ESC+GP
Hexadecimal Code	ESC	GP	Parameter
	<1B> ₁₆	<47> ₁₆ <50> ₁₆	aaaaa,n~n
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF	The set command is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

[Function]

Specifying to print the PCX file.

[Format]

<GP>aaaaa,n~n

• Parameter

a: "Total bytes in the PCX file "

n: "Data"

[Coding Example]

<A>

<V>50<H>50<GP>04500,XXXXXXXXXXXXX

<Q>2

<Z>

[Supplemental Explanation]

1. The data is sent as binary data (Outputs as 1 byte 8 dots in binary all at once). (The total byte size corresponds to file size PCX file and PCX file data corresponds to data.)
2. If the total bytes in the PCX file do not match the transferred data, it may cause an abnormal operation.
3. The total bytes are the file size displayed in the properties.
4. PCX files can only be used in the black-and-white mode. PCX files in the color mode are not printed because of a command error.
Note that the PCX file compression type is not supported. Make sure that the file extension is "PCX" before printing.
5. Enlargement <L> is possible.
6. When specifying enlargement <L>, it must be specified immediately before PCX file specification <GP>.
7. Graphic printing is printed only at 0-degree rotation.

12. SYSTEM COMMAND

12.1. ESC+CS: PRINT SPEED SPECIFICATION

Print Speed Specification			ESC+CS
Hexadecimal Code	ESC	CS	Parameter
	<1B> ₁₆	<43> ₁₆ <53> ₁₆	aa
Initial Value	Refer to the table below.		

Valid Range and Term of Command	When the power switch is OFF	The set parameter is maintained.
	Valid range within items	The set parameter is valid until the next valid setting.
	Valid range between items	The set parameter is valid until the next valid setting.

[Function]

Specifying the speed of printing.

[Format]

<CS>aa

- Parameter

a: "Print speed" = Refer to the table.

[Coding Example]

<A>

<CS>4

<Z>

[Supplemental Explanation]

1. The print speed value set from the command is retained.

[Point]

1. If a value outside the setting range is specified, the print speed is not changed.
2. When the print mode is peel-off issuance, the maximum printing speed is 6 in./sec. If you specify more than 7 in./sec., the printing speed will not be changed.
3. When 2 in./sec. is specified for the thermal transfer method, it operates at 3 in./sec.

[Parameter specification range]

Parameter	BX410 203dpi	BX410 305dpi	BX420 203dpi	BX420 300dpi	BX430 600dpi	BX610/620 203dpi	BX610/620 305dpi
1	3ips	3ips	3ips	3ips	2ips	3ips	3ips
2	3ips	3ips	3ips	3ips	2ips	3ips	3ips
3	3ips	3ips	3ips	3ips	3ips	3ips	3ips
4	6ips	5ips	6ips	5ips	4ips	5ips	5ips
5	6ips	5ips	6ips	5ips	5ips	5ips	5ips
6	6ips	8ips	6ips	8ips	6ips	8ips	8ips
7	10ips	8ips	10ips	8ips	6ips	8ips	8ips
8	10ips	8ips	10ips	8ips	6ips	8ips	8ips
9	10ips	10ips	10ips	10ips	6ips	10ips	10ips
10	10ips	10ips	10ips	10ips	6ips	10ips	10ips
11	12ips	12ips	12ips	12ips	6ips	12ips	12ips
12	12ips	12ips	12ips	12ips	6ips	12ips	12ips
13	14ips	14ips	12ips	12ips	6ips	12ips	12ips
14	14ips	14ips	12ips	12ips	6ips	12ips	12ips

12.2. ESC+#F: PRINT DENSITY SPECIFICATION

Print Density Specification			ESC+#F
Hexadecimal Code	ESC	#F	Parameter
	<1B> ₁₆	<23> ₁₆ <46> ₁₆	ab or aab
Initial Value	Refer to the table below.		

Valid Range and Term of Command	When the power switch is OFF	The set parameter is maintained.
	Valid range within items	The set parameter is valid until the next valid setting.
	Valid range between items	The set parameter is valid until the next valid setting.

[Function]

Specifying the print density.

[Format]

<#F>ab

<#F>aab

- Parameter

a: "Print density level specification" = 1 Lightest

2

3

4

5

6

7

8

9

10 Darkest



b: "Print density specification" = A to F (Optional)

This parameter is usually "A".

Refer to the table for the valid parameter range.

[Coding Example]

<A>

<#F>5A

<Z>

[Supplemental Explanation]

1. The print density value set from the command is retained.

[Point]

1. If a value outside the setting range is specified, the print density is not changed.

[Print density level specification range]

Model	Default	Parameter effective range	When out of the range
S Mode	5	1, 2, 3, 4, 5, 6, 7, 8, 9, 10	If a value outside the valid range shown on the left is specified, the command is ignored.
CL4NX-J	5	1, 2, 3, 4, 5, 6, 7, 8, 9, 10	If a value outside the valid range shown on the left is specified, the command is ignored.

[Print density specification range]

Model	Default	Parameter effective range	When out of the range
S Mode	A	A	If a value outside the valid range shown on the left is specified, the command is ignored.
CL4NX-J	A	A	B to F are reserved. Same density as A. The print density designation is replaced with A except for A to F. (No command error occurs.)

2. Parameter [a] "Print density level specification" specified with this command is converted to the following fine TPCL density adjustment value.

Darkness Mapping table

CL4NX-J Parameter [a] "Print density level specification"	BX series TPCL density fine adjustment value
1	-20
2	-15
3	-10
4	-5
5	0
6	2
7	4
8	6
9	8
10	10

12.3. ESC+#E: PRINT DENSITY SPECIFICATION (COMPATIBLE COMMAND)

Print Density Specification (Compatible Command)			ESC+#E
Hexadecimal Code	ESC	#E	Parameter
	<1B> ₁₆	<23> ₁₆ <45> ₁₆	ab
Initial value	a=5、b=A		

Valid Range and Term of Command	When the power switch is OFF	The set parameter is maintained.
	Valid range within items	The set parameter is valid until the next valid setting.
	Valid range between items	The set parameter is valid until the next valid setting.

[Function]

Specifying the print density.

[Format]

<#E>ab

- Parameter

a: "Print density level specification" = 1 Lightest
2
3 
4 Darkest
5

b: "Print density specification" = A to F (Optional)

This parameter is usually "A".

Refer to the table for the valid parameter range.

[Coding Example]

<A>

<#E>3A

 $\langle Z \rangle$

[Supplemental Explanation]

1. The print density specified by the command is used.
2. If a value exceeding the valid range is specified, the print density is not changed.
3. The print density value is saved in the flash.

[Point]

1. This command is for an old compatibility. The print density level obtained by “DC2 + PB” and the print density level on the screen display are twice the set value of this command.

[Print density level specification range]

Model	Parameter effective range	When out of the range
S Mode	1, 2, 3, 4, 5	If a value outside this valid range is specified, the command is ignored.
CL4NX-J	1, 2, 3, 4, 5	A command error will occur if a value outside the valid range is specified.

[Print density specification range]

Model	Parameter effective range	When out of the range
S Mode	A	If a value outside this valid range is specified, the command is ignored.
CL4NX-J	A	B to F are reserved. Same concentration as A. The print density designation is replaced with A except for A to F. (No command error occurs)

12.4. ESC+A1: SPECIFY MEDIA SIZE

Specify Media Size			ESC+A1
Hexadecimal Code	ESC	A1	Parameter
	<1B> ₁₆	<41> ₁₆ <31> ₁₆	aaaabbbb VaaaaaHbbbb
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF	The set parameter is maintained.
	Valid range within items	The set parameter is valid until the next valid setting.
	Valid range between items	The set parameter is valid until the next valid setting.

[Function]

Specifying media size. (No explanation characters)

[Format]

<A1>aaaabbbb (a, b: Fixed designation) * When the vertical label size is 9999 or less

<A1>VaaaaaHbbbb (a, b: Variable specification possible)

- Parameter

a: "Vertical label size" = See the table.

b: "Horizontal label size" = See the table.

[Specified Range]

Model			Horizontal label size (dots)	Vertical label size (dots)
S Mode	BX410/BX420	203 dpi	80 to 832	48 to 11984
		305 dpi	120 to 1248	72 to 17976
	BX430	600 dpi	1 to 2496	118 to 11800
	BX610/BX620	203 dpi	1 to 1279	80 to 12000
		305 dpi	1 to 1921	120 to 18000
CL4NX-J		203dpi	1 to 832	1 to 20000
		305dpi	1 to 1248	1 to 18000

* Correction is made to be the maximum effective width and length of the printout for each model.

* For BX420, the automatic paper width detection function is equipped.

When the automatic paper width detection is enabled, the value set by this command is ignored.

When the automatic paper width detection is enabled, the guide width by removing the void width is used as the label width.

[Coding Example 1] Vertical label size: 800 dots, Horizontal label size: 640 dots

<A>

<A1>08000640

<Z>

[Coding Example 2] Vertical label size: 800 dots, Horizontal label size: 640 dots

<A>

<A1>V800H640

<Z>

[Coding Example 3] Vertical label size: 1200 dots, Horizontal label size: 40 dots

<A>

<A1>12000040

<Z>

[Coding Example 4] Vertical label size: 1200 dots, Horizontal label size: 40 dots

<A>

<A1>V1200H40

<Z>

[Coding Example 5] Vertical label size: 11200 dots, Horizontal label size: 240 dots

<A>

<A1>V11200H240

<Z>

[Supplemental Explanation]

1. When using a media whose size is smaller than the head width, the base position can be made to correspond to the media size by specifying the label size with this command.
2. The specified media size should include the backing paper.

12.5. ESC+A3: BASE REFERENCE POINT

Base Reference Point			ESC+A3
Hexadecimal Code	ESC	A3	Parameter
	<1B> ₁₆	<41> ₁₆ <33> ₁₆	VabbbbHcddd
Initial Value	a=+, b=000, c=+, d=000		

Valid Range and Term of Command	When the power switch is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter is valid until the next valid setting.
	Valid range between items	The set parameter is valid until the next valid setting.

[Function]

Specifying the change of the base coordinates.

[Format]

<A3>VabbbbHcddd

- Parameter

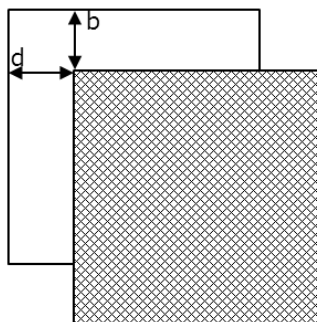
- a: "Vertical start point correction sign" = +, -
b: "Vertical start point correction (No. of dots)" = Refer to the table.
c: "Horizontal start point correction sign" = +, -
d: "Horizontal start point correction (No. of dots)" = Refer to the table.

[Coding Example] Starting position: Vertical direction +50 dots, Horizontal direction +100 dots

<A>

<A3>V+050H+100

<Z>



[Supplemental Explanation]

- Care must be taken because the base point is arbitrarily corrected, and printing may not be possible if the printout is outside the printable area.
- Note that if you correct the base point using multiple label formats, it will be corrected for all label formats.

[Point]

1. The base point correction value specified with the base point correction code of the base point correction specification <A3> is not saved. Accordingly, the base point correction value specified by the base point correction specification <A3> is valid until the next base point correction specification <A3> is changed or the printer is turned off.

[Valid range]

Head density		Horizontal correction start point (dot)	Vertical correction start point (dot)
S Mode	203 dpi	0 to 792	0 to 792
	305 dpi		
	600 dpi	0 to xxx	0 to xxx
CL4NX-J	203 dpi	0 to 792	0 to 792
	305 dpi		

12.6. ESC+EP: PRINT END POSITION

Print End Position			ESC+EP
Hexadecimal Code	ESC	EP	Parameter
	<1B> ₁₆	<45> ₁₆ <50> ₁₆	[,aaaaa]
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF	The set command is not maintained.
	Valid range within items	The set command becomes invalid.
	Valid range between items	The set command becomes invalid.

[Function]

Specifying the media stop position in the sensor invalid mode.

[Format]

<EP>[,aaaaa]

- Parameter

a: "Print stop position" = Refer to the table.

[Range of specification]

Model		Length of label (dots)
S Mode	203 dpi	1 to 12000
	305 dpi	1 to 18000
	600 dpi	1 to 11800
CL4NX-J	203 dpi	0 to 20000
	305 dpi	0 to 18000

* Correction is made to be the maximum effective length for each model.

[Coding Example 1] E.g.: 8dots/mm

<A>

<A1>14240832

<Z>

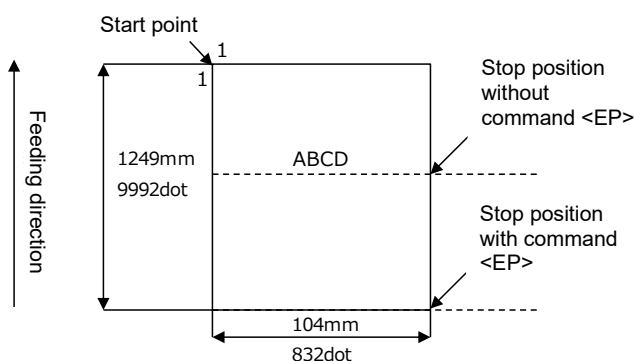
<A>

<V>100<H>200<P>2<L>0202<XS>ABCD

<Q>2

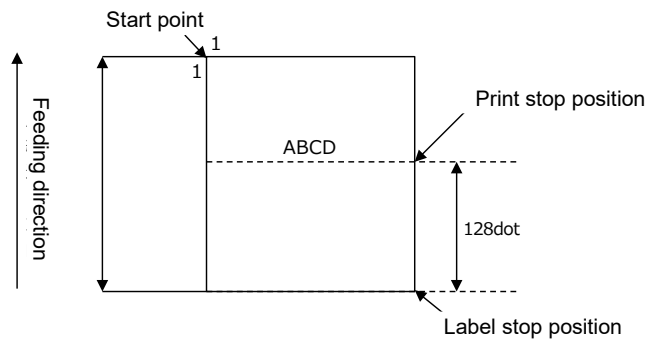
<EP>

<Z>



[Coding Example 2]

```
<A>
<V>100<H>200<P>2<L>0202<XS>ABCD
<Q>2
<EP>,128
<Z>
```



[Supplemental Explanation]

1. Use this in the sensor invalid mode.
2. Specify with the media size specification <A1> as a set.
3. If a parameter is specified, "Print stop position" + "Parameter" will be the label stop position. However, if "Print stop position" + "Parameter specification position" exceeds the vertical label, it is corrected to the size of the vertical label.
4. If you specify label size <A1> in Format Registration <YS> and Form Overlay Registration <&S>, make sure to specify Print Stop Position<EP> when Format Call<YR> and Form Overlay Call<&R> are selected.

12.7. ESC+~: MULTIPLE CUT

Multiple Cut			ESC+~
Hexadecimal Code	ESC	~	Parameter
	<1B> ₁₆	<7E> ₁₆	aaaa
Initial Value	aaaa=1		

Valid Range and Term of Command	When the power switch is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter is valid until the next valid setting.
	Valid range between items	The set parameter becomes initial value at the next item <A>.

[Function]

Specifying the number of labels to print between each cut.

[Format]

<~>aaaa

• Parameter

a: "Number of prints before cutting" = Effective range: 0 to 100

[Coding Example]

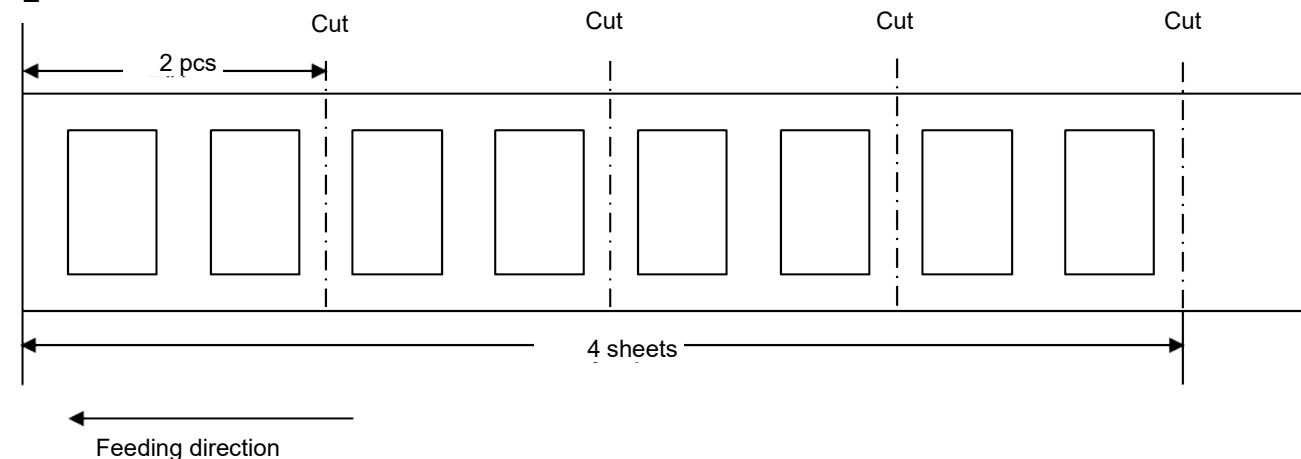
<A>

<V>100<H>200<P>2<L>0202<XM>ABC

<Q>4

<~>2

<Z>



[Supplemental Explanation]

1. This is valid only for the Cutter models.
2. If this command is not specified in the Cutter mode, each label will be cut off after printed.
3. In case the parameter "a" is set to 0, no label will be cut.
4. If a value 101 or larger is set for the parameter "a", each label is cut.
5. This command is specified after issuance number specification <Q>. The issued sheet number specification <Q> specifies the number of sheets to be cut. The print speed value set from the command is retained.

12.8. ESC+CT: CUT NUMBER UNIT

Cut Number Unit			ESC+CT
Hexadecimal Code	ESC <1B> ₁₆	CT <43> ₁₆ <54> ₁₆	Parameter aaaa
Initial Value	aaaa=1		

Valid Range and Term of Command	When the power switch is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter is valid until the next valid setting.
	Valid range between items	The set parameter becomes initial value at the next item <A>.

[Function]

Cutting labels at a specified interval in a print job.

[Format]

<CT>aaaa

• Parameter

a: "Number of labels between each cut" = Effective range: 0 to 100

[Coding Example]

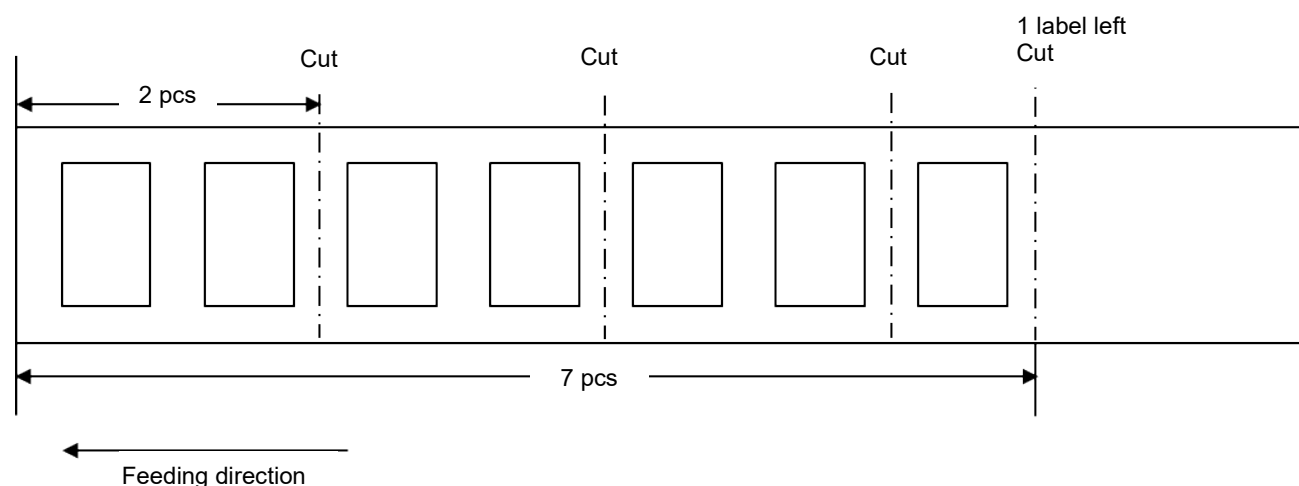
<A>

<V>100<H>200<P>2<L>0202<XM>ABC

<CT>2

<Q>7

<Z>



[Supplemental Explanation]

1. This is valid only for the Cutter models.
2. If the parameter is not specified by this command <CT>, each label will be cut after being printed.
3. In case the parameter "a" is set to 0, no label will be cut.
4. This command may not be used in combination with other cut commands <~>.
5. If a value 101 or larger is set for the parameter "a", each label is cut.

12.9. ESC+NC: EJECT AND CUT

Eject and Cut			ESC+NC
Hexadecimal Code	ESC	NC	Parameter
	<1B> ₁₆	<4E> ₁₆ <43> ₁₆	Nil
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF	The set parameter is not maintained.
	Valid range within items	The set command becomes invalid.
	Valid range between items	The set command becomes invalid.

[Function]

Specifying the eject and cut operation.

[Format]

<NC>

[Coding Example]

<A>

<NC>

<Z>

(1) Label stop position

A: Printed

B: Not printed

C: Not printed

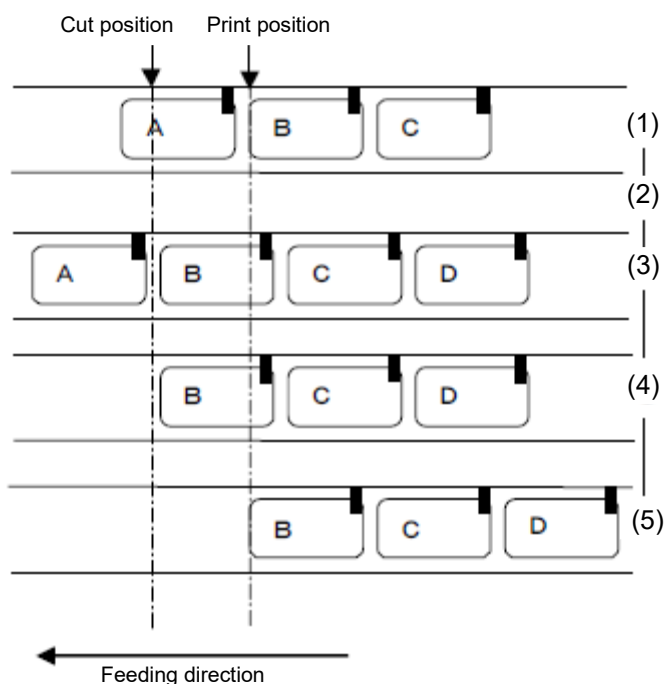
D: Not printed

(2) Command received

(3) The label is fed to the cut position.

(4) The label is cut off.

(5) The label is back fed to the print position.



[Supplemental Explanation]

1. This is valid only for the Cutter models.
2. This command is used to cut the last label remaining in the printer.
3. The cutting operation specification <NC> is used between the data transmission start specification <A> and the data transmission end specification <Z>.
4. The cutting operation specification <NC> cannot be used with other commands.
5. The cutting operation specification <NC> is effective when the printing operation is stopped without performing the cutting operation.

[Point]

1. This command ejects and cuts the label using <CT> 0 for the cut unit number and <~> 0 for multi-cut if the label remains at the printer exit.

12.10. ESC+~A: CUT NUMBER UNIT

Cut Number Unit			ESC+~A
Hexadecimal Code	ESC	~A	Parameter
	<1B> ₁₆	<7E> ₁₆ <41> ₁₆	aaaa
Initial Value	aaaa=1		

Valid Range and Term of Command	When the power switch is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter is valid until the next valid setting.
	Valid range between items	The set parameter becomes initial value at the next item <A>.

[Function]

Cutting labels at a specified interval in a print job.

[Format]

<~A>aaaa

• Parameter

a: "Number of labels between each cut" = Valid range: 0 to 100

[Coding Example]

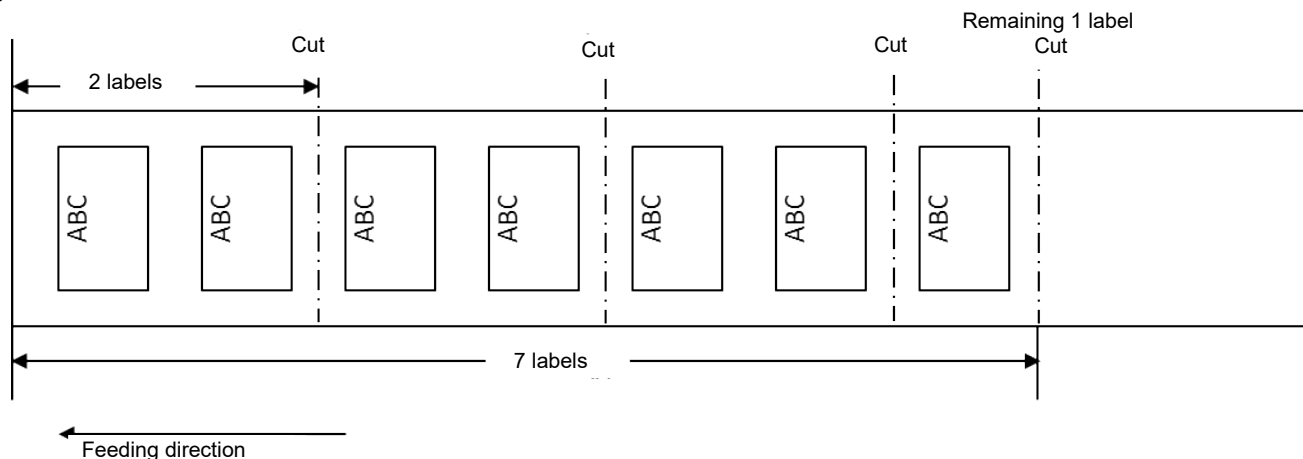
<A>

<V>100<H>200<P>2<L>0202<XM>ABC

<~A>2

<Q>7

<Z>



[Supplemental Explanation]

1. This is valid only for the Cutter models.
2. If the parameter is not specified by this command <~A>, each label will be cut after being printed.
3. In case the parameter "a" is set to 0, no label will be cut.
4. This command may not be used in combination with other cut commands <~>.
5. If a value 101 or larger is set for the parameter "a", each label is cut.

12.11. ESC+~B: EJECT AND CUT

Eject and Cut			ESC+~B
Hexadecimal	ESC	~B	Parameter
Code	<1B> ₁₆	<7E> ₁₆ <42> ₁₆	Nil
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF	The set parameter is not maintained.
	Valid range within items	The set command becomes invalid.
	Valid range between items	The set command becomes invalid.

[Function]

Specifying the eject and cut operation.

[Format]

<~B>

[Coding Example]

<A>

<~B>

<Z>

(1) Label stop position

A: Printed

B: Not printed

C: Not printed

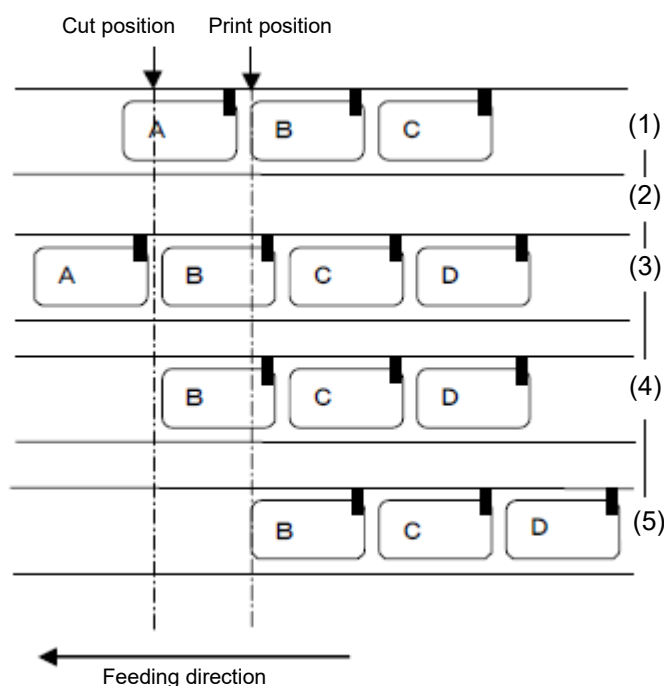
D: Not printed

(2) Command received

(3) The label is fed to the cut position.

(4) The label is cut off.

(5) The label is back fed to the print position.



[Supplemental Explanation]

1. This is valid only for the Cutter models.
2. This command is used to eject and cut the label.
3. The cut operation specification <~ B> is used between the data transmission start specification <A> and the data transmission end specification <Z>.
4. This command <~ B> cannot be used with other commands.
5. This command <~ B> is effective when the printing operation is stopped without performing the cutting operation.

[Point]

1. This command is used to cut remaining label in printer after the commands <~A>0 or <~>0 is executed.

12.12. ESC+*: MEMORY CLEAR

Memory Clear			ESC+*
Hexadecimal Code	ESC	*	Parameter
	<1B> ₁₆	<2A> ₁₆	a
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

[Function]

Specifying to clear the contents registered in the internal memory.

[Format]

<*>a

● Parameter

a: "Item to be cleared" = Not specified: Receive buffer, Drawing buffer
T: External character registration area
&: Form overlay
X: All clear (Reception buffer, drawing buffer, external character registration)
* The item being printed is not cleared.

[Coding Example 1] Clear receive buffer and drawing buffer

<A>

<*>

<Z>

[Coding Example 2] All clear

<A>

<*>X

<Z>

[Coding Example 3] Clear external character registration area

<A>

<*>T

<Z>

[Supplemental Explanation]

1. This command <*> is used by separating the data transmission start specification <A> from the data transmission end specification <Z>.
2. By sending all clear "X" of this command <*>, all data sent before the clear designation <*> is cleared. However, data, which is being printed or whose analysis has been finished, cannot be cleared. In addition, the external character registration is cleared.

[Point]

1. When clear specification <*> is transmitted, the next data must be transmitted after 100ms or more have elapsed.
2. Even if this command is specified during printing, the printing operation does not stop.

12.13. ESC+C: REPRINT

Reprint			ESC+C
Hexadecimal Code	ESC	C	Parameter
	<1B> ₁₆	<43> ₁₆	Nil
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

[Function]

Specifying reprinting of the contents printed immediately before.

[Format]

<C>

[Coding Example]

<A>

<C>

<Z>

[Supplemental Explanation]

1. Since the contents are cleared when the printer is turned off, the reissue operation is not performed even if the reprint specification <C> is specified.
2. The reissue operation is not performed for the eject cut operation specification command <~ B>.
3. When reissuing a format that includes a field with sequential number specification <F>, printing is performed with the same content as the previous issue.

12.14. ESC+E: AUTO LINE FEED

Auto Line Feed			ESC+E
Hexadecimal Code	ESC	E	Parameter
	<1B> ₁₆	<45> ₁₆	aaa
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

[Function]

Specifying the amount of the line spacing and CR (Line feed).

[Format]

<E>aaa

• Parameter

a: "Line spacing" = Valid range: 0 to 999(dots)

[Coding Example]

<A>

<E>10

<V>100<H>200<P>2<L>0304<XM>,ABCDE+CR FGHIJ+CR

<Q>2

<Z>

[Supplemental Explanation]

1. When CR (0DH) is specified, the linefeed based on the line spacing will be performed.
2. The rotation command <%> can be used in combination with this command.
3. The command <E> may be used in a job and change the line spacing as necessary.
4. Perform automatic line feed <E> before specifying repeated printing of one line.
5. Specifying this command executes the line feed regardless of the CR/LF deletion setting.
6. Performing auto linefeed by the designation of CR (0DH), the print start position of the linefeed will be determined based on the pitch specified with <E> and the value specified with Horizontal Print Position <H> designated after <E>. In case that <H> is specified several times after <E>, return the position by CR (0DH) will be at the end of <H>.
7. Up to 100 CR (0DH) can be specified per field.

[Print sample]

<A><E>0

<V>100<H>100

<XM>ABC

<V>100<H>150

<XM>ABC+CR DEF

<Z>

Font data to specify the base point <V>100<H>100<XM>ABC	Font data to specify the base point <V>100<H>150<XM>ABC+CR
ABC	ABC
	DEF
	Font data including line feed DEF

12.15. ESC+PO: OFFSET

Offset			ESC+PO
Hexadecimal Code	ESC	PO	Parameter
	<1B> ₁₆	<50> ₁₆ <4F> ₁₆	abcc
Initial Value	a=0、b=+、cc=00		

Valid Range and Term of Command	When the power switch is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter is valid until the next valid setting.
	Valid range between items	The set parameter is valid until the next valid setting.

[Function]

Temporarily specifying the adjustment of the label stop position during each operation.

[Format]

<PO>abcc

● Parameter

- a: "Offset" = 0: Cutter
 1: Peel off
 2: Tear-off (Not supported)
 3: Continuous (Not supported)
- b: "Offset direction" = +: Feed forward
 -: Backward
- c: "Amount of offset" = Valid range: 00 to 99 (dots)

[Coding Example]

<A>

<PO>3+08

<Z>

[Supplemental Explanation]

1. If an unsupported parameter is specified, it is ignored.
2. This command operates in the sensor enable mode (reflection/transmission).

12.16. ESC+IG: SENSOR TYPE

Sensor Type			ESC+IG
Hexadecimal Code	ESC	IG	Parameter
	<1B> ₁₆	<49> ₁₆ <47> ₁₆	a
Initial Value	a=1		

Valid Range and Term of Command	When the power switch is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter is valid until the next valid setting.
	Valid range between items	The set parameter is valid until the next valid setting.

[Function]

Specifying the sensor type.

[Format]

<IG>a

● Parameter

a: "Sensor type" = 0: Reflective sensor (I-mark)
1: Transmissive sensor (Gap)
2: Sensor disabled

[Coding Example]

<A>

<IG>1

<Z>

[Supplemental Explanation]

1. The setting by this command is normally not needed.
2. The set parameter is maintained after turning off the printer.
3. Do not use this command while the printing operation as the sensor may not work properly.
4. Unless the sensor prohibition is specified in the sensor type specification, if a print command is received after the sensor type is switched, printing is performed after the feeding operation. However, the feeding operation is not performed after the printer is turned off and then back on.
5. Specifying the printer mode to [Tear-off] and [Peel off] and specifying sensor type to [2] (Ignore sensor) results in a command error.
6. If the printer mode is "Linerless cutter", the allowed range will be limited to "0: Reflective sensor (I-mark)" and "2: Sensor disabled". A command error does not occur when "1: Transmissive sensor (Gap)" is specified. In that case the value will not be set.

12.17. ESC+PH: PRINT METHOD

Print Method			ESC+PH
Hexadecimal Code	ESC <1B> ₁₆	PH <50> ₁₆ <48> ₁₆	Parameter a
Initial Value	a=0		

Valid Range and Term of Command	When the power switch is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter is valid until the next valid setting.
	Valid range between items	The set parameter is valid until the next valid setting.

[Function]

Specifying the print method.

[Format]

<PH>a

● Parameter

a: "Print method" = 0: Thermal transfer
1: Direct thermal

[Coding Example]

<A>

<PH>0

<Z>

[Supplemental Explanation]

1. This command is used between the data transmission start specification <A> and the data transmission end specification <Z>.
2. The set parameter is maintained after turning off the printer.
3. When "0" (Thermal transfer) is selected, the ribbon saving operation is executed in accordance with the Ribbon Save Setting in the S mode.
The Ribbon Save Setting in the S mode can be specified from the web printer. (Emul-S/Init Value/Ribbon Save Enable)

12.18. ESC+PM: PRINT MODE

Print Mode			ESC+PM
Hexadecimal Code	ESC	PM	Parameter
	<1B> ₁₆	<50> ₁₆ <4D> ₁₆	a
Initial Value	a=0		

Valid Range and Term of Command	When the power switch is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter is valid until the next valid setting.
	Valid range between items	The set parameter is valid until the next valid setting.

[Function]

Specifying the print mode.

[Format]

<PM>a

● Parameter

a: "Print mode" = 0: Continuous
1: Tear-off
2: Cutter (Head position)
3: Cutter (Cutter position) (Not supported)
4: Cutter (No back feed)
5: Linerless cutter motion (Cutter position)
7: Peel off (Head position)
8: Peel off (Peel off position) (Not supported)
B: Cutter (Cutter position + Cut while printing) (Not supported)
If 8 is specified, operation 7 is performed.

[Coding Example]

<A>

<PM>0

<Z>

[Supplemental Explanation]

1. Settable operation modes are different depending on the installed options.

Options	Operation mode
None	Continuous, Tear-off
Peel off	Continuous, Tear-off, Peel off (Head position)
Cutter	Continuous, Cutter (Head position)

The setting other than the above operation modes does not go to the specified mode.

2. The operation mode performs the following operations.

(0) Continuous

This operation mode does not perform anything after label printing.

(1) Tear Off

If the next print data is not received within a predetermined time after label printing, the label is sent to the peeling position. After the next print data is received, it is fed back to the head position.

(2) Cutter (Head position)

This operation mode is for backward feeding to the head position after the label is cut.

(3) Peel-off (Head position)

This operation mode is for backward feeding to the head position after label peeling off.

(4) Cutter (No back feed)

This operation mode is to stop at that position after the label is cut. This is valid only when a partial cutter is installed.

(5) Linerless cutter motion (Cutter position)

This operation mode is to stop at that position after the label is cut, backward feeding to the head position when the paper is removed from the sensor and then print the next page. This is valid only when a linerless cutter is installed.

12.19. ESC+KM: MINCHO (KANJI)

Mincho (Kanji)			ESC+KM
Hexadecimal Code	ESC	KM	Parameter
	<1B> ₁₆	<4B> ₁₆ <4D> ₁₆	Nil
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter is valid until the next valid setting.
	Valid range between items	The set parameter is valid until the next valid setting.

[Function]

Setting the Kanji font style to Mincho.

[Format]

<KM>

[Coding Example]

<A>

<KM>

<V>100<H>200<P>2<L>0304

<K1>H82508A94816A83548367815B

<KG>

<V>200<H>200<P>2<L>0304

<K1>H82508A94816A83548367815B

<Q>2

<Z>

[Supplemental Explanation]

1. This command can be used more than once in a single item.

12.20. ESC+KG: GOTHIC (KANJI)

Gothic (Kanji)			ESC+KG
Hexadecimal Code	ESC	KG	Parameter
	<1B> ₁₆	<4B> ₁₆ <47> ₁₆	Nil
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter is valid until the next valid setting.
	Valid range between items	The set parameter is valid until the next valid setting.

[Function]

Setting the Kanji font style to Gothic.

[Format]

<KG>

[Coding Example]

<A>

<KG>

<V>100<H>200<P>2<L>0304

<K1>H82508A94816A83548367815B

<KG>

<V>200<H>200<P>2<L>0304

<K1>H82508A94816A83548367815B

<Q>2

<Z>

[Supplemental Explanation]

1. This command can be used more than once in a single item.

12.21. ESC+CE: EUROPEAN CODE PAGE

European Code Page			ESC+CE
Hexadecimal Code	ESC	CE	Parameter
	<1B> ₁₆	<43> ₁₆ <45> ₁₆	a~a(,b)
Initial Value	a~a=858、b=P		

Valid Range and Term of Command	When the power switch is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter is valid until the next valid setting.
	Valid range between items	The set parameter is valid until the next valid setting.

[Function]

Specifying the European code page to be used.

[Format]

<CE>a~a(,b)

● Parameter

a: "Code page name" = Valid range: See [Code page parameter].
b: "Code page setting maintain" = Valid range: P (fixed)
Specify [P] to retain selected code page. (omissible)
When omitted, the selected code page is not retained.

[Coding Example 1] In case of Win 1253

<A>
<V>100<H>200<P>2<L>0304<CE>1253<XU>ABCDE
<Q>2
<Z>

[Coding Example 2] In case of DOS 855

<A>
<V>100<H>200<P>2<L>0304<CE>855<XU>ABCDE
<Q>2
<Z>

[Code page parameter]

Parameter "a"	Official name	Supplemental Explanation
858	DOS 858	Multilingual Latin 1 + Euro character Default Code page proprietary to SATO.
88591	ISO 8859/1	ISO 8859-1 Latin 1
88592	ISO 8859/2	ISO 8859-2 Latin 2
88599	ISO 8859/9	ISO 8859-9 Latin 5
850	DOS 850	Latin 1 Multilingual
852	DOS 852	Latin 2
855	DOS 855	Cyrillic
857	DOS 857	Turkish
737	DOS 737	Greek
866	DOS 866	Cyrillic II
1250	Win 1250	Central Europe
1251	Win 1251	Cyrillic
1252	Win 1252	Western Latin 1
1253	Win 1253	Greek
1254	Win 1254	Turkish
1257	Win 1257	Baltic
869	IBM 869	IBM 869 Greek
201	X0201	Japanese X0201 *1
UTF-8	UTF-8	Unicode encoding in UTF-8

*1: Specifying X0201 to perform the following operation.

Bitmap font: Only the U, S, M, WB and WL fonts support the X0201 character set.

XU, XS, XM, XB, XL fonts: Print the default value 858 (DOS 858) character set.

CG font: Prints in 88591 (ISO 8859-1 Latin 1) character set.

12.22. ESC+CL: DELETE CR/LF

Delete CR/LF			ESC+CL
Hexadecimal Code	ESC	CL	Parameter
	<1B> ₁₆	<43> ₁₆ <4C> ₁₆	a
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter is valid until the next valid setting.
	Valid range between items	The set parameter is valid until the next valid setting.

[Function]

Deleting the CR and LF included in the issue command.

[Format]

<CL>a

● Parameter

a: "Delete CR/LF" = 0: Do not delete CR/LF
1: Deletes CR/LF

[Coding Example]

<A>

<CL>1

<Z>

[Supplemental Explanation]

1. This command is delimited by the start of data transmission <A> and the end of data transmission <Z>.
2. This command cannot be used in combination with others.

13. CALENDAR COMMAND

13.1. ESC+WT: CALENDAR SETUP

Calendar Setup			ESC+WT
Hexadecimal Code	ESC	WT	Parameter
	<1B> ₁₆	<57> ₁₆ <54> ₁₆	aabbccdde
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter is valid until the next valid setting.
	Valid range between items	The set parameter is valid until the next valid setting.

[Function]

Specifying the calendar.

[Format]

<WT>aabbccdde

● Parameter

- a: "Year" = Valid range: 00 to 35
- b: "Month" = Valid range: 01 to 12
- c: "Day" = Valid range: 01 to 31
- d: "Hour" = Valid range: 00 to 23
- e: "Minute" = Valid range: 00 to 59

[Coding Example] January 1, 2020 13:13

<A>

<WT>2001011313

<Z>

[Supplemental Explanation]

1. This command is ignored if the printer does not have the RTC module.
2. The valid range for this command's calendar settings is January 1, 2000, 00:00 to December 31, 2035, 23:59. However, the setting may be invalid even if it is within the valid range of calendar settings depending on the specifications of the RTC module installed in the printer.

13.2. ESC+WP: CALENDAR ARITHMETIC (ADD)

Calendar Arithmetic(Add)			ESC+WP
Hexadecimal Code	ESC	WP	Parameter
	<1B> ₁₆	<57> ₁₆ <50> ₁₆	abbb
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter is valid until the next valid setting.
	Valid range between items	The set parameter becomes invalid.

[Function]

Specifying the addition of calendar data.

[Format]

<WP>abbb

● Parameter

- a: "Specification of Year-Month-Day-Hour" = Y: Year
M: Month
D: Day
h: Hour
W: Week
- b: "Specification of addition value for Y-M-D-h" = Valid range of Y: 000 to 009
Valid range of M: 000 to 099
Valid range of D: 000 to 999
Valid range of h: 000 to 999
Valid range of W: 000 to 099

[Coding Example] When specifying to perform printing on the date that is three months later from today

<A>

<WP>M03

<V>100<H>200

<OB><WA>DD/MM/YY

<Q>2

<Z>

[Supplemental Explanation]

1. This command is ignored if the printer does not have the RTC module.
2. This command adds a specified value to the specified data (Year, Month, Day, Hour and Week).
The date three months later from today can be specified.
3. When there are more than one <WP> in one item, the last one is available.

13.3. ESC+WA: CALENDAR PRINT

Calendar Print			ESC+WA
Hexadecimal Code	ESC	WA	Parameter
	<1B> ₁₆	<57> ₁₆ <41> ₁₆	a
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

[Function]

Specifying the print of calendar.

[Format]

<WA>Parameter

● Parameter

a: "Specification of print contents" = YYYY (Year) Valid range: 2000 to 2035
YY (Year) Valid range: 00 to 35
MM (Month) Valid range: 01 to 12
DD (Day) Valid range: 01 to 31
HH (Hour) Valid range: 00 to 11
hh (Hour) Valid range: 00 to 23
mm (Minutes) Valid range: 00 to 59
ss (Second) Valid range: 00 to 59
TT (AM/PM) Valid range: AM/PM
JJJ (Julian date) Valid range: 001 to 366
WW (Week) Valid range: 00 to 53
ww (Week) Valid range: 01 to 54

[Coding Example] When specifying to perform printing on the date that is three months later from today

<A>

<WP>M03

<V>100<H>200

<OB><WA>DD/MM/YYYY

<V>200<H>200

<OB><WA>hh:mm:ss TT

<V>300<H>200

<OB><WA>YY JJJ WW ww

<Q>2

<Z>

[Supplemental Explanation]

1. This command is ignored if the printer does not have the RTC module.
2. When a value 2 or more is set for QTY, real-time printing is performed for each sheet.
3. This command specification is available up to 6 locations within one form.
4. Up to 16 characters are available for the calendar print data.
5. In the Parameter "a", count the initiation of WW (Week) as "0", and ww (Week) as "1".
6. Specify the font type for calendar printing by the font command (refer to the available command below) before this command.

WW/ww Command example (Weekly expression)

Ex.1) January in 2008, the year of Jan 1 begins with Mon, Tue, Wed and Thu.

Mon	Tue	Wed	Thu	Fri	Sat	Sun	WW	ww
31	1	2	3	4	5	6	wk0	wk1
7	8	9	10	11	12	13	wk1	wk2
14	15	16	17	18	19	20	wk2	wk3
21	22	23	24	25	26	27	wk3	wk4
28	29	30	31	1	2	3	wk4	wk5

- 2007/12/31: WW(week) prints week 0. (ww(week) prints week 1.)
- 2008/01/25: WW(week) prints week 3. (ww(week) prints week 4.)
- 2008/01/28: WW(week) prints week 4. (ww(week) prints week 5.)
- 2008/02/03: WW(week) prints week 4. (ww(week) prints week 5.)

Ex.2) January in 2010, the year of Jan 1 begins with Fri, Sat and Sun.

Mon	Tue	Wed	Thu	Fri	Sat	Sun	WW	ww
28	29	30	31	1	2	3	wk52	wk53
4	5	6	7	8	9	10	wk0	wk1
11	12	13	14	15	16	17	wk1	wk2
18	19	20	21	22	23	24	wk2	wk3
25	26	27	28	29	30	31	wk3	wk4

- 2010/1/1: WW(week) prints week 52. (ww(week) prints week 53.)
- 2010/1/4: WW(week) prints week 0. (ww(week) prints week 1.)

* The years Jan 1 begins with Fri, Sat and Sun, the second week of January is set as week 0 (ww(week): week1).

[Valid command]

Print position	<V>	<H>								
Modification	<P>	<L>	<%>	<R>						
Font	<XU>	<XS>	<XM>	<XB>	<XL>	<OA>	<OB>			
	<U>	<S>	<M>	<WB>	<WL>					
	<X20>	<X21>	<X22>	<X23>	<X24>					

14. MEMORY CARD COMMAND

14.1. ESC+CC: CARD SLOT FOR USE

Card Slot for Use			ESC+CC
Hexadecimal Code	ESC	CC	Parameter
	<1B> ₁₆	<43> ₁₆ <43> ₁₆	a
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter is valid until the next valid setting.
	Valid range between items	The set parameter is valid until the next valid setting.

[Function]

Specifying the slot number for use.

The media registered in the specified slot can be accessed.

[Format]

<CC>a

- Parameter

a: "Slot number" = 0: Slot 0 (Printer RAM)
1: Slot 1 (Printer FROM)

[Coding Example]

<A>

<CC>1

<GI>H003003001FF000000~000000FF

<Z>

[Supplemental Explanation]

1. This command is necessary to specify when accessing to "Printer RAM" and "Printer FROM".
2. Specifying the unused slot becomes a command error.
3. When slot number 0 (Printer RAM) is specified, registration other than using the external character registration command is not available.
4. When slot number 0 (Printer RAM) is specified, the registered data will be deleted when the power is turned off.

14.2. ESC+FM: MEMORY CARD INITIALIZATION

Memory Card Initialization			ESC+FM
Hexadecimal Code	ESC	FM	Parameter
	<1B> ₁₆	<46> ₁₆ <4D> ₁₆	aaaaaaaa
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

[Function]

Specifying the format (initialization) of the memory card.

[Format]

<FM>aaaaaaaa

• Parameter

a: "User ID" = Specifying up to 8 bytes in alphanumeric and symbols.

[Coding Example]

<A>

<CC>1

<FM>SATO

<Z>

[Supplemental Explanation]

1. Specify the slot number registered with Card Slot for Use <CC> before this command <FM> by all means.
2. This command <FM> is for formatting "printer FROM"; therefore, it cannot be used in combination with others.
3. Initialization takes some time. Do not send any command until the initialization finishes.
4. An error occurs if printer RAM is specified.

14.3. ESC+BJF: MEMORY CARD INITIALIZATION

Memory Card Initialization			ESC+BJF
Hexadecimal Code	ESC	BJF	Parameter
	<1B> ₁₆	<42> ₁₆ <4A> ₁₆ <46> ₁₆	aaaaaaaa
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

[Function]

Specifying the format (initialization) of the memory card.

[Format]

<BJF>aaaaaaaa

- Parameter

a: "User ID" = Specifying up to 8 bytes in alphanumeric and symbols.

[Coding Example]

<A>

<CC>1

<BJF>satocard

<Z>

[Supplemental Explanation]

1. Before the memory card initialization specification <BJF>, be sure to specify the slot number to be used in the card slot specification <CC>.
2. The memory card initialization specification <BJF> is a command for formatting the printer FROM and cannot be used with others.
3. Initialization takes some time. Do not send any command until the initialization finishes.
4. An error occurs if printer RAM is specified.

14.4. ESC+FP: MEMORY CARD STATUS PRINTING SPECIFICATION

Memory Card Status Printing Specification			ESC+FP
Hexadecimal Code	ESC	FP	Parameter
	<1B> ₁₆	<46> ₁₆ <50> ₁₆	Nil
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

[Function]

Printing the status of the memory card.

[Format]

<FP>

[Coding Example]

<A>

<CC>1

<FP>

<Z>

[Supplemental Explanation]

1. Be sure to specify the slot number to be used in the card slot specification <CC> before the memory card status printing specification <FP>.
2. The memory card status print specification<FP> is a command for printing the status of the printer FROM and cannot be used with others.

14.5. ESC+BJS: MEMORY CARD STATUS PRINTING SPECIFICATION

Memory Card Status Printing Specification			ESC+BJS
Hexadecimal Code	ESC	BJS	Parameter
	<1B> ₁₆	<42> ₁₆ <4A> ₁₆ <53> ₁₆	Nil
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

[Function]

Printing the status of the memory card.

[Format]

<BJS>

[Coding Example]

<A>

<CC>1

<BJS>

<Z>

[Supplemental Explanation]

1. The memory card status printing specification <BJS> is a command for printing the status of the printer FROM and cannot be used with others.
2. Be sure to specify the slot number to be used in the card slot specification <CC> before the memory card status printing specification<BJS>.

14.6. ESC+YS: FORMAT REGISTRATION SPECIFICATION

Format Registration Specification			ESC+YS
Hexadecimal Code	ESC	YS	Parameter
	<1B> ₁₆	<59> ₁₆ <53> ₁₆	,aaa
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter is valid until the next valid setting.
	Valid range between items	The set parameter is valid until the next valid setting.

[Function]

Registering the print format.

[Format]

<YS>,aaa

- Parameter

a: "Format registration No." = Valid range: 1 to 999

[Coding Example]

```
<A>
<CC>1
<YS>,1
</N>,3,3
<%>0<V>100<H>200<P>2<L>0101<XM>ABC
<Z>
```

[Supplemental Explanation]

1. When there are multiple registrations, each format is separated by a data transmission start specification <A> and a data transmission end specification <Z>.
2. When using the format registration specification <YS>, be sure to specify the card slot specification <CC> before this command.
3. Use this command in combination with field registration specification </N>.
4. If an attempt is made to register again with the registered number, an error occurs and the contents to be registered again are printed and the process is continued.
5. An error occurs if printer RAM is specified.

[Precautions]

1. The number of items that can be registered with </N> is 99 fields. (Refer to the field registration specification (ESC + /N) changeable print command for the commands that can be registered.)
2. The number of cases other than </N> can be registered is 50 fields. Refer to the commands that can be registered for the commands that can be registered.

[Point]

1. Details about format registration

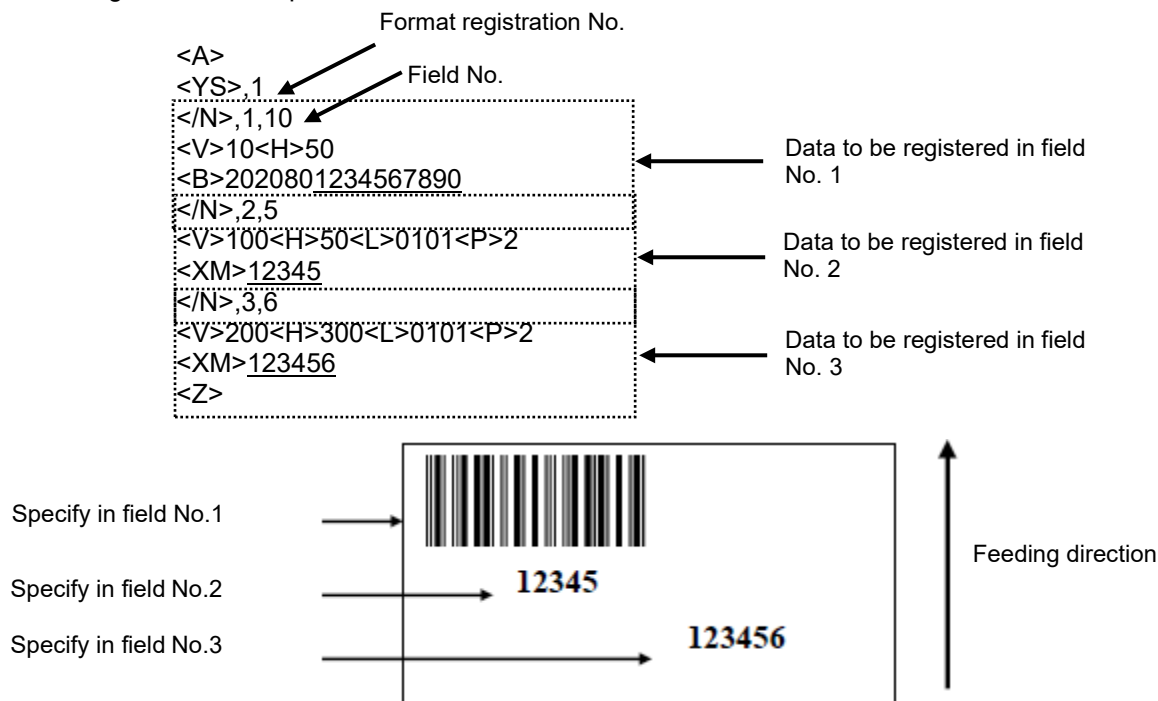
A command group can be registered in the memory card. Once registered, it is possible to save the trouble of specifying the same command group again from the next time. Moreover, it is also possible to change the print data when printing the format and print. Such a function for registering a command group is called format registration.

One item is composed of a plurality of command groups necessary for printing. This command group is called a field, and the format is composed of a plurality of fields.

Next, a format registration command will be described.

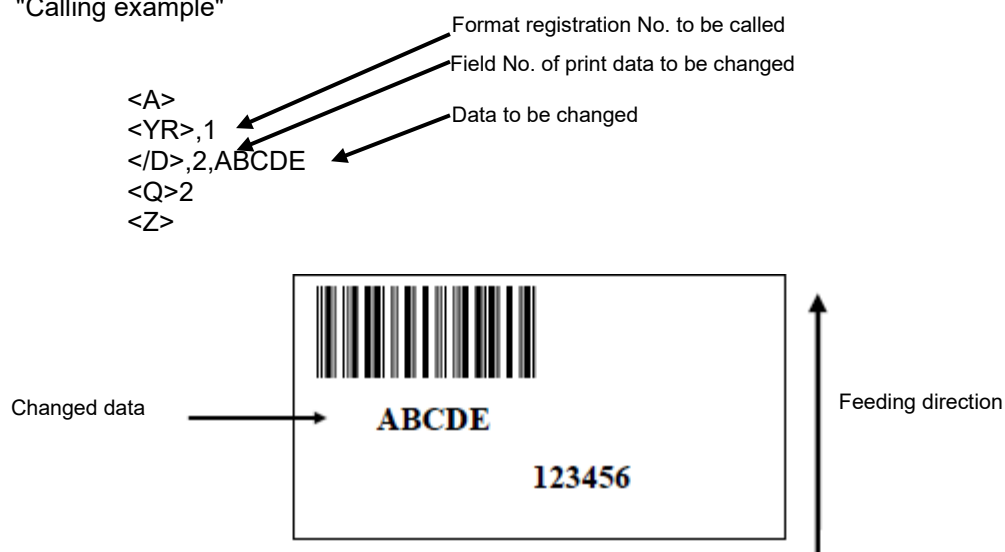
The data transmission start specification <A> to data transmission end specification <Z> are in one format. The format registration specification <YS> is specified immediately after data transmission start specification <A>. For the format registration specification <YS>, specify registration numbers 1 to 999. After the format registration specification <YS>, specify the field number and number of print digits to be registered in the field registration specification </N>. Specify the print position, print character type, barcode, etc. after the field number and the number of print digits.

"Registration example"



Then, a case in which the registered print contents are called by registering the format is described.
Specify registered format registration No.1 to 999 by format call specification <YR>. To change the print data, select the field No. you want to change with the field print specification </D>. Specify the print data after the change. The underlined part of the registration example above can be changed.

"Calling example"



The following commands are available for the format registration.

[Valid commands]

Print position	<V>	<H>								
Font	<XU>	<XS>	<XM>	<XB>	<XL>	<OA>	<OB>	<RD>	<\$=>	<K1>
	<K2>	<K3>	<K4>	<K5>	<K8>	<K9>	<KA>	<KB>	<KD>	<k1>
	<k2>	<k3>	<k4>	<k5>	<k8>	<k9>	<kA>	<kB>	<kD>	
	<U>	<S>	<M>	<WB>	<WL>	<X20>	<X21>	<X22>	<X24>	<X23>
Barcode		<BC>	<BG>	<BI>		<D>	<D><d>	<BD>	<BT>	<BW>
Modification	<P>	<L>	<PS>	<PR>	<%>	<FW>	<(>			
System	<A1>	<A3>								
Memory card	</N>	<GR>	<GC>							

Note:

Any operations are not guaranteed if commands other than those can be registered are registered.

14.7. ESC+/N: FIELD REGISTRATION SPECIFICATION

Field Registration Specification			ESC+/N
Hexadecimal Code	ESC	/N	Parameter
	<1B> ₁₆	<2F> ₁₆ <4E> ₁₆	,aa,bb
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter is valid until the next valid setting.
	Valid range between items	The set parameter is valid until the next valid setting.

[Function]

Registering the items in the field in the format registration specification <YS>.

[Format]

</N>,aa,bb

• Parameter

a: "Field No. " = Valid range: 1 to 99

b: "Number of print digits" = Valid range: 1 to 99

[Coding Example]

<A>

<CC>1

<YS>,1

</N>,1,3

<%>0<V>100<H>200<P>2<L>0101<XM>ABC

</N>,2,5

<%>0<V>200<H>200<P>2<L>0101<OA>12345

</N>,3,8

<%>0<V>300<H>4040208049123456

<Z>

[Supplemental Explanation]

1. Specify the field numbers in order from the smallest.
2. In each field, always specify print vertical position specification <V> and print horizontal position specification <H>. If not specified, the default values will be applied.
3. Specifying the number of digits when printing external characters while the external character code "H" is specified, one external character is 4 digits. Therefore, when printing 3 external characters, it is 12 digits. When the external character code "B" is specified, one external character is 2 digits. Therefore, when printing 3 external characters, it is 6 digits.
4. Use this command in combination with format registration specification <YS>.
5. 99 cases may not be registered due to memory limitation.
6. An error occurs if the printer RAM is specified.

[Command for specifying change printing]

Font	<XU>	<XS>	<XM>	<XB>	<XL>	<OA>	<OB>	<RD>	<\$=>	<K1>
	<K2>	<K3>	<K4>	<K5>	<K8>	<K9>	<KA>	<KB>	<KD>	<k1>
	<k2>	<k3>	<k4>	<k5>	<k8>	<k9>	<kA>	<kB>	<kD>	
	<X20>	<X21>	<X22>	<X23>	<X24>					
Barcode		<BC>	<BG>	<BI>		<D>	<D><d>	<BD>	<BT>	<BW>
	<BL>									
Modification	<P>	<L>	<PS>	<PR>	<%>					

14.8. ESC+YR: FORMAT CALL SPECIFICATION

Format Call Specification			ESC+YR
Hexadecimal Code	ESC	YR	Parameter
	<1B> ₁₆	<59> ₁₆ <52> ₁₆	,aaa
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter is valid until the next valid setting.
	Valid range between items	The set parameter is valid until the next valid setting.

[Function]

Calling up and printing the format registered by the format registration specification <YS>.

[Format]

<YR>,aaa

• Parameter

a: "Format registration No. " = Valid range: 1 to 999

[Coding Example]

```
<A>
<CC>1
<YR>,1
</D>,1,DEF
</D>,2,78901
</D>,3,49000238
<Q>2
<Z>
```

[Supplemental Explanation]

1. Format call specification <YR> cannot call multiple formats between print transmission start specification <A> and print transmission end specification <Z>.
2. Use this command in combination with field printing specification </D>.
3. If a RAM memory or an invalid memory slot is specified, the command is ignored.
4. Be sure to specify the slot number to be used in the card slot specification <CC> before the format call specification <YR>.
5. If an unused registration number is specified, the command is ignored.

14.9. ESC+/D: FIELD PRINTING SPECIFICATION

Field Printing Specification			ESC+/D
Hexadecimal Code	ESC	/D	Parameter
	<1B> ₁₆	<2F> ₁₆ <44> ₁₆	,aa,n~n
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter is valid until the next valid setting.
	Valid range between items	The set parameter is valid until the next valid setting.

[Function]

Specifying the data by calling the item registered in the field registration specification </N>.

[Format]

</D>,aa,n~n

• Parameter

a: "Field No. " = Valid range: 1 to 99

n: "Data" = Change data

Coding Example]

<A>

<CC>1

<YR>,1

</D>,1,DEF

</D>,2,78901

</D>,3,49000238

<Q>2

<Z>

[Supplemental Explanation]

1. The number of the printable digits is valid within the range specified by field registration specification </N>.
2. If the number of digits in the field printing specification </D> is greater than the number of digits specified in the field registration specification </N>, printing up to the specified number of digits is enabled.
3. Use this command in combination with format call specification <YR>.
4. An error occurs if a printer RAM is specified.
5. If an unused field number is specified, the command is ignored.

14.10. ESC+GI: GRAPHIC REGISTRATION SPECIFICATION

Graphic Registration Specification			ESC+GI
Hexadecimal Code	ESC <1B> ₁₆	GI <47> ₁₆ <49> ₁₆	Parameter abbbccdddn~n
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

[Function]

Specifying the registration of the graphic pattern data.

[Format]

<GI>abbbccdddn~n

● Parameter

a: "Hexadecimal or binary data transmission selection"

- = H: Hexadecimal data
- B: Binary data
- Hexadecimal data (Specify graphic data with ASCII 0-F as 8 dots per 2 characters.)
- Binary data (Specify graphic data as 8 dots in 1 byte in binary.)

b: "Specifies the horizontal graphic area in bytes"

= See the table.

c: "Specified the vertical graphic area in bytes"

= See the table.

d: "Registration number" (Identification number used when calling)

= Valid range: 1 to 999

n: "Data"

= Graphic data

[Coding Example 1]

When "Hexadecimal or binary data selection" is specified as "H: Hexadecimal data"

In the following specifications, "□" is registered in 999 of slot 1.

<A>

<CC>1

<GI>H001001999<4646383138313831383138314646>₁₆

<Z>

[Coding Example 2]

When "Hexadecimal or binary data selection" is specified as "B: Binary data"

In the following specifications, "□" is registered in 999 of slot 1.

<A>

<CC>1

<GI>B001001999<FF818181818181FF>₁₆

<Z>

[Supplemental Explanation]

1. Be sure to specify the slot number to be used in the card slot specification <CC> before the graphic registration specification <GI>.
2. To change the registration, it is necessary to clear it with the clear command <*> and then re-register it.
3. Data registered with graphic registration specification <GI> is printed with graphic call specification <GR>.
4. If it is not registered correctly, printing may not be performed correctly. Refer to graphic printing specification <G> for the data format.
5. If you register again with a registered number, the command is ignored.

[Precautions]

Model		Max. bytes in the horizontal direction	Max. bytes in the vertical direction
S Mode	203 dpi	104	400
	305 dpi	156	600
	600 dpi	308	1200
CL4NX-J	203dpi	104	400
	305dpi	156	600

14.11. ESC+GR: GRAPHIC CALL SPECIFICATION

Graphic Call Specification			ESC+GR
Hexadecimal Code	ESC	GR	Parameter
	<1B> ₁₆	<47> ₁₆ <52> ₁₆	aaa
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

[Function]

Specifying the data call printing registered by graphic registration specification <GI>.

[Format]

<GR>aaa

- Parameter

a: "Registration number" = Valid range: 1 to 999

[Coding Example]

<A>

<V>100<H>100

<CC>1

<GR>1

<Q>1

<Z>

[Supplemental Explanation]

1. Be sure to specify the slot number to be used in the card slot specification <CC> before the graphic call specification <GR>.
2. Base point correction specification <A3> is ignored and not corrected.
3. Enlargement specification <L> is possible for the called graphic.
4. An error occurs if a printer RAM is specified.

14.12. ESC+GT: BMP FILE REGISTRATION

BMP File Registration			ESC+GT
Hexadecimal Code	ESC	GT	Parameter
	<1B> ₁₆	<47> ₁₆ <54> ₁₆	aaa,bbbbbb,n~n
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF	The set parameter is not maintained
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

[Function]

Specifying the registration of the BMP file created by such as Paint Brushes of Windows.

[Format]

<GT>aaa,bbbbbb,n~n

- Parameter

a: "Registration number" = Valid range: 1 to 999

b: "Total bytes of BMP file" = Valid range: 1 to 99999

Specify the file size of BMP file for total bytes.

n: "Data" = BMP file data

Data is transmitted as binary data (8 bits are output as 1 character data at a time).

[Coding Example]

<A>

<CC>1

<GT>1,12345,<424D00~00>₁₆

<Z>

[Supplemental Explanation]

1. Be sure to specify the slot number to be used in the card slot specification <CC> before the BMP file registration specification <GT>.
2. Data is transmitted as binary data (output as 1 byte 8 dots in binary at a time). The file size of the BMP file becomes the total bytes, and the BMP file data becomes data.
3. If the total bytes of BMP file do not match the transferred data, it may cause an abnormal operation.
4. The total bytes are the file size displayed at "property" and such.
5. BMP files can only be used in the black-and-white mode. Using of a BMP file in the color mode does not perform printing due to a command error. The BMP file compression type is not supported. Make sure that the file extension is "BMP" before printing.
6. If a used registration number is specified, the command is ignored.

14.13. ESC+GC: BMP FILE CALL SPECIFICATION

BMP File Call Specification			ESC+GC
Hexadecimal Code	ESC	GC	Parameter
	<1B> ₁₆	<47> ₁₆ <43> ₁₆	aaa
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

[Function]

Designating the call printing of data registered by BMP file registration <GT>.

[Format]

<GC>aaa

• Parameter

a: "Registration number" = Valid range: 1 to 999

[Coding Example]

<A>

<V>100<H>100

<CC>1

<GC>1

<Q>2

<Z>

[Supplemental Explanation]

1. Be sure to specify the slot number to be used with the card slot specification <CC> before the BMP file call specification <GC>.
2. Enlargement specification <L> is possible for the called data.
3. A RAM memory or an invalid memory slot is specified, the command is ignored.
4. If an unused registration number is specified, the command is ignored.

14.14. ESC+PI: PCX FILE REGISTRATION

PCX File Registration			ESC+PI
Hexadecimal Code	ESC <1B> ₁₆	PI <50> ₁₆ <49> ₁₆	Parameter aaa,bbbb,n~n
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

[Function]

Specifying the PCX file registration.

[Format]

<PI>aaa,bbbb,n~n

• Parameter

a: "Registration number" = Valid range: 1 to 999

b: "Total bytes of PCX file" = Valid range: 128 to 99999

* Specify the file size of PCX file for total bytes.

n: "Data" = PCX file data

* Data is transmitted as binary data (8 bits are collectively output as one character data).

[Coding Example]

<A>

<CC>1

<PI>001,12345,n~n

<Z>

[Supplemental Explanation]

1. Before the PCX file registration <PI>, be sure to specify the slot number to be used in the card slot specification <CC>.
2. Data is transmitted as binary data. (The file size of the PCX file is total bytes, and the PCX file data is data.)
3. For PCX files, up to 128 bytes of data shall be the header part, and the subsequent data shall be image data.
4. If the total bytes of the PCX file do not match the transfer data, it may cause an abnormal operation.
5. The total bytes are the file size displayed at "property" and such.
6. PCX files can only be used in the black-and-white mode. Using the PCX files in the color mode does not perform printing due to a command error. Note that the PCX file compression type is not supported. Make sure that the file extension is "PCX" before printing.

14.15. ESC+PY: PCX FILE CALL SPECIFICATION

PCX File Call Specification			ESC+PY
Hexadecimal Code	ESC	PY	Parameter
	<1B> ₁₆	<50> ₁₆ <59> ₁₆	aaa
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

[Function]

Specifying the call printing of data registered by PCX file registration <PI>.

[Format]

<PY>aaa

- Parameter

a: "Registration number" = Valid range: 1 to 999

[Coding Example]

<A>

<V>100<H>100

<CC>1

<PY>001

<Q>2

<Z>

[Supplemental Explanation]

1. Be sure to specify the slot number to be used in the card slot specification <CC> before the PCX file call specification <PY>.
2. Enlargement specification <L> is possible for the called data.
3. An error occurs if a printer RAM is specified.
4. If an unused registration number is specified, the command is ignored.

14.16. ESC+*: CLEAR SPECIFICATION (MEMORY CARD)

Clear Specification (Memory Card)			ESC+*
Hexadecimal Card	ESC	*	Parameter
	<1B> ₁₆	<2A> ₁₆	a,bbb
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

[Function]

Clearing the contents registered in the memory card.

[Format]

<*>a,bbb

- Parameter

- a: "Item to be cleared" = G: Graphic
(Clears the graphics registered with graphic registration specification <GI>.)
P: PCX file
(Clears the PCX file registered with format registration <PI>.)
M: BMP file
(Clears the BMP file registered with format registration <GT>.)
F: Format
(Clears the format registered with format registration specification <YS>.)
O: Not supported
R: Form Overlay
(Clears the form overlay registered with registration of form overlay <&S>.)
- b: "Registration number" = Valid range: 001 to 999 (Omissible) Except TrueType Font
(If the registration number is omitted, all registered data is cleared.)

[Coding Example 1] When clearing the graphic 001

<A>
<CC1>
<*>G,001
<Z>

[Coding Example 2] When clearing the PCX file 002

<A>
<CC1>
<*>P,002
<Z>

[Supplemental Explanation]

1. The clear specification <*> is delimited by the data transmission start specification <A> and the data transmission end specification <Z>.
2. Be sure to specify the slot number to be used with the card slot specification <CC> before the clear specification <*>.
3. If the registration number is omitted, all data specified in the clear item is deleted.

[Point]

1. Use the format specification <BJF> to clear all printer FROMs.

14.17. ESC+T1: MEMORY CARD 16x16 dots EXTERNAL FONT REGISTRATION

Memory Card 16x16 dots External Font Registration			ESC+T1
Hexadecimal Code	ESC	T1	Parameter
	<1B> ₁₆	<54> ₁₆ <31> ₁₆	abbn~n
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF	The registered data is valid.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

[Function]

Registering 16x16 dots external characters in the memory card.

[Format]

<T1>abbn~n

• Parameter

a: "Registration data selection" = H: Hexadecimal character
B: Binary code

b: "Registration font code address"

Using Kanji set the <KS> command to set Japanese (0,1,2)
JIS code

H: Up to 95 registrations from "21" to "7F" is available.

B: Up to 95 registrations from 21H to 7FH is available.

Shift JIS code

H: Up to 95 registrations from "40" to "9E" is available.

B: Up to 95 registrations from 40H to 9EH is available.

Unicode

H: Up to 95 registrations from "00" to "5E" is available.

B: Up to 95 registrations from 00H to 5EH is available.

Using Kanji set the <KS> command to set other than Japanese
(3 (China Simplified Chinese), 5 (China Traditional Chinese),
6 (Korean))

H: Up to 95 registrations from "21" to "7F" is available.

B: Up to 95 registrations from 21H to 7FH is available.

n": Registered external font data"

[Coding Example]

<A>

<CC>1

<T1>H2100FF00FF~3C0000FF

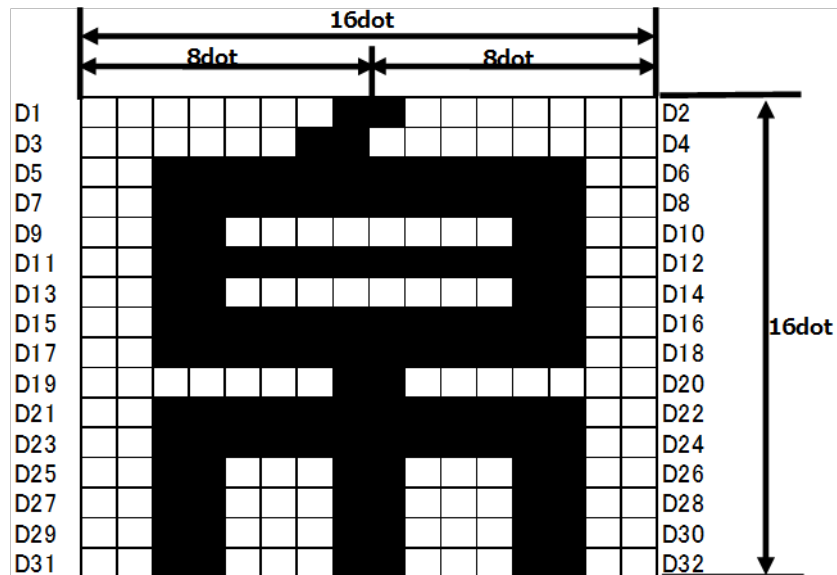
<Z>

[Supplemental Explanation]

1. Data that has been registered once can be overwritten.
2. The slot specification is always required by the card slot specification <CC> immediately before the memory card 16x16 external character registration specification <T1>.
3. The code specified for the registered font code address must be specified in accordance with the Kanji set specification <KS> and Kanji code specification (<KC>).
4. The data output order is shown below.

External file "16x16"

D1	D2
D3	D4
D5	D6
D31	D32



When registering the external characters described above, D1 data becomes <01>₁₆ and D2 data becomes <80>₁₆ because D1 consists of [00000001], D2 consists of [10000000].

In the same manner, D3 is <03>₁₆, D4 is <00>₁₆, D5 is <3F>₁₆, D6 is <FC>₁₆, and the external registration data will be <018003003FFC.....>₁₆ up to D32.

[Note]

1. Since the data registered in the printer RAM is deleted when the printer power is turned off, it is necessary to register it again.

14.18. ESC+T2: MEMORY CARD 24x24 dots EXTERNAL FONT REGISTRATION

Memory Card 24x24 dots External Font Registration			ESC+T2
Hexadecimal Code	ESC	T2	Parameter
	<1B> ₁₆	<54> ₁₆ <32> ₁₆	abbn~n
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF	The registered data is valid.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

[Function]

Registering 24x24 dots external fonts in the memory card.

[Format]

<T2>abbn~n

• Parameter

a: "Registration data selection" = H: HEX character

B: Binary code

b: "Registration font code address"

Using Kanji set the <KS> command to set Japanese (0,1,2)
JIS code

H: Up to 95 registrations from "21" to "7F" is available.

B: Up to 95 registrations from 21H to 7FH is available.

Shift JIS code

H: Up to 95 registrations from "40" to "9E" is available.

B: Up to 95 registrations from 40H to 9EH is available.

Unicode

H: Up to 95 registrations from "00" to "5E" is available.

B: Up to 95 registrations from 00H to 5EH is available.

Using Kanji set the <KS> command to set other than Japanese
(3 (China Simplified Chinese), 5 (China Traditional Chinese),
6 (Korean))

H: Up to 95 registrations from "21" to "7F" in available.

B: Up to 95 registrations from 21H to 7FH in available.

n: "Registered external font data"

[Coding Example]

<A>

<CC>1

<T2>H2100FF00FF~3C0000FF

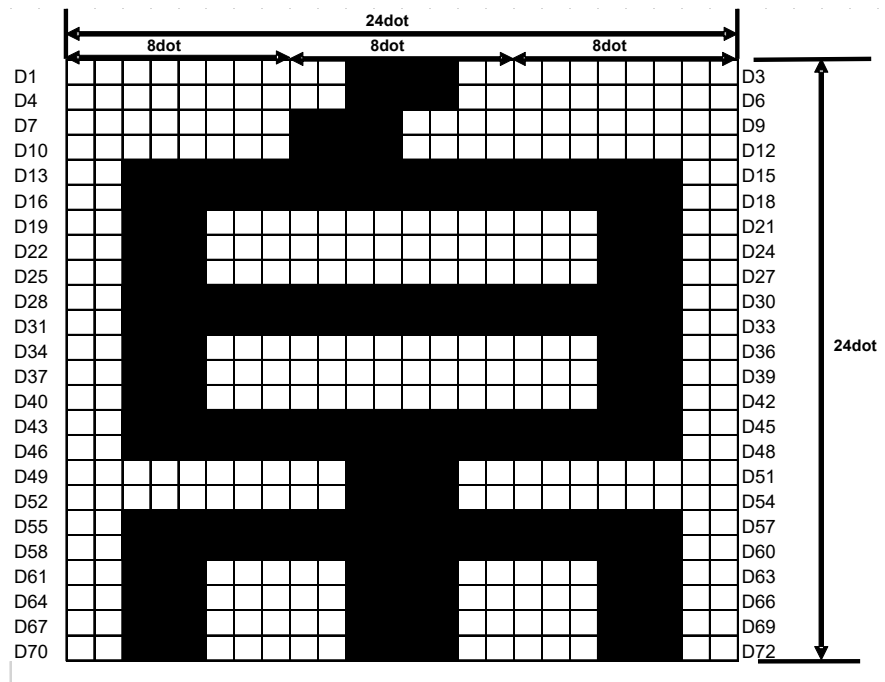
<Z>

[Supplemental Explanation]

1. Data that has been registered once can be overwritten.
2. The slot specification is always required by the used card slot specification <CC> immediately before the memory card 24x24 external character registration specification <T2>.
3. The code specified for the registered font code address must be specified in accordance with the Kanji set specification (<KS>) and Kanji code specification (<KC>).
4. The data output order is shown below.

External file "24x24"

D1	D2	D3
D4	D5	D6
D7	D8	D9
D70	D71	D72



When registering the external characters described above, D1 data becomes <00>₁₆, D2 data becomes <3C>₁₆ and D3 data becomes <00>₁₆ because D1 consists of [00000000], D2 consists of [00111100], and D3 consists of [00000000].

In the same manner, D4 becomes <00>₁₆, D5 becomes <3C>₁₆ and D6 becomes <00>₁₆, and the external registration data are specified to <003C00003C00...>₁₆ and up to D72.

[Note]

1. Since the data registered in the printer RAM is deleted when the printer is turned off, it is necessary to register it again.

14.19. ESC+ K1(K2): HORIZONTAL WRITING EXTERNAL FONT CALL

Horizontal Writing External Font Call			ESC+ K1(K2)
Hexadecimal Code	ESC	K1(K2)	Parameter
	<1B> ₁₆	<4B> ₁₆ <31> ₁₆ (<4B> ₁₆ <32> ₁₆)	an~n
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

[Function]

Specifying the calling of external characters registered in the memory card.

[Format]

<K1>an~n

<K2>an~n

- Parameter

a: "External font registration" = H: HEX character

B: Binary code

I: HEX character with smoothing

C: Binary code with smoothing

J: HEX character with highlighting

D: Binary code with highlighting

K: HEX character with smoothing and highlighting

E: Binary code with smoothing and highlighting

n~n: "Registration code" = Using Kanji set the <KS> command to set Japanese (0,1,2)

JIS code

H, I, J, K: "9021" to "907F"

B, C, D, E: 9021H to 907FH

Shift JIS code

H, I, J, K: F040" to "F09E"

B, C, D, E: F040H to F09EH

Unicode

H, I, J, K: "E000" to "E05E"

B, C, D, E: E000H to E05EH

Using Kanji set the <KS> command to set other than Japanese

(3 (China Simplified Chinese), 5 (China Traditional Chinese),

6 (Korean))

H, I, J, K: "8021" to "807F"

B, C, D, E: 8021H to 807FH

[Coding Example]

<A>

<KS>0

<CC>1

<V>100<H>100

<K1>H9021

<Q>2

<Z>

[Supplemental Explanation]

1. Specify the slot number registered with Card Slot for Use <CC> before this command <K1> by all means.
2. The valid range of the registration code changes with the Kanji set the <KS> command.
3. If a different or nonexistent memory slot is specified, a command error will occur.

[Note]

1. Since the data registered in the printer RAM is deleted when the printer power is turned off, it is necessary to register it again.

14.20. ESC+ k1(k2): VERTICAL WRITING EXTERNAL FONT CALL

Vertical Writing External Font Call			ESC+ k1(k2)
Hexadecimal Code	ESC	k1(k2)	Parameter
	<1B> ₁₆	<6B> ₁₆ <31> ₁₆ (<6B> ₁₆ <32> ₁₆)	an~n
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

[Function]

Specifying the calling of external characters registered in the memory card.

[Format]

<k1>an~n

<k2>an~n

• Parameter

a: "External font registration"

= H: HEX character

B: Binary code

I: HEX character with smoothing

C: Binary code with smoothing

J: HEX character with highlighting

D: Binary code with highlighting

K: HEX character with smoothing and highlighting

E: Binary code with smoothing and highlighting

n~n: "Registration code"

= Using Kanji set the <KS> command to set Japanese (0,1,2)

JIS code

H, I, J, K: "9021" to "907F"

B, C, D, E: 9021H to 907FH

Shift JIS code

H, I, J, K: "F040" to "F09E"

B, C, D, E: F040H to F09EH

Unicode

H, I, J, K: "E000" to "E05E"

B, C, D, E: E000H to E05EH

Using Kanji set the <KS> command to set other than Japanese (3 (China Simplified Chinese), 5 (China Traditional Chinese),

6 (Korean))

H, I, J, K: "8021" to "807F"

B, C, D, E: 8021H to 807FH

[Coding Example]

<A>

<KS>0

<CC>1

<V>100<H>100

<k1>H9021

<Q>2

<Z>

[Supplemental Explanation]

1. Specify the slot number registered with Card Slot for Use <CC> before this command <k1> by all means.
2. The valid range of the registration code changes with the Kanji set the <KS> command.
3. If a different or nonexistent memory slot is specified, a command error will occur.

[Note]

1. Since the data registered in the printer RAM is deleted when the printer power is turned off, it is necessary to register it again.

14.21. ESC+&S: REGISTRATION OF FORM OVERLAY TO MEMORY CARD

Registration of Form Overlay to Memory Card			ESC+ &S
Hexadecimal Code	ESC	&S	Parameter
	<1B> ₁₆	<26> ₁₆ <53> ₁₆	,aa(,bbbb,cccc)
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter is valid until the next valid setting.
	Valid range between items	The set parameter is valid until the next valid setting.

[Function]

Designating the fixed print data to be stored in the memory card.

[Format]

<&S>,aa(,bbbb,cccc)

• Parameter

- a: "Registration key" = Valid range: 01 to 99 (optional)
- b: "Specify the horizontal size of the window" = Valid range: See the table. (optional)
- c: "Specify the vertical size of the window" = Valid range: See the table. (optional)

[Coding Example]

```
<A>
<V>100<H>100<X21>,MODEL
<CC>1
<&S>,1
<Z>
```

[Supplemental Explanation]

1. Be sure to specify the slot number to be used in the card slot specification <CC> before specifying the form overlay registration <&S>.
2. The registered format is always separated by the data sending start <A> and the data sending end <Z>.
3. The same registration number will not be registered.
4. Graphic printing designation <G> and BMP file printing designation <GM> data can also be stored.
5. Up to 99 cases can be registered in the form overlay registration specification <&S>; however, this will vary depending on the memory card.
6. The data registered with the form overlay registration designation <&S> is cleared with the clear designation <*>R.
7. An error occurs if the slot unused or specified the slot in which this printer is specified.

[Note]

1. Do not turn off the power while the memory is being accessed. Otherwise, the data in the media being accessed is not guaranteed.

[Window Size Range]

Model		Valid range of the window in the horizontal direction (dots)	Valid range of the window in the vertical direction (dots)
BX410/BX420	203 dpi	50 to 832	50 to 11984
	305 dpi	50 to 1248	50 to 17676
BX430	600 dpi	50 to 2457	50 to 23598
BX610/BX620	203 dpi	50 to 1280	50 to 11984
	305 dpi	50 to 1920	50 to 17676

[Valid Command]

Print Position	<V>	<H>								
Font	<XU>	<XS>	<XM>	<XB>	<XL>	<OA>	<OB>	<RD>	<\$=>	<K1>
	<K2>	<K3>	<K4>	<K5>	<K8>	<K9>	<KA>	<KB>	<KD>	<k1>
	<k2>	<k3>	<k4>	<k5>	<k8>	<k9>	<kA>	<kB>	<kD>	<U>
	<S>	<M>	<WB>	<WL>	<X20>	<X21>	<X22>	<X23>	<X24>	
Barcode		<BC>	<BG>	<BI>	<D>	<D><d>	<BD>	<BT>	<BW>	
	<BP>	<BF>	<BS>	<BL>	<BL>d	<BM>				
2D code	<2D10>	<BK>	<2D12>	<2D20>	<BV>	<2D30>	<2D31>	<2D32>	<BQ>	
	<2D50>	<BX>	<2D51>	<2D70>						
Composite symbol	<EU>									
Modification	<WD>	<FW>	<(>	<RF>	<FC>	<FT>	<RM>			
Graphic	<G>	<GM>	<GP>							

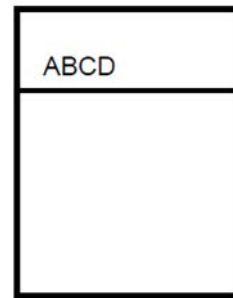
Normally, only the registered number is used, but by specifying the size of the window in the vertical and horizontal directions, it is possible to move by specifying the vertical position <V> and horizontal position <H> when calling.

The following is an overview of the operation.

1) Normal designation (to register)

```
<A>
<V>100<H>100<P>2<L>0202
<X23>,0ABCD
<V>60<H>60
<FW>0808V800H400
<V>320<H>60
<FW>04H400
<CC>1
<&S>,1
<Z>
```

Registered image



2) When specifying printing after <&S>

```
<A>
<V>100<H>100<P>2<L>0202<X23>,0ABCD
<V>60<H>60
<FW>0808V800H400
<V>320<H>60
<FW>04H400
<CC>1
<&S>,1
<V>200<H>100<OB>12345
<Z>
```

Anything expanded before <&S> is registered in the form overlay.

← Printing

3) When specifying the size of the window

Paper size designation: <A1>08000400, Window horizontal size: "200", Window vertical size: "200"

```
<A>
<A1>08000400
<V>100<H>00<P>2<L>0202
<X23>,0ABCD
<CC>1
<&S>,1,200,200
<Z>
```

14.22. ESC+ &R: FORM OVERLAY CALL FROM MEMORY CARD

Form Overlay Call from Memory Card			ESC+ &R
Hexadecimal Code	ESC	&R	Parameter
	<1B> ₁₆	<26> ₁₆ <52> ₁₆ , aa	,aa
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF	The set command is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

[Function]

Specifying the calling of the content on the memory card registered by form overlay registration specification <&S>.

[Format]

<&R>, aa

• Parameter

a: "Registration number" = Valid range: 01 to 99

[Coding Example]

<A>

<CC>1

<&R>,1

<Z>

[Supplemental Explanation]

1. Be sure to specify the slot number to be used in the card slot specification <CC> before the form overlay call specification <&R>.
2. The form overlay call specification <&R> can print a combination of different registration numbers.
3. If no registration number is specified, the form overlay call specification <&R> function is disabled.
4. If a registration number that is not registered is specified, it will result in a read-and-write error.
5. When the window is not specified, the image is expanded from the top of the drawing area (V1, H1), ignoring the specification of vertical print position <V> and the specification of horizontal print position <H>.
6. When the window is specified, the print area by the specification of vertical print position <V> or specification of horizontal print position <H> can be moved. However, note that the overprinted area will not be printed when the print area is exceeded.
7. An error occurs if the slot unused or specified the slot in which this printer is specified.

[Note]

1. Do not turn off the power while the memory is being accessed. Otherwise, the data in the media being accessed is not guaranteed.

[Valid Command]

Print position	<V>	<H>								

15. INTELLIGENT COMMAND

15.1. ESC+IK: LABEL FEED CONTROL

Label Feed Control			ESC+IK
Hexadecimal Code	ESC	IK	Parameter
	<1B> ₁₆	<49> ₁₆ <4B> ₁₆	a(,bbbb)
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

[Function]

Feeding the media forward or backward by the specified transport amount.

[Format]

<IK>a(,bbbb)

- Parameter

a: "Feed direction" = 0: Forward
1: Backward

b: "Number of label feed" = Valid range: Refer to the table.
(Omissible only for forward feed.)

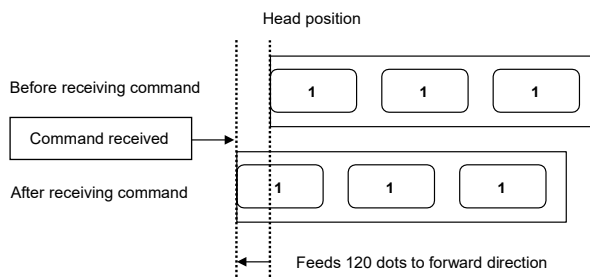
Feeds one label when omitting this parameter.

[Coding Example 1]

<A>

<IK>0,120

<Z>



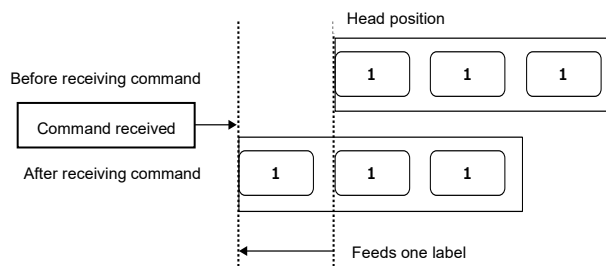
If print data is received without returning to the original position with <IK>0,120, printing starts from the current stop position.

[Coding Example 2] When feeding one label

<A>

<IK>0

<Z>



[Supplemental Explanation]

1. Delimit Start of Data Transmission <A> and End of Data Transmission <Z> with this command. When specifying this command with the same item as the print data, the command will be ignored.
2. If the transport amount is omitted in reverse feeding, a command error occurs.
3. When the sensor is disabled, the feeding of a label with <IK>0 (transport amount omitted) is not performed.
4. A command error occurs if the specified transport amount is outside the valid range.
5. This command is valid only when the printer is online.

[Valid Range]

Model		Media feed direction = Forward direction feed length (dots)	Media feed direction = Backward direction feed length (dots)
S Mode	203 dpi	48 to 1600	48 to 480
	305 dpi	72 to 2360	72 to 720
	600 dpi	144 to 4724	144 to 1418
CL4NX-J	203 dpi	48 to 1600	48 to 480
	305 dpi	72 to 2400	72 to 720

16. COMMON COMMANDS for ALL LANGUAGES

The common commands can be used only when the S Mode is enabled.

The common specifications for the common language commands are listed below.

1. The structure begins from [DC2]<12>16 and two characters follow it.
2. When the two characters follow [DC2] are not the common commands, nothing will be returned and the data after that will be ignored.
3. Note that the command that specifies the data size waits for data reception up to the specified data size and the data are not returned.
4. The response is returned to the I/F that received the command.

16.1. DC2+PA: PRINTER SETTING

Printer Setting			DC2+PA
Hexadecimal Code	DC2 <12> ₁₆	PA <50> ₁₆ <41> ₁₆	Parameter a...a,bb,c...c,d...d,(,ee,f...f,g...g,h...h,i...i)...
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF	The set parameter is maintained.
	Valid range	The set parameter is valid until the next valid setting.
	During printer operation	The command cannot be received during the printer operation. ([NAK] return)
	An error has occurred	The command cannot be received even if an error is occurring. ([NAK] return)

[Function]

Registering the printer settings.

[Format]

DC2(12H) + PA,a...a,bb,c...c,d...d,(,ee,f...f,g...g,h...h)...

Data Sample)

[PA], PA,87,CA,35,SPEED:2 LABELV:12345 LABELH:456
,SB,39,ZEROSLASH:0 SHOTAL:0 PROPORTIONAL:0

[Parameters]

Symbol	Parameter name	Valid range	Acquisition method
a	Total number of data in bytes * The total number of data in bytes after parameter "b". A comma between parameter "a" and "b" is not included.	0 to 524277	Until ",",
b(e...)	Identifier	CA: Common settings CB: Notification system (not supported) (*1) II: IEEE1284 settings (not supported) (*1) IR: RS-232C settings (not supported) (*1) IL: LAN settings (not supported) (*1) IU: USB settings (not supported) (*1) IW: WLAN settings (not supported) (*1) IB: Bluetooth settings (not supported) (*1) IE: EXT settings (not supported) (*1) IF: RFID settings (not supported) (*1) IN: NFC settings (not supported) (*1) SB: SBPL settings SZ: SZPL settings (not supported) (*1) SI: SIPL settings (not supported) (*1) SD: SDPL settings (not supported) (*1) ST: STCL settings (not supported) (*1) SA: AEP settings (not supported) (*1)	Fixed 2-character

c(f...)	Data size of settings in bytes The size of setting information is equivalent to the bytes be section from parameter "d". Commas between sections are not included.	0 to 524277	Until ","
d(g...)	Setting information data * Text format	Refer to the table "Setting information data".	Data size of setting information

(*1) If an unsupported identifier is used, this command is ignored.

[Setting data format]

"Name of setting item" + ":" + "Setting data" + "Line feed(0DH,0AH)" h...h:i...i[CR][LF](j...j:k...k[CR][LF])...

[Setting information data]

Symbol	Parameter name	Valid range	Acquisition method
h(j...)	Setting item name	See the Settings table.	Until ":"
i(k...)	Setting data	See the Settings table.	Valid until "[CR][LF]"

Data sample)

SPEED: 4

LEVEL: 5

[Return data format (normal)]

[ACK]<06>16

[Exception processing]

Parameter name	Exception condition	
	When a value outside the range is specified	When the specified size and received size are different
Total number of data in bytes	Command error	Command error (*1) (*2)
Identifier	Invalid identifier (skip)	Command error
Data size of setting information	Command error	Command error (*3)
Setting item name	Invalid setting item (skip)	
Setting data	Invalid setting item (skip)	

(*1) If the data size from the first identifier (bb) to the last data item and the data size calculated from the format does not match that for the setting information, a command error will occur.

(*2) However, analysis is not started until data for the total number of data bytes are received, so nothing is returned.

(*3) If the data during the receipt of the setting information data size from the beginning of the setting information data are not ",", a command error will occur.

Terminology	Description
Command error	All items are not set. The data received after a command error is determined is not considered as a parameter of this command.
Invalid identifier	The corresponding setting information data (data equivalent to the succeeding setting information data size) is ignored.
Invalid item	The data of one item (data up to [CR][LF]) is ignored.

[Supplemental Explanation]

1. If the sum of the total data size and configuration information data size does not match, an error will occur and they will not be set.
2. If the data size of settings does not match that for the actual settings, an error will occur and the value will not be set.
3. Setting for each identifier and setting item can be omitted.
4. Setting for each identifier and setting item can be in random order.
5. When resetting a setting with the same identifier, the last value that was set will be enabled.
6. If the value in the setting is out of range, then the setting item will have an error and will be skipped.
7. When setting a character string, it is possible to set the same character string as the setting item name.
e.g.) "DeviceName" can be set as the setting value for the setting item named "DeviceName".
8. Do not send this command when the printer is printing. Use this command only in the standby status.

[PRINTER] Section

(The range of the setting value is described in the case of BX410.)

S Mode	Setting item name	Setting value	Default value	R/W	Initial	Contents of Setting item
Valid	SPEED	2: 3 inches/sec	6	R/W	Valid	Print speed <CS> * If the printing method is thermal transfer and 2 inches/second is specified, it operates at 3 inches/second.
		3: 3 inches/sec				
		4: 6 inches/sec				
		5: 6 inches/sec				
		6: 6 inches/sec				
		7: 10 inches/sec				
		8: 10 inches/sec				
		9: 10 inches/sec				
		10: 10 inches/sec				
		11: 12 inches/sec				
		12: 12 inches/sec				
		13: 14 inches/sec				
		14: 14 inches/sec				
Valid	LEVEL	1: Darkness 1	5	R/W	Valid	Print darkness level <#F> * Refer to the "ESC + #F" command description for details on the density setting.
		2: Darkness 2				
		3: Darkness 3				
		4: Darkness 4				
		5: Darkness 5				
		6: Darkness 6				
		7: Darkness 7				
		8: Darkness 8				
		9: Darkness 9				
		10: Darkness10				

Valid	CONCENTRATION	"A"		A	R/W	Valid	Print darkness <#F>
		"B"					
		"C"					
		"D"					
		"E"					
		"F"					
Valid	LABELV	BX410/ BX420	203 dpi: "48" to "11984" (dots)	203 dpi: 11984 305 dpi: 17976	R/W	Valid	Vertical size of label
			305 dpi: "72" to "17976" (dots)				
		BX430	600 dpi: "142" to "23598" (dots)	600 dpi: 23598			
		BX610/ BX620	203 dpi: "48" to "11984" (dots)	203 dpi: 11984 300 dpi: 17976			
305 dpi: "72" to "17976" (dots)							
Valid	LABELH	BX410/ BX420	203 dpi: "80" to "832" (dots)	203 dpi: 832 305 dpi: 1248	R/W	Valid	Horizontal size of label *1: Head Base Position=Standard *2: Head Base Position=Left-justify
			305 dpi: "120" to "1248" (dots)				
		BX430	600 dpi: "236" to "2457" (dots)	600 dpi: 2457			
		BX610/ BX620	203 dpi: "80" to "1280" (dots)	203 dpi: 1280 300 dpi: 1920			
305 dpi: "120" to "1920" (dots)							
Valid	PITCHOFFSET	"-99" to "99" (dots)		0	R/W	Valid	Pitch offset <PO>
Valid	BASEV	"-792" to "792"(dot)		0	R/W	Valid	Offset of vertical base reference point <A3>
Valid	BASEH	"-792" to "792"(dot)		0	R/W	Valid	Offset of horizontal base reference point <A3>
Invalid	PRINT_AUTO	0: Disable		1	R/W	Valid	Automatic selection of behavior mode
		1: Enable					
Valid	PRINT	0: Continuous		1: No options 2: With dispenser 3: With cutter 4: With linerless	R/W	Valid	Print motion
		1: Tear-off					
		2: Dispenser					
		3: Cutter					
		4: Linerless					
		5: Cut while printing					
9: Partial Cut							
Valid	PEEL	1: Motion 1 (Thermal head position)		1	R/W	Valid	Dispenser motion (back-feed motion) <PM>
Valid	CUTTER	1: Motion 1 (Thermal head position)		1	R/W	Valid	Cutter motion <PM>
Invalid	NONSEPA	2: Motion 2 (Dispenser position)		2	R/W	Valid	Linerless motion (Back-feed motion) <PM>
Valid	TEAR_OFFSET	"-99" to "99" (dots)		0	R/W	Valid	Tear-off Offset adjust <PO>
Valid	CUT_OFFSET	"-99" to "99" (dots)		0	R/W	Valid	Cutter Offset adjust <PO>
Valid	DISP_OFFSET	"-99" to "99" (dots)		0	R/W	Valid	Dispenser Offset adjust <PO>

Valid	TYPE	0: Thermal transfer 1: Direct thermal	0	R/W	Valid	Print method <PH>
Valid	SENSOR	0: Disable sensor 1: GAP 2: I-MARK	1	R/W	Valid	Sensor type <IG> Sensor value of the active print mode.
Invalid	PEND_TYPE	0: I-MARK 1: GAP	0	R/W	Valid	Type of paper end sensor
Invalid	EJECT_CUT	"0" to "5" (sec.)	0	R/W	Valid	Eject cut settings
Invalid	MEDIA_CHECK	0: Disable 1: Enable	0	R/W	Valid	Media check
Valid	HEADCHECK	0: Disable 1: Normal range	0	R/W	Valid	Head check
Valid	HEADCHECK_MODE	0: Check one page 1: Specify start and end 2: Specify number of pages	0	R/W	Valid	Head check mode
Valid	HEADCHECK_PAGE	"1" to "009999"	1	R/W	Valid	Number of head check pages
Valid	LANGUAGE	0: English	0	R/W	Valid	Language settings
Valid		1: German				
Valid		2: French				
Valid		3: Spanish				
Valid		4: Italian				
Invalid		5: Portuguese (Europe)				
Invalid		6: Czech				
Valid		7: Danish				
Valid		8: Dutch				
Invalid		9: Finnish				
Invalid		10: Greek				
Invalid		11: Hungarian				
Invalid		12: Norwegian				
Valid		13: Polish				
Invalid		14: Romanian				
Valid		15: Russian				
Invalid		16: Slovakian				
Invalid		17: Swedish				
Valid		18: Turkish				
Valid		19: Chinese (Simplified)				
Invalid		20: Chinese (Traditional)				
Valid		21: Korean				
Valid		22: Japanese				
Invalid		23: Arabic				
Invalid		24: Thai				
Invalid		25: Vietnamese				
Invalid		26: Farsi				
Invalid		27: Indonesian				
Invalid		28: Hindi				
Invalid		29: Portuguese (Brazil)				
Invalid	TIMEZONE	Refer to the time zone table.	Asia/Tokyo	R/W	Valid	Time zone
Valid	DATE_SET	YYYY/MM/DD Y: Year M: Month D: Date	2013/1/1	R/W	Valid	Set calendar (date) Min:2000/01/01 00:00:00 Max:2035/12/31 23:59:00

Valid	TIME_SET	HH:NN:SS	00:00:00	R/W	Valid	Set calendar(time)
		H: Hour				
		N: Minute				
		S: Second				
Valid	POWER_SAVE	BX410/BX420: 0 to 7200 sec. BX430: 0 to 3600 sec. BX610/BX620: 0 to 7200 sec.	BX410/BX420: 7200 BX430: 3600 BX610/BX620: 7200	R/W	Valid	Power saving setting *Since mobile is set in seconds, this setting is in minute. * 1
Invalid	BUZZER	0: Buzzer off	2	R/W	Valid	Buzzer volume
		1: Volume low				
		2: Volume medium				
		3: Volume large				
Invalid	LCDVOLUME	"0" to "9"	7	R/W	-	LCD Brightness
Valid	ADJUSTPITCH	305 dpi: "-45" to "45" (dots)	0	R/W	-	Adjust print position
		203 dpi: "-30" to "30" (dots)				
Valid	ADJUSTOFFSET	305 dpi: "-45" to "45" (dots)	0	R/W	-	Offset adjust
		203 dpi: "-30" to "30" (dots)				
Invalid	OPTIONTIME	0, "5" to "200" (x100 ms)	0	R/W	Valid	Waiting time in the tearoff mode for next data <TW>
Valid	AUTO_MEASURE	0: Disable	0	R/W	Valid	Automatic measurement of label length
		1: Enable				
Invalid	AUTO_ONLINE	0: Disable	1	R/W	Valid	Auto online <AO>, <LD>
		1: Enable				
Valid	FEED	0: Disable	0	R/W	Valid	Initial feed
		1: Enable				
Valid	ONLINE_FEED	0: Disable	0	R/W	Valid	Online feed <LF>
		1: Enable				
Valid	IGNORE_CRLF	0: Do not remove CR/LF	0	R/W	Valid	Ignore CR/LF <CL>
		1: Remove CR/LF				
Invalid	BYTECOMMAND	0: Disable	0	R/W	Valid	Remove CAN/DLE <1B>
		1: Enable				
Invalid	IMLVL_RL	"0" to "127": Reflective sensor label (receiving light)	64	R/W	-	Adjust reflective sensor level (Receiving light)
Invalid	IMLVL_LE	"0" to "7": Reflective sensor label (light emission)	3	R/W	-	Adjust reflective sensor level (Light emission)
Invalid	IM_SL	"0.0": Automatic slice level calculation	0.0	R/W	-	Reflective sensor slice level
		"0.1" to "3.3": Slice level fixed setting				
Invalid	GAPLVL_RL	0 to "127": Transmissive sensor label (receiving light)	64	R/W	-	Adjust transmissive sensor level (Receiving light)
Invalid	GAPLVL_LE	"0" to "7": Transmissive sensor label (light emission)	3	R/W	-	Adjust transmissive sensorlevel(Light emission)
Invalid	GAP_SL	"0.0": Automatic slice level calculation	0.0	R/W	-	Transmissive sensor slice level
		"0.1" to "3.3": Slice level fixed setting				
Valid	RB_NEND	"0": Disable	1	R/W	Valid	Detect ribbon near end
		"1": Enable				

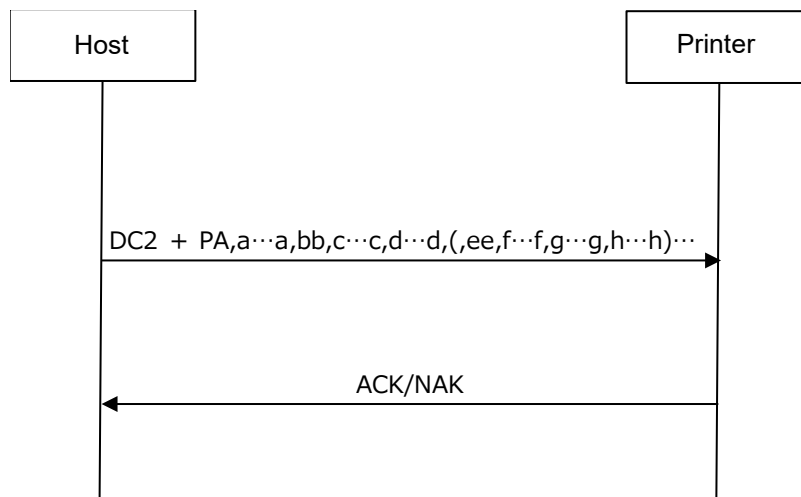
Invalid	PRIORITY	0: Prioritize command	0	R/W	Valid	Priority setting
		1: Prioritize LCD setting				
Invalid	ADJUSTDARK	0 to "99"	50	R/W	-	Adjust darkness
Valid	OP_FEED	305 dpi: "0" to "3060" (dots)	0	R/W	Valid	Optional feed volume
		203 dpi: "0" to "2040" (dots)				
Valid	PASS_SET	0: Disable	0	R/W	-	Input password
		1: Enable				
Valid	ALL_QTY	0: Disable	0	R/W	Valid	Display total number of labels to print
		1: Enable				
Invalid	HEX_DUMP_MODE	0: Disable	0	R/W	Valid	Hex dump mode
		1: Enable				
Invalid	APP_MODE	00: AUTO	-	R	-	Application mode
		SB: SBPL				
		SZ: SZPL				
		SI: SIPL				
		SD: SDPL				
		ST: STCL				
Invalid	APP_MODE_AUTO	00: AUTO	-	R	-	Application mode of AUTO mode
		SB: SBPL				
		SZ: SZPL				
		SI: SIPL				
		SD: SDPL				
		ST: STCL				
Invalid	CALENDAR_CHECK	"0": Disable	1	R/W	Valid	Check Calendar
		"1": Enable				
Valid	REPRINT	"0": Disable	0	R/W	Valid	Reprint
		"1": Enable				
Invalid	INSTALL_SECURITY	"0": Disable	0	R/W	-	Install Security Password control for pkg install
		"1": USB				
		"2": Always				
Valid	PRINTEND_POSITION	305 dpi: "0" to "18000" (dots)	0	R/W	Valid	Print End Position
		203 dpi: "0" to "12000" (dots)				
		600 dpi: "0" to "36000" (dots)				
Valid	SENSOR_CONTINUOUS	"0": Disable sensor	2	R/W	Valid	Sensor type (Continuous)
		"1": GAP				
		"2": I-MARK				
Valid	SENSOR_TEAROFF	"1": GAP	2	R/W	Valid	Sensor type (Tear-off)
		"2": I-MARK				
Valid	SENSOR_PEEL	"1": GAP	2	R/W	Valid	Sensor type (Dispenser)
		"2": I-MARK				
Valid	SENSOR_CUTTER	"0": Disable sensor	2	R/W	Valid	Sensor type (cutter)
		"1": GAP				
		"2": I-MARK				
Valid	SENSOR_LINERLESS	"0": Disable sensor	0	R/W	Valid	Sensor type (Linerless)
		"2": I-MARK				
Valid	SENSOR_CUTPRINT	"1": GAP	2	R/W	Valid	Sensor type (Cut while printing)
		"2": I-MARK				
Invalid	LB_NEND	"0": Disable	0	R/W	Valid	Label near end
		"1": Enable				
Invalid	AC_POWERON	"0": Disable	0	R/W	-	AC Power On
		"1": Enable				
Invalid	UNIT	"0": dot	0	R/W	Valid	Unit
		"1": inch				
		"2": mm				

Invalid	BV_MODE	0: Disabled	0	R/W	Valid	Barcode check mode
		1: Readable				
		2: Comparison				
Invalid	BV_START_POSITION	203 dpi: "10" to "20000" dots	203 dpi: 72 305 dpi: 108	R/W	Valid	Barcode check start position
		305 dpi: "15" to "18000" dots				
Invalid	BV_VOID_PRINT	0: Disabled	0	R/W	Valid	Barcode VOID printing
		1: Enabled				
Invalid	BV_RETRY_COUNT	"0" to "5" times/count	0	R/W	Valid	Number of barcode check retries
Invalid	BV_HOST_NOTIFICATION	0: Disabled	0	R/W	Valid	Barcode check result host notification
		1: Enabled				

[SBPL] Section

S Mode	Setting item name	Setting value	Default Value	R/W	initial	Contents of Setting item
Valid	ZEROSLASH	"0": Disable "1": Enable	1	R/W	Valid	Zero slash <LH>, <LD>
Valid	SHOTAJ	"1": Gothic "0": Mincho	1	R/W	Valid	Type face <KG>, <KM>
Valid	PROPORTIONAL	"0": Fixed pitch "1": Proportional pitch	1	R/W	Valid	Proportional pitch <PS>, <PR>
Invalid	STDCODE	"0": Standard code "1": Non-standard code	0	R/W	Valid	Protocol code
Invalid	CMDERR	"0": Disable "1": Enable	0	R/W	Valid	Command error
Invalid	STXCODE	"0" to "255"	standard 2(0x02) non-sta. 123(0x7B)	R/W	Valid	STX <LD>
Invalid	ETXCODE	"0" to "255"	standard 3(0x03) non-sta. 125(0x7D)	R/W	Valid	ETX <LD>
Invalid	ESCCODE	"0" to "255"	standard 27(0x1B) non-sta. 94(0x5E)	R/W	Valid	ESC <LD>
Invalid	ENQCODE	"0" to "255"	standard 5(0x05) non-sta. 64(0x40)	R/W	Valid	ENQ <LD>
Invalid	CANCODE	"0" to "255"	standard 24(0x18) non-sta. 33(0x21)	R/W	Valid	CAN <LD>
Invalid	NULLCODE	"0" to "255"	standard 0(0x00) non-sta. 126(0x7E)	R/W	Valid	NULL <LD>
Invalid	OFFLINECODE	"0" to "255"	standard 64(0x40) non-sta. 93(0x5D)	R/W	Valid	OFFLINE <LD>
Invalid	EUROCODE	"0" to "255"	standard 213(0xD5) non-sta. 213(0xD5)	R/W	Valid	EURO <LD>
Valid	KANJI	"0": JIS code "1": SJIS code "2": Unicode(UTF16) "3": GB18030 "4": BIG5 (not supported) "5": KCS5601 (not supported)	JP: 1 Others: 3	R/W	Valid	Kanji code <KC>
Valid	KNJ_MODE	"0": JIS X0208 compatible "1": JIS X0208 "2": JIS X0213 "3": GB18030 "4": BIG5 (not supported) "5": KSC5601 (not supported)	JP: 1 Others: 3	R/W	Valid	Kanji mode

Valid	CODE_PAGE	"0": UTF8 "1": CP858 "2": ISO8859-1 "3": ISO8859-2 "4": ISO8859-9 "5": CP737 "6": CP855 "7": CP850 "8": CP852 "9": CP857 "10": CP866 "11": CP1250 "12": CP1251 "13": CP1252 "14": CP1253 "15": CP1254 "16": CP1257 "17": CP869 "18": JIS X0201	JP: 18 Others: 1	R/W	Valid	Code page
Invalid	Orientation	"0": Portrait "1": Landscape "2": Inv. Portrait "3": Inv. Landscape	0	R/W	Valid	Orientation
Invalid	CODE128(C)_Zero_Fill	"0": Disable "1": Enable	0	R/W	Valid	Code128 odd number: 0 compensation compatible
Invalid	KANJI_COMMAND	"0": Disable "1": Enable	0	R/W	Valid	Kanji command compatibility
Invalid	CALL_FONTLOGO	"0": Disable "1": Enable	0	R/W	Valid	Character code compatible at Download Font/Log calling



[Tip]

1. The setting values of "LABELV", "LABELH", "ADJUSTPITCH", "ADJUST OFFSET" and "PRINTEND_POSITION" may differ from the acquired ones.

16.2. DC2+PB: PRINTER SETTING INFORMATION ACQUISITION

Printer Setting Information Acquisition			DC2+PB
Hexadecimal Code	DC2	PB	Parameter
	<12>16	<50>16<42>16	(,aa(,b...b))+ EOT(04h)
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF	
	Valid range	
	During printer operation	The command can be received even during the printer operation.
	An error has occurred	The command can be received even if an error is occurring.

[Function]

Acquiring the printer information.

[Format]

[DC2]PB(,aa(,b...b))[EOT]

[Parameters]

Symbol	Parameter name	Valid range	Remarks
a	Identifier	CA: Common settings CB: Notification system (not supported) (*1) II: IEEE1284 settings (not supported) (*1) IR: RS-232C settings IL: LAN settings (not supported) (*1) IU: USB settings (not supported) (*1) IW: WLAN settings (not supported) (*1) IB: Bluetooth settings (not supported) (*1) IE: EXT settings (not supported) (*1) IF: RFID settings (not supported) (*1) IN: NFC settings (not supported) (*1) SB: SBPL settings SZ: SZPL settings (not supported) (*1) SI: SIPL settings (not supported) (*1) SD: SDPL settings (not supported) (*1) ST: STCL settings (not supported) (*1) SA: AEP settings (not supported) (*1)	When omitted, all items will be returned.
b	Setting item name	Refer to 16.1 [DC2]+PA command	Until [EOT]

(*1) If an unsupported identifier is specified, this command is ignored.

[Return data format (normal)]

[STX]a...a,bb,c...c,d...d(,ee,f...f,g...g)...[ETX]

[Return data]

Symbol	Parameter name	Valid range
a	Total number of data bytes * This is the total number of bytes after parameter "b". The delimiting comma between parameters "a" and "b", and [ETX] are not included.	Data size from the first identifier until before [ETX]
b(e)	Identifier	CA: Common settings CB: Notification system (not supported) (*1) II: IEEE1284 settings (not supported) (*1) IR: RS-232C settings IL: LAN settings (not supported) (*1) IU: USB settings (not supported) (*1) IW: WLAN settings (not supported) (*1) IB: Bluetooth settings (not supported) (*1) IE: EXT settings (not supported) (*1) IF: RFID settings (not supported) (*1) IN: NFC settings (not supported) (*1) SB: SBPL settings SZ: SZPL settings (not supported) (*1) SI: SIPL settings (not supported) (*1) SD: SDPL settings (not supported) (*1) ST: STCL settings (not supported) (*1) SA: AEP settings (not supported) (*1)
c(f)	Setting information data size * The number of bytes of the section unit after parameter "b". The delimiting comma between sections is not included.	Size of the corresponding setting information data
d(g)	Setting information data * Text format	Refer to [Setting information data].

(*1) If an unsupported identifier is specified, this command is ignored.

[Setting information data format]

"Setting item name" + ":" + "Setting data" + "Line feed(0DH,0AH)" h...h:i...i[CR][LF](j...j:k...k[CR][LF])...

[Setting information data]

Symbol	Parameter name	Valid range
h(j...)	Setting item name	Refer to the printer status information list.
i(k...)	Setting data	Refer to the printer status information list.

Data Example)

CA,12345,SPEED:4

LEVEL:5

CONCENTRATION:A

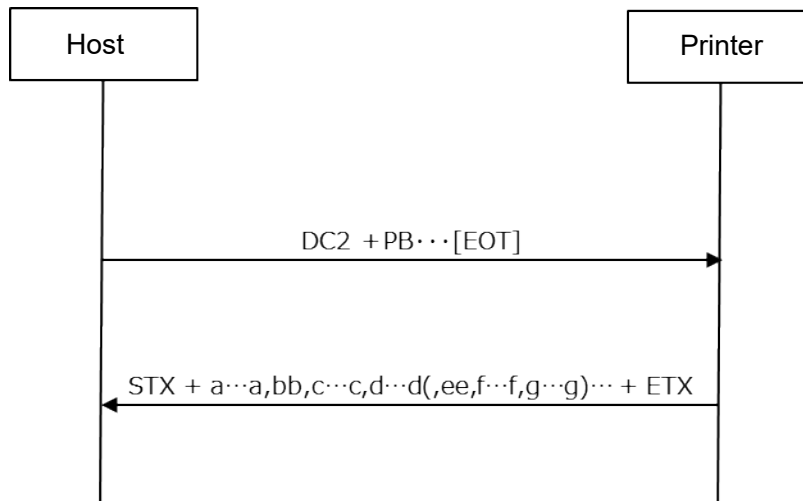
[Return data format (when a command error occurs)]

[NAK]<15>16

[Exception processing]

Parameter name	Exception condition	
	A value outside the range is specified	The specified size and received size are different
Identifier	Command error	Invalid receive data

Terminology	Description
Command error	The data received after a command error is determined is not considered as a parameter of this command.



[Tip]

1. When identifiers are omitted, all data will be returned.
2. When setting item names are specified, setting information of the item which was set will be returned.

16.3. DC2+PC: PRINTER DEVICE INFORMATION ACQUISITION

Printer Device Information Acquisition			DC2+PC
Hexadecimal Code	DC2	PC	Parameter
	<12> ₁₆	<50> ₁₆ <43> ₁₆	Nil
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF	
	Valid range	
	During printer operation	The command can be received even during the printer operation.
	An error has occurred	The command can be received even if an error is occurring.

[Function]

Returning the printer device information.

[Format]

DC2(12H)+ PC

[Return data format (normal)]

[STX]a...a,b...b:c...c[CR][LF](d...d:e...e[CR][LF]) ... [ETX]

Symbol	Parameter name	Valid range
a	Total number of data bytes * This is the total number of bytes after parameter "b". The delimiting comma between parameters "a" and "b", and [ETX] are not included.	Data size from the first device information name up to before [ETX].
b(d)	Device information name * Text format	Refer to the printer device information list.
c(e)	Device information data * Text format	Refer to the printer device information list.

Data Example)

[STX]12345,MODEL:Model name[CR][LF]FW Ver:1.0.0[CR][LF]...[CR][LF] [ETX]

[Printer device information list]

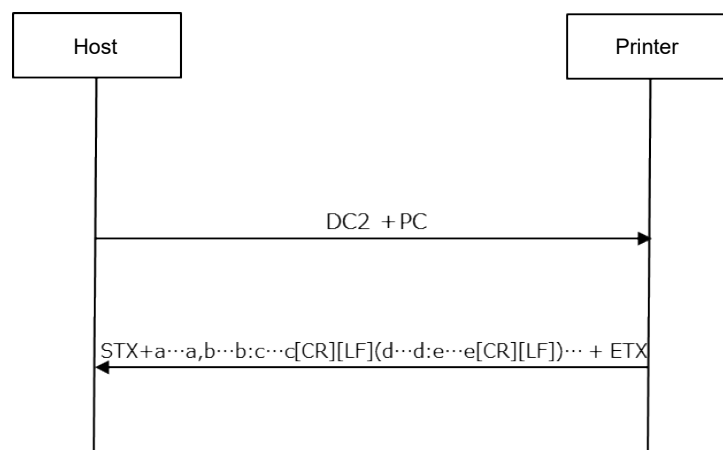
S Mode	No.	Description	Device information name	Device information data
Valid	1	Model name	MODEL	M...M M: Model name
Invalid	2	Kernel version	KERNEL Ver	R...R R: OS release number
Valid	3	Main firmware version	MAIN FW Ver	V...V V: Version * A-BRID: SS Version
Valid	4	Main firmware creation date	MAIN FW Date	YYYYMMDD_HHMMSS TTT T: Time zone
Valid	5	Printer module boot firmware version	MODULE BOOT FW Ver	P...P.boot-V.V.V-S...S P: Platform name V: Version S: Release = Release version Alpha/Beta = Test version xxxuser = Custom version urgent = Urgent version * A-BRID: SF Version
Valid	6	Printer module boot firmware creation date	MODULE BOOT FW Date	YY.MM.DD
Valid	7	Printer module boot firmware check sum	MODULE BOOT FW CHECKSUM	CCCC C: Check sum * A-BRID: 0000 (fixed)
Invalid	8	Printer module main firmware version	MODULE MAIN FW Ver	P...P.main-V.V.V-S...S P: Platform name V: Version S: Release = Release version Alpha/Beta = Test version xxxuser = Custom version urgent = Urgent version
Invalid	9	Printer module main firmware creation date	MODULE MAIN FW Date	YY.MM.DD
Invalid	10	Printer module main firmware check sum	MODULE MAIN FW CHECKSUM	CCCC C: Check sum
Valid	11	LAN MAC address	LAN MAC	XX:XX:XX:XX:XX:XX X: Alphanumeric
Valid	12	WLAN MAC address	WLAN MAC	XX:XX:XX:XX:XX:XX X: Alphanumeric
Invalid	13	BD address	BD	xxxxxxxxxxxx x: Alphanumeric
Valid	14	Head counter 1	Head Count1	Numeric value (unit: mm)
Valid	15	Head counter 2	Head Count2	Numeric value (unit: mm)
Valid	16	Head counter 3	Head Count3	Numeric value (unit: mm)
Valid	17	Life counter	Life Count	Numeric value (unit: mm)
Valid	18	Cutter counter	Cut Count	Numeric value (unit: count)
Invalid	19	Dispense counter	Disp Count	Numeric value (unit: 1/24mm)
Valid	20	Free space size in user area	MEM_FROM	Numeric value (unit: byte)
Invalid	21	USB memory available size (Printer front port connection)	MEM_USB1	Numeric value (unit: byte)
Invalid	22	USB memory available size (Printer rear port connection)	MEM_USB2	Numeric value (unit: byte)
Valid	23	SBPL form overlay SLOT1 Number of registered counts, number of registered bytes	BPL_FOL_SLOT1	XXXX,YYYYYYYYYYY X: Registration count Y: Number of registered bytes
Valid	24	SBPL form overlay SLOT1 Registration number	SBPL_FOL_SLOT1_No	XXX(,XXX,XXX...) X: Registration No. * Repeat as many times as the registration numbers * If the registration count is zero, the value is ignored.
Valid	25	SBPL format SLOT1 Number of registered counts, number of registered bytes	SBPL_FMT_SLOT1	XXXX,YYYYYYYYYYY X: Registration count Y: Number of registered bytes
Valid	26	SBPL format SLOT1 Registration number	SBPL_FMT_SLOT1_No	XXX(,XXX,XXX...) X: Registration No. * Repeat as many times as the registration numbers * If the registration count is zero, the value is ignored.

Valid	27	SBPL graphic SLOT1 Number of registered counts, number of registered bytes.	SBPL_GRA_SLOT1	XXXX,YYYYYYYYYY X: Registration count Y: Number of registered bytes
Valid	28	SBPL graphic SLOT1 Registration number	SBPL_GRA_SLOT1_No	XXX(,XXX,XXX···) X: Registration No. * Repeat as many times as the registration numbers * If the registration count is zero, the value is ignored.
Valid	29	SBPL BMP file SLOT1 Number of registered counts, number of registered bytes	SBPL_BMP_SLOT1	XXXX,YYYYYYYYYY X: Registration count Y: Number of registered bytes
Valid	30	SBPL BMP file SLOT1 Registration number	SBPL_BMP_SLOT1_No	XXX(,XXX,XXX···) X: Registration No. * Repeat as many times as the registration numbers * If the registration count is zero, the value is ignored.
Valid	31	SBPL PCX file SLOT1 Number of registered counts, number of registered bytes	SBPL_PCX_SLOT1	XXXX,YYYYYYYYYY X: Registration count Y: Number of registered bytes
Valid	32	SBPL PCX file SLOT1 Registration number	SBPL_PCX_SLOT1_No	XXX(,XXX,XXX···) X: Registration No. * Repeat as many times as the registration numbers. * If the registration count is zero, the value is ignored.
Valid	33	SBPL external character SLOT1 Number of registered counts, number of registered bytes	SBPL_EXC_SLOT1	XXXX,YYYYYYYYYY X: Registration count Y: Number of registered bytes
Invalid	34	SBPL external character SLOT1 Registration number	SBPL_EXC_SLOT1_No	XXX(,XXX,XXX···) X: Registration No. * Repeat as many times as the registration numbers.
Invalid	35	SBPL TrueType font SLOT1 Number of registered counts, number of registered bytes	SBPL_TTF_SLOT1	XXXX,YYYYYYYYYY X: Registration count Y: Number of registered bytes
Invalid	36	SBPL TrueType font SLOT1 Registration number	SBPL_TTF_SLOT1_No	XXX(,XXX,XXX···) X: Registration No. * Repeat as many times as the registration numbers. * If the registration count is zero, the value is ignored.
Invalid	37	SBPL form overlay SLOT2 Number of registered counts, number of registered bytes	SBPL_FOL_SLOT2	XXXX,YYYYYYYYYY X: Registration count Y: Number of registered bytes
Invalid	38	SBPL form overlay SLOT2 Registration number	SBPL_FOL_SLOT2_No	XXX(,XXX,XXX···) X: Registration No. * Repeat as many times as the registration numbers. * If the registration count is zero, the value is ignored.
Invalid	39	SBPL format SLOT2 Number of registered counts, number of registered bytes	SBPL_FMT_SLOT2	XXXX,YYYYYYYYYY X: Registration count Y: Number of registered bytes
Invalid	40	SBPL format SLOT2 Registration number	SBPL_FMT_SLOT2_No	XXX(,XXX,XXX···) X: Registration No. * Repeat as many times as the registration numbers. * If the registration count is zero, the value is ignored.
Invalid	41	SBP graphic SLOT2 Number of registered counts, number of registered bytes	SBPL_GRA_SLOT2	XXXX,YYYYYYYYYY X: Registration count Y: Number of registered bytes
Invalid	42	SBPL graphic SLOT2 Registration number	SBPL_GRA_SLOT2_No	XXX(,XXX,XXX···) X: Registration No. * Repeat as many times as the registration numbers. * If the registration count is zero, the value is ignored.
Invalid	43	SBPL BMP file SLOT2 Number of registered counts, number of registered bytes	SBPL_BMP_SLOT2	XXXX,YYYYYYYYYY X: Registration count Y: Number of registered bytes

Invalid	44	SBPL BMP file SLOT2 Registration number	SBPL_BMP_SLOT2_No	XXX(,XXX,XXX···) X: Registration No. * Repeat as many times as the registration numbers * If the registration count is zero, the value is ignored.
Invalid	45	SBPL PCX file SLOT2 Number of registered counts, number of registered bytes	SBPL_PCX_SLOT2	XXXX,YYYYYYYYYY X: Registration count Y: Number of registered bytes
Invalid	46	SBPL PCX file SLOT2 Registration number	SBPL_PCX_SLOT2_No	XXX(,XXX,XXX···) X: Registration No. * Repeat as many times as the registration numbers * If the registration count is zero, the value is ignored.
Invalid	47	SBPL external character SLOT2 Number of registered counts, number of registered bytes	SBPL_EXC_SLOT2	XXXX,YYYYYYYYYY X: Registration count Y: Number of registered bytes
Invalid	48	SBPL external character SLOT2 Registration number	SBPL_EXC_SLOT2_No	XXX(,XXX,XXX···) X: Registration No. * Repeat as many times as the registration numbers. * If the registration count is zero, the value is ignored.
Invalid	49	SBPL TrueType font SLOT2 Number of registered counts, number of registered bytes	SBPL_TTF_SLOT2	XXXX,YYYYYYYYYY X: Registration count Y: Number of registered bytes
Invalid	50	SBPL TrueType font SLOT2 Registration number	SBPL_TTF_SLOT2_No	XXX(,XXX,XXX···) X: Registration No. * Repeat as many times as the registration numbers. * If the registration count is zero, the value is ignored.

[Precautions during use]

1. Immediately after startup, it will take time to create the return data because the printer module checksum is acquired.
2. If there are many registrations using SBPL commands, it will take time to create return data.



16.4. DC2+PD: EACH SENSOR INFORMATION ACQUISITION

Each Sensor Information Acquisition			DC2+PD
Hexadecimal Code	DC2	PD	Parameter
	<12> ₁₆	<50> ₁₆ <44> ₁₆	Nil
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF	
	Valid range	
	During printer operation	The command can be received even during the printer operation.
	An error has occurred	The command can be received even if an error is occurring.

[Function]

Acquiring the information of each sensor.

The sensor information corresponds to the information immediately after the reception of the command.

[Format]

DC2(12H)+ PD

[Return data format(normal)]

[STX]a...a,b...b:c...c,(d...d:e...e) ... [ETX]

Symbol	Parameter name	Valid range
a	Total number of data byte * This is the total number of bytes after parameter "b". The delimiting comma between parameters "a" and "b", and [ETX] are not included.	Data size from the first identifier until before [ETX]
b(d)	Sensor information name * Text format	Refer to the sensor information data list.
c(e)	Sensor information data * Text format	Refer to the sensor information data list.

Data Example)

[STX]xx,IM:0.2/SL1.5,GAP:0.9/SL1.0...[ETX]

[Return data format (when a command error occurs)]

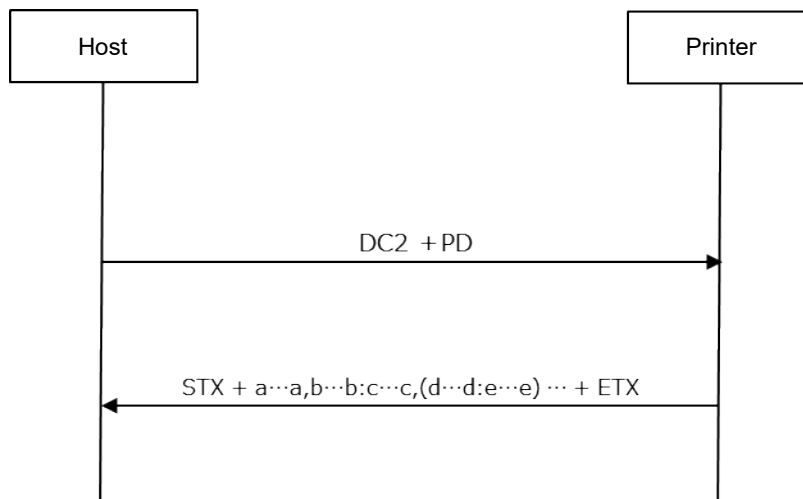
[NAK]<15>₁₆

[Printer device information list]

Invalid	1	IM	I-mark sensor	X.X/SLY.Y X.X = 0.0 to 3.3: Sensor level Y.Y = 0.0 to 3.3: Slice level
Invalid	2	GAP	Gap sensor	X.X/SLY.Y X.X = 0.0 to 3.3: Sensor level Y.Y = 0.0 to 3.3: Slice level
Valid	3	HEAD OPEN	Head open	0: Close, 1: Open
Invalid	4	CUTTER OPEN	Cutter open	0: Close, 1: Open
Invalid	5	DISPENSER	Dispense sensor	0: Without label, 1: With label
Invalid	6	HEAD TEMP	Head thermistor	-XX to XX: Thermistor temperature
Invalid	7	RIBBON	Ribbon slit sensor	0: ON, 1: OFF
Invalid	8	SENSOR HIGH	High value of active sensors	X.X = 0.0 to 3.3: Sensor level
Invalid	9	SENSOR LOW	Low value of active sensors	X.X = 0.0 to 3.3: Sensor level

[Tip]

1. If the sensor information acquisition processing for each sensor does not finish within 100 msec, a timeout is thought to have occurred, and [NAK] is returned. A timeout may occur during the printer operation.
2. SENSOR HIGH, SENSOR LOW is the value of the last label that passed through the sensor.
3. If the sensor type is set to NONE, the SENSOR HIGH and SENSOR LOW values return as 0.0.



16.5. DC2+PG: PRINTER STATUS INFORMATION ACQUISITION

Printer Status Information Acquisition			DC2+PG
Hexadecimal Code	DC2	PG	Parameter
	<12> ₁₆	<50> ₁₆ <47> ₁₆	Nil
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF	
	Valid range	
	During printer operation	The command can be received even during the printer operation.
	An error has occurred	The command can be received even if an error is occurring.

[Function]

Returning the printer status.

[Format]

DC2(12H)+ PG

[Return data format (normal)]

[STX]a...a,b...bc,d...de,...[ETX] *There is no “ , (comma)” before ETX.

Symbol	Parameter name	Valid range
a	Total number of data byte * This is the total number of bytes after parameter “b”. The delimiting comma between parameters “a” and “b”, and [ETX] are not included.	Data size from the first identifier until before [ETX]
b(d)	Printer status information name * Text format	Refer to the printer status information list.
c(e)	Printer status information data * Text format	Refer to the printer status information list.

Data Example)

[STX]32,PS0,RS0,RE0,PE0,EN00,BT0,Q000000[ETX]

[Printer status information data list]

S Mode	No.	Description	Printer status information name	Printer status information data
Valid	1	Printer status	PS	0: Standby (waiting for receiving data) 1: Waiting for peeling 2: Analyzing 3: Printing 4: Offline 5: Error
Invalid	2	Receive buffer status	RS	0: Buffer available 1: Buffer near full 2: Buffer full
Valid	3	Ribbon status * Monitoring can be performed during printing and feeding. The correct value cannot be acquired when the operation has stopped.	RE	0: Ribbon present 1: Ribbon near end 2: No ribbon 3: Direct thermal model
Valid	4	Label status * Monitoring can be performed during printing and feeding. The correct value cannot be acquired when the operation has stopped.	PE	0: Label present (including during startup) 1: Label near end 2: No label

Invalid	5	Error No. *1	EN	00: Online * Not an error. Return is performed. 01: Online * Not an error. Return is performed. 02: Machine error 03: Memory error 04: Program error 05: Setting information error (FLASH-ROM error) 06: Setting information error (EE-PROM error) 07: Download error 08: Parity error 09: Over run 10: Framing error 11: LAN timeout error 12: Buffer over 13: Head open 14: Paper end 15: Ribbon end 16: Media error 17: Sensor error 18: Head error 19: Cover open error 20: Memory/Card type error 21: Memory/Card read/write error 22: Memory/Card full error 23: Memory/Card no battery error 24: Ribbon saver error 25: Cutter error 26: Cutter sensor error 27: Stacker full error 28: Command error 29: Sensor error at Power-On 30: RFID tag error 31: Interface card error 32: Rewinder error 33: Other error 34: RFID control error 35: Head density error 36: Kanji data error 37: Calendar error 38: Item No. error 39: BCC error 40: Cutter cover open error 41: Ribbon rewind non-lock error 42: Communication timeout error 43: Lid latch open error 44: No label error at Power-On 45: SD card access error 46: SD card full error 47: Head lift error 48: Head overheat error 49: SNTP time correction error 50: CRC error 51: Cutter motor error 52: WLAN module error 53: Scanner reading error 54: Scanner checking error 55: Scanner connection error 56: Bluetooth module error 57: EAP authentication error (EAP failed) 58: EAP authentication error (TimeOut) 59: Battery error 60: Low battery error 61: Low battery error (Charging)

				62: Battery not installed error 63: Battery temperature error 64: Battery deterioration error 65: Motor temperature error 66: Inside chassis temperature error 67: Jam error 68: SIPL field full error 75: NonRFID warning error 76: Barcode reader connection error 77: Barcode reading error 78: Barcode verification error 79: Barcode reading error (Verification start position abnormality) 80: NFC module error 81: NFC command error
×	6	Battery status	BT	0: Normal 1: Battery near end 2: Battery error
○	7	Remaining number of print	Q	000000 to 009999: 6-digit remaining number of printing

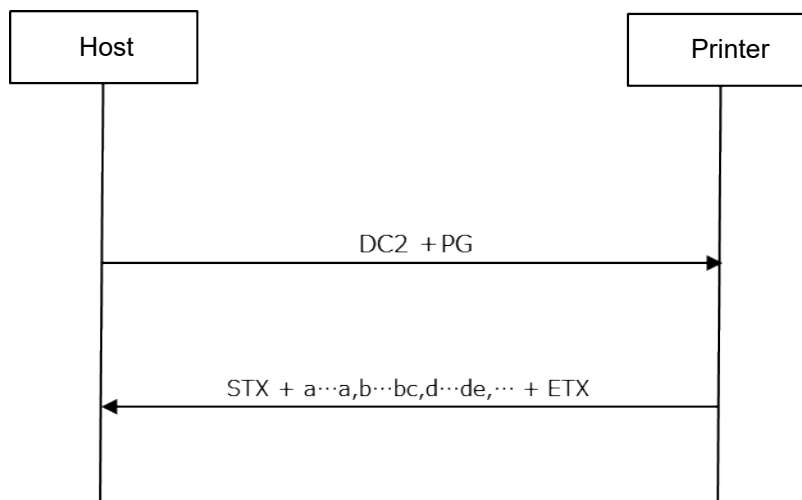
*1: Described error numbers contain errors which will never occur on this printer.

[Return data format (when a command error occurs)]

[NAK]<15>16

[Supplemental Explanation]

1. The label status is returned as “Label present” unless paper end has reached during printing.



16.6. DC2+PN: REQUEST to RETURN LABEL PITCH SIZE

Request to Return Label Pitch Size			DC2+PN
Hexadecimal Code	DC2	PN	Parameter
	<12> ₁₆	<50> ₁₆ <4E> ₁₆	Nil
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF	
	Valid range	
	During printer operation	The command can be received even during the printer operation.
	An error has occurred	The command can be received even if an error is occurring.

[Function]

Returning the label pitch size measured by auto calibration upon request from the host.

[Format]

[DC2] PN

[Return data format(normal)]

[STX]a...a,bbb,cccccc[ETX]

Data Example)

[STX]10,203,002172[ETX]

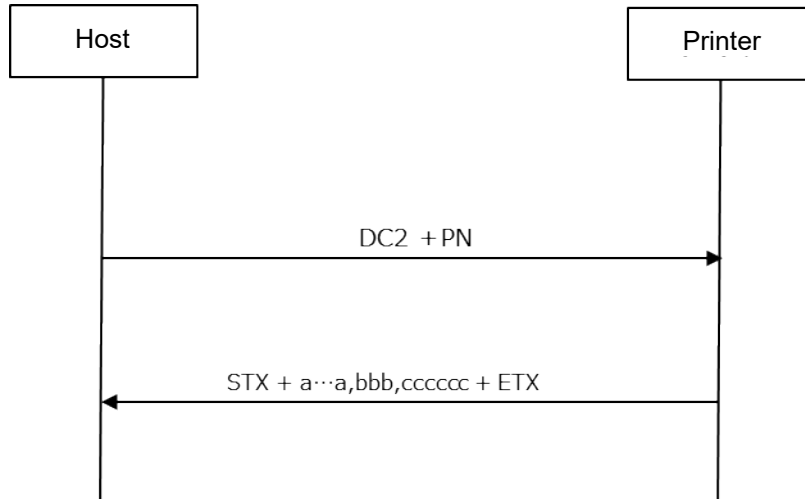
Symbol	Parameter name	Valid range
a	Total number of data byte * This is the total number of bytes after parameter "b". The delimiting comma between parameters "a" and "b", and [ETX] are not included.	Size of data from "b" to before [ETX]
b	Head resolution	S Mode 203: 203 dpi 305: 305 dpi 600: 600 dpi CL4NX 203: 203 dpi 305: 305 dpi
c	Label pitch size (dots)	6-digit (Fixed)

[Return data format (when command error occurs)]

[NAK]<15>₁₆

[Supplemental Explanation]

1. Auto calibration must be performed to measure the length between label gaps.
2. 000000 (0x30, 0x30, 0x30, 0x30, 0x30, 0x30) is returned when auto calibration is not performed while the label pitch size cannot be determined due to the sensor being disabled.
3. The label length to be returned includes the gap between labels.
4. This is available only when sensor is enabled. "000000" is returned when sensor is disabled.



16.7. DC2+DB: INITIALIZATION

Initialization			DC2+DB
Hexadecimal Code	DC2	DB	Parameter
	<12> ₁₆	<44> ₁₆ <42> ₁₆	,aa
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF	
	Valid range	
	During printer operation	The command cannot be received during the printer operation. ([NAK] is returned.)
	An error has occurred	The command cannot be received while an error is occurring. ([NAK] is returned.)

[Function]

Initializing the printer settings.

[Format]

[DC2] DB,aa

[Parameters]

Symbol	Parameter name	Valid range	Initialization target	Acquisition method
a	Identifier	CA: Common settings initialization	[PRINTER] section	Two characters fixed acquisition
		CB: Warning function initialization	[COUNT] section (Not supported) (*1)	
		II: IEEE1284 settings initialization	[IEEE1284] section (Not supported) (*1)	
		IR: RS-232C settings initialization	[RS-232C] section (Not supported) (*1)	
		IL: LAN settings initialization	[LAN] section (Not supported) (*1)	
		IU: USB settings initialization	[USB] section (Not supported) (*1)	
		IW: WLAN settings initialization	[WLAN] section (Not supported) (*1)	
		IB: Bluetooth settings initialization	[BLUETOOTH] section (Not supported) (*1)	
		IE: EXT settings initialization	[EXT] section (Not supported) (*1)	
		IF: RFID settings initialization	[RFID] section (Not supported) (*1)	
		IN: NFC settings initialization	[NFC] section (Not supported) (*1)	
		SB: SBPL settings initialization	[SBPL] section	
		SZ: SZPL settings initialization	[SZPL] section (Not supported) (*1)	
		SI: SIPL settings initialization	[SIPL] section (Not supported) (*1)	
		SD: SDPL settings initialization	[SDPL] section (Not supported) (*1)	
		ST: STCL settings initialization	[STCL] section (Not supported) (*1)	
		SA: AEP settings initialization	[AEP] section (Not supported) (*1)	
		CX: Registration information initialization	SBPL	Donw font
			SZPL (Not supported) (*1)	TrueType
			SIPL (Not supported) (*1)	
			SDPL (Not supported) (*1)	
			STCL (Not supported) (*1)	
			Log (Not supported) (*1)	Image
				Hex Dump
				Error
				Key
				Date

			SBPL	Head	
				Buffer	
				BMP	
				Overlay (Not supported) (*1)	
				Format	
				PCX	
				Graphic	
				External character	
				TrueType	
				BJD	

(*1) If an unsupported identifier is specified, this command is ignored.

[Return data format(normal)]

[ACK]<06>16

[Return data format (when a command error occurs)]

[NAK]<15>16

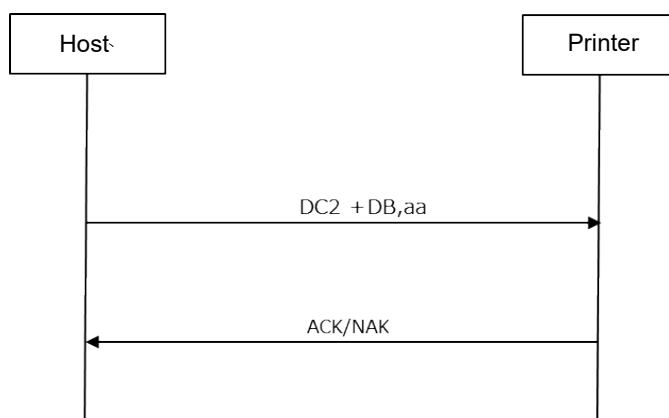
[Exception processing]

Parameter name	Exception condition	
	A value outside the range is specified	The specified size and received size are different
Identifier	Command error	Invalid receive data

Terminology	Description
Command error	Initialization not performed. Moreover, the received data after the command error is determined is not regarded as a parameter of this command.
Invalid receive data	The data corresponding to 2 bytes and thereafter is ignored.

[Supplemental Explanation]

1. Refer to “16.1 DC2+PA: Printer Setting” for the items to be initialized in each identifier.
2. If the interface settings are initialized, a response may not be returned.



16.8. DC2+DC: RESET

Reset			DC2+DC
Hexadecimal Code	DC2	DC	Parameter
	<12> ₁₆	<44> ₁₆ <43> ₁₆	Nil
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF	
	Valid range	
	During printer operation	The command cannot be received during the printer operation. ([NAK] is returned.)
	An error has occurred	The command can be received even if an error is occurring.

[Function]

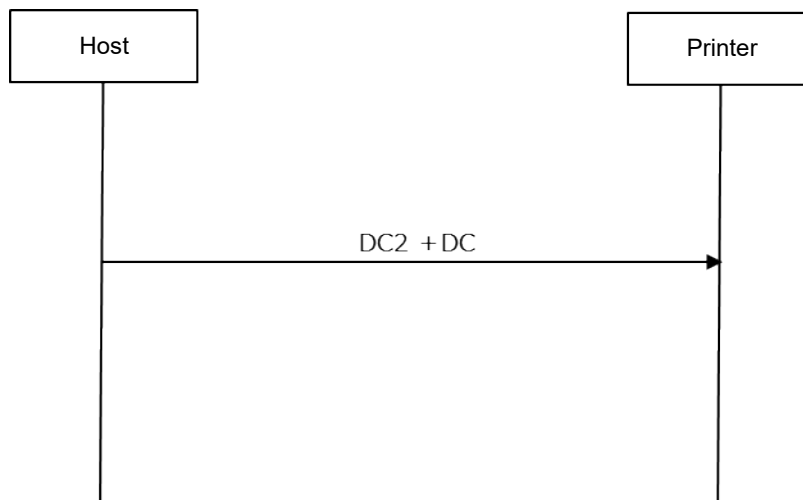
Restarting the printer.

[Format]

[DC2] DC

[Response (only during printing)]

[NAK]<15>₁₆



16.9. DC2+DE: FILE DOWNLOAD

File Download			DC2+DE
Hexadecimal Code	DC2 <12>16	DE <44>16<45>16	Parameter ,aa,b,c···c,d···d,e···e
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF	The file is maintained.
	Valid range	
	During printer operation	The command cannot be received during the printer operation. ([NAK] is returned.)
	An error has occurred	The command can be received even if an error is occurring.

[Function]

Downloading the specified file.

[Format]

[DC2]DE,aa,b,c···c,d···d,e···e

[Parameters]

Symbol	Parameter name	Valid range	Acquisition method
a	Identifier	SB: SBPL settings SZ: SZPL settings (not supported) (*1) SI: SIPL settings (not supported) (*1) SD: SDPL settings (not supported) (*1) ST: STCL settings (not supported) (*1) CA: Common settings (When specifying a font other than the font logo and TrueType font as the file type) (not supported) (*1)	Fixed 2-character
b	File type	0: Font/Logo (not supported) (*1) 1: TrueType font 2: Wireless LAN certificate (WiFi Root CA) (not supported) (*1) 3: Wireless LAN certificate (WiFi Client Certificate) (not supported) (*1) 4 : Wireless LAN certificate (WiFi Private Key) (not supported) (*1) 5: Wireless LAN certificate (WiFi EAP_FAST PAC_file) (not supported) (*1) 6: HTTPS certificate (not supported) (*1)	Fixed 1-character
c	File name	Data within 20 characters including the following character groups •Alphabet •Numeral •Hyphen ("-") •Underscore ("_") •Period (".")	Until ",",
d	File size	0 to 524288 (bytes)	Until ",",
e	File data		For file size

(*1) If an unsupported identifier is specified, this command is ignored.

[Return data format (normal)]

[ACK]<06>16

[Return data format (when a command error occurs)]

[NAK]<15>16

[Return data format (when the same file name error occurs)]

1<31>16

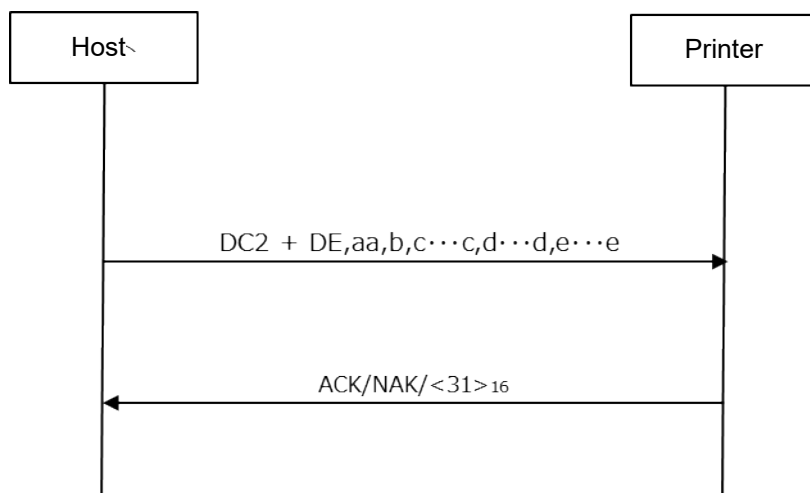
[Exception processing]

Parameter name	Exception condition		
	When a value outside the range is specified	When the size between the specified and received are different	When the same file name is specified
Identifier	Command error	Command error	
File type	Command error	Command error	
File name	Command error		Same file name error
File size	Command error		
File data		Invalid receive data (*1)	

Terminology	Description
Command error	Downloading not performed. The data received after a command error is determined is not considered as a parameter of this command.
Same file name error	The file is not saved.
Invalid received data	Ignore data after 2 bytes.

[Supplemental Explanation]

1. Be sure to send this command when printing has stopped. The content of the response data is not guaranteed even when this command is received during printing.



16.10. DC2+DF: FILE NAME INFORMATION ACQUISITION

File Name Information Acquisition			DC2+DF
Hexadecimal Code	DC2 <12>16	DF <44>16<46>16	Parameter ,aa,b
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF	
	Valid range	
	During printer operation	The command cannot be received during the printer operation. ([NAK] is returned.)
	An error has occurred	The command can be received even if an error is occurring.

[Function]

Returning a list of file names of the specified folder.

[Format]

[DC2]DF,aa,b

[Parameters]

Symbol	Parameter name	Valid range	Acquisition method
a	Language	SB: SBPL settings SZ: SZPL settings (not supported) (*1) SI: SIPL settings (not supported) (*1) SD: SDPL settings (not supported) (*1) ST: STCL settings (not supported) (*1) CA: Common settings (When specifying a font other than the font logo and TrueType font as the file type) (not supported) (*1)	Fixed 2-character
b	File type	0: Font/Logo (not supported) (*1) 1: TrueType font 2: Wireless LAN certificate (WiFi Root CA) (not supported) (*1) 3: Wireless LAN certificate (WiFi Client Certificate) (not supported) (*1) 4: Wireless LAN certificate (WiFi Private Key) (not supported) (*1) 5: Wireless LAN certificate (WiFi EAP_FAST PAC_file) (not supported) (*1) 6: HTTPS certificate (not supported) (*1)	Fixed 1-character

(*1) If an unsupported identifier is specified, this command is ignored.

[Return data format (normal, data exists)]

[STX]a...a,b...b(,c...c)[ETX]

Data example)

[STX]xxxx,SBPL_001.dfl, SBPL_002.dfl[ETX]

Symbol	Parameter name	Valid range
a	Total number of data byte * This is the total number of bytes after parameter "b". The delimiting comma between parameters "a", "b" and [ETX] are not included.	Data size from the first identifier until before [ETX]
b(c)	File name	

[Return data format (normal, data exists)]

[STX]0[ETX]

[Return data format (when a command error occurs)]

[NAK]<15>16

[Exception processing]

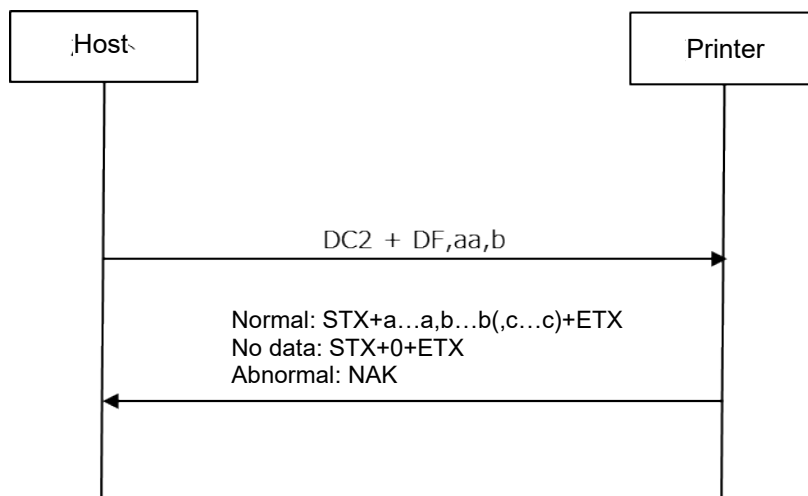
Parameter name	Exception condition	
	When a value outside the range is specified	When the size between the specified and received are different
Language	Command error	Command error
File type	Command error	Invalid receive data

Conditions	Exception condition
When directory of the specified parameter does not exist. (Condition: Never registered in the past and so on.)	Command error

Terminology	Description
Command error	The file name list is not returned. The data received after a command error is determined is not considered as a parameter of this command.
Invalid receive data	The subsequent data is ignored.

[Supplemental Explanation]

1. Be sure to send this command when printing has stopped. The content of the response data is not guaranteed even when this command is received during printing.



16.11. DC2+DG: FILE INFORMATION ACQUISITION

File Information Acquisition			DC2+DG
Hexadecimal Code	DC2 <12> ₁₆	DG <44> ₁₆ <47> ₁₆	Parameter ,aa,b,cccccc,ddddddd
Initial Value	Nil		

Valid Range and Term of Command	When the power switch is OFF	
	Valid range	
	During printer operation	The command cannot be received during the printer operation. ([NAK] is returned.)
	An error has occurred	The command can be received even if an error is occurring.

[Function]

Returning the specified file data information.

[Format]

[DC2]DG,aa,b,cccccc,ddddddd

[Parameters]

Symbol	Parameter name	Valid range	Acquisition method
a	Language	SB: SBPL settings SZ: SZPL settings (not supported) (*1) SI: SIPL settings (not supported) (*1) SD: SDPL settings (not supported) (*1) ST: STCL settings (not supported) (*1)	Fixed 2-character
b	File type	0: Font/Logo (not supported) (*1) 1: TrueType font	Fixed 1-character
c	File name size (byte)	1 to 20	Until ",",
d	File name * 1 Only the file name is specified	Data including the following character groups •Alphabet •Numeral •Hyphen ("-") •Underscore (" _") •Period (".")	Until the file name size

(*1) If an unsupported identifier is specified, this command is ignored.

[Return data format (normal, data exists)]

[STX]a...a,b...b[ETX]

Symbol	Parameter name	Valid range
a	Total number of data byte * This is the total number of bytes after parameter "b". The delimiting comma between parameters "a", "b" and [ETX] are not included.	Data size from the first identifier until before [ETX]
b	File data	

[Return data format (normal, no data)]

[STX]0[ETX]

[Return data format (when a command error occurs)]

[NAK]<15>16

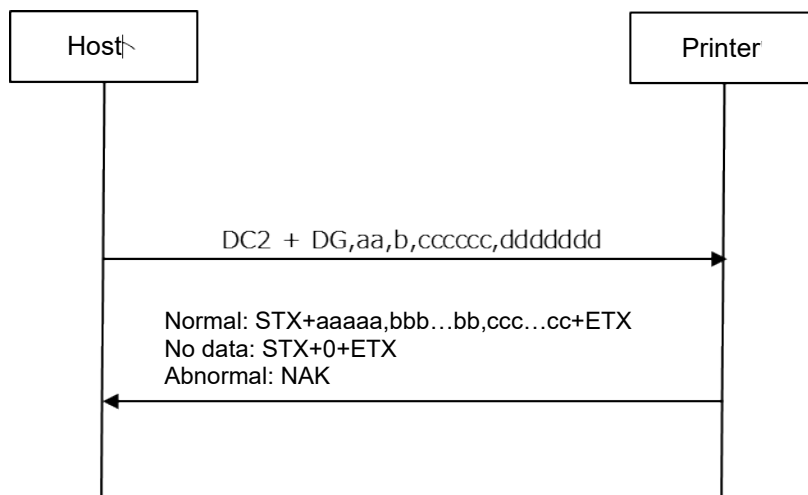
[Exception processing]

Parameter name	Exception condition	
	When a value outside the range is specified	When the size between the specified and received are different
Language	Command error	Invalid receive data
File type	Command error	Command error
File name size	Command error	Excessively small: Command error Excessively large: Remaining data standby
File name	Command error	Excessively small: Remaining data standby Excessively large: Command error

Terminology	Description
Command error	The file data is not returned. The data received after a command error is determined is not considered as a parameter of this command.
Invalid receive data	The subsequent data is ignored.

[Supplemental Explanation]

1. When a file name is bigger than the size of the file name and still the file name is valid, it operates and finishes normally.



16.12. DC2+DH: FILE DELETION

File Deletion			DC2+DH
Hexadecimal Code	DC2 <12> ₁₆	DH <44> ₁₆ <48> ₁₆	Parameter aa,b,c(,dddd,eeee)
Initial Code	Nil		

Valid Range and Term of Command	When the power switch is OFF	
	Valid range	
	During printer operation	The command cannot be received during the printer operation. ([NAK] is returned.)
	An error has occurred	The command can be received even if an error is occurring.

[Function]

Deleting the registered files.

[Format]

[DC2]DH,aa,b,c(,dddd,eeee)

[Parameters]

Symbol	Parameter name	Valid range	Acquisition method
a	Language	SB: SBPL settings SZ: SZPL settings (not supported) (*1) SI: SIPL settings (not supported) (*1) SD: SDPL settings (not supported) (*1) ST: STCL settings (not supported) (*1)	Fixed 2-character
b	File type	0: Font/Logo (not supported) (*1) 1: TrueType font	Fixed 1-character
c	Deletion type	0: File specification 1: All files	Fixed 1-character
d	File name size (byte)	1 to 20	Until ",",
e	File name * 1 Only the file name is specified	Data including the following character groups •Alphabet •Numeral •Hyphen ("-") •Underscore ("_") •Period (".")	Until the file name size

(*1) If an unsupported identifier is specified, this command is ignored.

[Return data format (normal)]

[ACK]<06>₁₆

[Return data format (when a command error occurs)]

[NAK]<15>₁₆

[Exception processing]

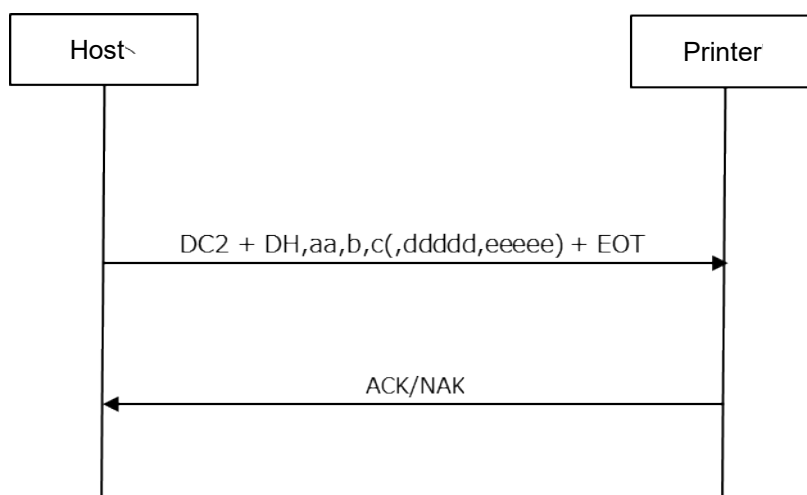
Parameter name	Exception condition	
	A value outside the range is specified	The specified size and received size are different
Language	Command error	Command error
File type	Command error	Command error
Deletion type	Command error	0: Command error 1: Invalid receive data (*1)
File name size	Command error	Command error
File name	Command error	

(*1) If an attempt is made to delete all files, be aware that all data is deleted even if the subsequent data is not appropriate.

Terminology	Description
Command error	The file is not deleted. The data received after a command error is determined is not considered as a parameter of this command.
Invalid receive data	The subsequent data is ignored.

[Supplemental explanation]

1. Do not specify the parameter "d" and "e" when "1" (All files) is selected for the parameter "c". Otherwise, the parameter "d" and "e" are not handled as data of this command.
2. When a file name is bigger than the size of the file name and still the file name is valid, it operates and finishes normally.



Toshiba Tec Corporation

Copyright ©2024 Toshiba Tec Corporation All rights reserved

BS23004300-EN