

Command Reference

MODEL : CT-S280
CT-S281
CT-S300
CT-S310
CT-S2000
CT-S4000
CT-S601
CT-S651
CT-S801
CT-S851
BD2-2220
PMU2XXX
PMU2XXXII
CT-P292
CT-P293

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CITIZEN SYSTEMS JAPAN CO.,LTD.

REVISION

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TABLE OF CONTENTS

| | |
|--|----|
| TABLE OF CONTENTS..... | 2 |
| 1. OUTLINE..... | 8 |
| 1.1 OPERATION MODE | 8 |
| 1.2 CHARACTER SET..... | 8 |
| 1.3 CONTROL COMMANDS..... | 8 |
| 1.3.1 Control Command Details | 8 |
| 1.3.2 How to Send Control Commands..... | 8 |
| 2. CONTROL COMMANDS | 9 |
| 2.1 ESC/POS COMMAND LIST | 9 |
| 2.1.1 CT-S280..... | 9 |
| 2.1.2 CT-S281..... | 12 |
| 2.1.3 CT-S300..... | 15 |
| 2.1.4 CT-S310..... | 18 |
| 2.1.5 CT-S2000 | 21 |
| 2.1.6 CT-S4000 | 25 |
| 2.1.7 CT-S601/651/801/851 | 29 |
| 2.1.8 BD2-2220..... | 33 |
| 2.1.9 PMU2XXX..... | 36 |
| 2.1.10 PMU2XXXII | 39 |
| 2.1.11 CT-P292/293..... | 42 |
| 2.2 COMMAND DETAILS..... | 45 |
| 2.2.1 Description of Items | 45 |
| 2.2.2 Print Control Commands | 46 |
| LF..... | 46 |
| CR | 47 |
| FF (At selection of PAGE MODE) | 48 |
| FF (valid only for Black mark/Label specification) | 48 |
| ESC FF | 49 |
| ESC J n..... | 50 |
| ESC d n | 51 |
| 2.2.3 Print Character Commands | 52 |
| CAN..... | 52 |
| ESC SP n..... | 53 |
| ESC ! n | 54 |
| ESC % n | 56 |
| ESC & s n m [a [p] s x a] m-n+1 | 57 |
| ESC - n..... | 59 |
| ESC ? n | 60 |
| ESC E n | 61 |
| ESC G n..... | 62 |

| | |
|--|------------|
| ESC M n | 63 |
| ESC R n..... | 64 |
| ESC V n..... | 65 |
| ESC t n..... | 66 |
| ESC { n | 67 |
| ESC ~ J n (Valid in CBM-270-Compatible Mode) | 68 |
| ESC ~ J n (Valid in CBM1000-Compatible Mode) | 69 |
| DC3 n (Valid in CBM-270-Compatible Mode)..... | 70 |
| DC3 n (Valid in CBM1000-Compatible Mode) | 72 |
| GS ! n..... | 73 |
| GS B n..... | 75 |
| GS b n..... | 76 |
| 2.2.4 Print Position Commands | 77 |
| HT | 77 |
| ESC \$ n1 n2..... | 78 |
| ESC D [n]k NULL..... | 79 |
| ESC T n | 80 |
| ESC W xL xH yL yH dxL dxH dyL dyH..... | 81 |
| ESC \ nL nH..... | 83 |
| ESC a n | 84 |
| GS \$ nL nH | 85 |
| GS L nL nH..... | 86 |
| GS W nL nH..... | 87 |
| GS \ nL nH | 89 |
| 2.2.5 Line Feed Span Commands | 90 |
| ESC 2 | 90 |
| ESC 3 n..... | 91 |
| 2.2.6 Bit Image Commands | 92 |
| ESC * m n1 n2 [d] k | 92 |
| GS * n1 n2 [d] n1xn2x8..... | 93 |
| GS / m..... | 94 |
| GS v 0 m xL xH yL yH d1 ... dk..... | 95 |
| 2.2.7 Status Commands | 97 |
| DLE EOT n | 97 |
| ESC u n..... | 114 |
| ESC v | 115 |
| GS a n..... | 116 |
| GS r n..... | 120 |
| 2.2.8 Paper Detecting Commands | 122 |
| ESC c 3 n | 122 |
| ESC c 4 n | 123 |
| 2.2.9 Panel Switch Commands..... | 124 |
| ESC c 5 n | 124 |
| 2.2.10 Macro Commands | 125 |
| GS :..... | 125 |
| GS ^ n1 n2 n3..... | 126 |
| 2.2.11 Cutter Commands | 127 |
| ESC i | 127 |
| ESC m | 128 |
| GS V m ... (1)..... | 129 |

| | |
|--|------------|
| GS V m n ... (2) | 129 |
| 2.2.12 Bar Code Commands | 130 |
| GS H n..... | 130 |
| GS f n..... | 131 |
| GS h n..... | 132 |
| (1)GS k m [d1...dk] NUL | 133 |
| (2)GS k m n [d1...dn] | 133 |
| GS w n..... | 138 |
| 2.2.13 Commands for Non-volatile Memory | 139 |
| GS (C pL pH m fn b [c1 c2][d1...dk] | 139 |
| fn=0, 48: Function 0 Erasing Specified Record | 140 |
| fn=1, 49: Function 1 Storing Data to Specified Record | 140 |
| fn=2, 50: Function 2 Sending Data Stored in Specified Record | 141 |
| fn=3, 51: Function 3 Sending Use Amount | 142 |
| fn=4, 52: Function 4 Sending Remaining Capacity | 142 |
| fn=5, 53: Function 5 Sending Key Code List of Stored Record | 143 |
| fn=6, 54: Function 6 Erasing All User NV Memory Area in a Lump..... | 144 |
| GS (L pL pH m fn [parameter] | 145 |
| GS 8 L p1 p2 p3 p4 m fn [parameter] | 145 |
| fn=0, 48: Function 48 Sending NV Graphics Memory Capacity | 146 |
| fn=2, 50: Function 50 Printing Graphics Data Stored in Print Buffer | 146 |
| fn=3, 51: Function 51 Sending the Remaining Amount of NV Graphics Memory | 147 |
| fn=64: Function 64 Sending Key Code List of Defined NV Graphics..... | 148 |
| fn=65: Function 65 Erasing All Data of NV Graphics in a Lump | 149 |
| fn=66: Function 66 Erasing Specified NV Graphics Data | 149 |
| fn=67: Function 67 Defining Raster Type Graphics Data to NV Memory..... | 150 |
| fn=69: Function 69 Printing Specified Graphics..... | 151 |
| fn=112: Function 112 Storing Raster Type Graphics Data to Print Buffer..... | 152 |
| GS g 0 m nL nH..... | 153 |
| GS g 2 m nL nH..... | 154 |
| FS p n m | 155 |
| FS q n [xL xH yL yH d1...dk]1...[xL xH yL yH d1...dk]n..... | 156 |
| 2.2.14 Kanji Control Commands | 158 |
| FS ! n..... | 158 |
| FS & | 159 |
| FS - n | 160 |
| FS | 161 |
| FS 2 a1 a2 [d]k | 162 |
| FS C n | 164 |
| FS S n1 n2 | 166 |
| FS W n | 167 |
| FS (A pL pH fn [...]...... | 168 |
| fn=48: Function 48 Set Kanji fonts..... | 168 |
| 2.2.15 Black Mark Control Commands | 169 |
| GS FF | 169 |
| GS < | 170 |
| GS A m n..... | 171 |
| GS C 0 m n..... | 172 |
| GS C 1 n1 n2 n3 n4 n5 n6 | 173 |
| GS C 2 n1 n2 | 174 |
| GS C ; n1 ; n2 ; n3 ; n4 ; n5 ; | 175 |

| | |
|--|------------|
| GS c | 176 |
| GS l n1L n1H n2L n2H | 177 |
| GS p n | 178 |
| 2.2.16 Printer Function Setting Commands | 179 |
| GS (D pL pH m [a1 b1]...[ak bk] | 179 |
| GS (E pL pH fn [..] | 180 |
| fn=1: Function 1 Transferring to Printer Function Setting Mode | 181 |
| fn=2: Function 2 End of Printer Function Setting Mode | 181 |
| fn=3: Function 3 Setting Memory Switch Value | 182 |
| fn=4: Function 4 Sending the Set Memory Switch Value | 203 |
| fn=5: Function 5 Setting Customized Value | 204 |
| fn=6: Function 6 Sending the Set Customized Value | 235 |
| fn=8: Function 8 Defining Data by the Column Format to Character Code Page of Work Area | 265 |
| fn=9: Function 9 Defining Data in the Raster Format to the Character Code Page of Work Area | 266 |
| fn=10: Function 10 Erasing Data of Character Code Page Data in Work Area | 267 |
| fn=11: Function 11 Setting Communication Conditions | 268 |
| fn=12: Function 12 Sending the Set Communication Conditions | 269 |
| fn=255: Function 255 Setting All Contents Set by Printer Function Setting Mode to the State at Shipment .. | 270 |
| GS (K pL pH fn m | 271 |
| fn=49: Function 49 Setting Printing Density | 272 |
| fn=50: Function 50 Setting Printing Speed | 273 |
| fn=97: Function 97 Setting Number of Divisions for Head Conducting | 274 |
| GS (M pL pH fn m | 275 |
| fn=1, 49: Function 1 Copies the set value stored in work area to the storage area | 276 |
| fn=2, 50: Function 2 Copies the set value stored in storage area to the work area | 276 |
| fn=3, 51: Function 3 Specifies the auto loading function of the set value at initialization to be valid or invalid | 277 |
| GS (N pL pH fn m | 278 |
| fn=48: Function 48 Selects character color | 278 |
| 2.2.17 2-dimensional code Commands | 279 |
| GS (k pL pH cn fn [parameter] | 279 |
| fn=65: Function 65 Setting the number of digits of PDF417 | 280 |
| fn=66: Function 66 Setting the number of steps of PDF417 | 280 |
| fn=67: Function 67 Setting module width of PDF417 | 281 |
| fn=68: Function 68 Setting the height of step of PDF417 | 281 |
| fn=69: Function 69 Setting error correction level of PDF417 | 282 |
| fn=70: Function 70 Setting Options for PDF417 | 283 |
| fn=80: Function 80 Storing received data to 2-dimensional code data storage area | 283 |
| fn=81: Function 81 Printing 2-dimensional code data in 2-dimensional code data storage area | 284 |
| fn=82: Function 82 Sending the size of 2-dimensional code data in 2-dimensional code data storage area | 285 |
| fn=65: Function 165 Specifying QRCode model | 286 |
| fn=67: Function 167 Sets the module width of QRCode | 286 |
| fn=69: Function 169 Setting QRCode error correction level | 287 |
| fn=80: Function 180 Storing received data to 2-dimensional code data storage area | 287 |
| fn=81: Function 181 Printing 2-dimensional code data in 2-dimensional code data storage area | 288 |
| fn=82: Function 182 Sending the size of 2-dimensional code data in 2-dimensional code data storage area | 289 |
| 2.2.18 Other Commands | 290 |
| DLE ENQ n | 290 |
| DLE DC4 fn m t (Specification of fn = 1) | 291 |

| | |
|--|------------|
| DLE DC4 fn d1...d7 (Specification of fn = 8) | 292 |
| ESC = n | 293 |
| ESC @ | 294 |
| ESC L | 295 |
| ESC S | 296 |
| ESC p m n1 n2 | 297 |
| GS (A pL pH n m | 298 |
| GS I n..... | 299 |
| GS P x y | 309 |
| ESC RS..... | 310 |
| 3. CHARACTER CODE TABLE | 311 |
| 3.1 CODE PAGE | 311 |
| 3.1.1 Codepage 00H to 7FH & PC437 (USA, Europe Standard) | 311 |
| 3.1.2 Codepage 00H to 7FH & Katakana | 312 |
| 3.1.3 Codepage 00H to 7FH & PC850 (Multilingual) | 313 |
| 3.1.4 Codepage 00H to 7FH & PC860 (Portuguese)..... | 314 |
| 3.1.5 Codepage 00H to 7FH & PC863 (Canadian-French) | 315 |
| 3.1.6 Codepage 00H to 7FH & PC865 (Nordic) | 316 |
| 3.1.7 Codepage 00H to 7FH & PC852 (Easern Europe)..... | 317 |
| 3.1.8 Codepage 00H to 7FH & PC866 (Russian)..... | 318 |
| 3.1.9 Codepage 00H to 7FH & PC857 (Turkish) | 319 |
| 3.1.10 Codepage 00H to 7FH & PC864 (Arabic)..... | 320 |
| 3.1.11 Codepage 00H to 7FH & Windows Codepage | 321 |
| 3.1.12 Codepage 00H to 7FH & Thai code 18 | 322 |
| 3.2 INTERNATINAL CHARACTER CODE TABLE | 323 |
| 3.3 KANJI CODE TABLE..... | 324 |
| 3.3.1 JIS non-Kanji..... | 324 |
| 3.3.2 JIS Kanji Level 1..... | 326 |
| 3.3.3 JIS Kanji Level 2..... | 332 |
| 4. MEMORY SWITCH..... | 339 |
| 4.1 MEMORY SWITCHES | 339 |
| 4.1.1 CT-S280..... | 339 |
| 4.1.2 CT-S281..... | 341 |
| 4.1.3 CT-S300..... | 343 |
| 4.1.4 CT-S310..... | 344 |
| 4.1.5 CT-S2000 | 346 |
| 4.1.6 CT-S4000 | 348 |
| 4.1.7 CT-S801/851 | 350 |
| 4.1.8 CT-S601/651 | 352 |
| 4.1.9 BD2-2220..... | 354 |
| 4.1.10 PMU2XXX..... | 355 |
| 4.1.11 PMU2XXXII | 357 |
| 4.1.12 CT-P292/293..... | 359 |
| 4.2 DETAILS OF MEMORY SWITCHES | 361 |

| | |
|--|------------|
| 4.2.1 MSW1 | 361 |
| 4.2.2 MSW2 | 364 |
| 4.2.3 MSW3 | 367 |
| 4.2.4 MSW4 | 370 |
| 4.2.5 MSW5 | 373 |
| 4.2.6 MSW6 | 375 |
| 4.2.7 MSW7 | 376 |
| 4.2.8 MSW8 | 378 |
| 4.2.9 MSW9 | 379 |
| 4.2.10 MSW10..... | 381 |
| 5. APPENDIX | 383 |
| 5.1 EXPLANATION ON PAGE MODE | 383 |
| 5.1.1 Overview | 383 |
| 5.1.2 Values Set by Each Command in STANDARD MODE and PAGE MODE..... | 383 |
| 5.1.3 Mapping of Print Data in the Print Area | 384 |
| 5.1.4 Example of Using PAGE MODE..... | 386 |
| 5.2 BIDIRECTIONAL PARALLEL INTERFACE | 390 |
| 5.2.1 Parallel Interface Communication Mode | 390 |
| 5.2.2 Interfacing Phases | 391 |
| 5.2.3 Negotiation | 392 |
| 5.3 IDENTIFICATION OF SEND STATUS | 399 |
| 5.4 CAUTIONS ON BLACK MARK/LABEL PAPER | 400 |

1. OUTLINE

1.1 Operation Mode

Our printer has ESC/POSTM as control commands.

1.2 Character Set

All print data sent from the host computer to the printer are automatically converted to one-byte alphanumeric or katakana characters (ANK) or two-byte Kanji corresponding to the characters and symbols.

NOTE: For the contents of character set, refer to Character Code Table of this document.

1.3 Control Commands

1.3.1 Control Command Details

Control Commands are used for controlling the operations of the printer such as starting/stopping of printing, line feeding, paper feeding, etc. They control all functions related to printing, such as type of characters, enlargement of characters or setting of format.

1.3.2 How to Send Control Commands

Some methods are available for sending Control Commands from the host computer to the printer. Here, a method of sending by BASIC programming is explained.

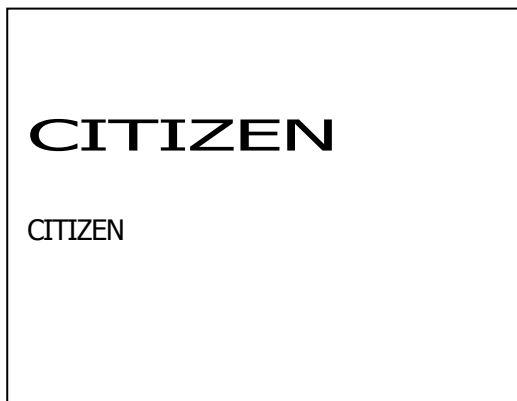
Example 1

Let's print a character string "CITIZEN" in enlarged (double-height, double-width) and in normal format.

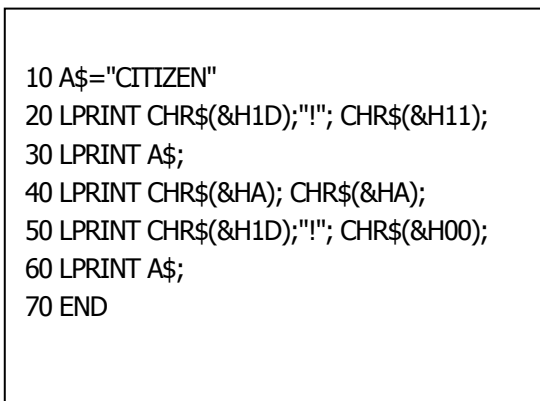
Program coding

The Control Command shows that the command name for setting the size of a character is GS !. Let's make a program using this code. An example is shown below.

Program List



Print Result



In lines 20 and 50, setting and canceling of enlarging a character is sent. As a result, lines 30 and 60 print the same character string but line 30 prints enlarged characters and line 60 cancels the enlargement and prints in normal format.

* In this document, sample programs are in BASIC. For details of BASIC programming, refer to the manual for BASIC.

2. CONTROL COMMANDS

2.1 ESC/POS Command List

2.1.1 CT-S280

Print Control Commands

| Commands | Function | MODE | GS P | Page |
|------------------------|--|------|------|------|
| LF | Printing and paper feed | S·P | | 46 |
| CR | Back to printing | S·P | | 47 |
| FF | Printing in PAGE MODE and returning to STANDARD MODE (at the selection of PAGE MODE) | P | | 48 |
| ESC FF | Printing data in PAGE MODE | P | | 49 |
| ESC J | Printing and feeding paper in minimum pitch | S·P | ○ | 50 |
| ESC d | Printing and feeding the paper by "n" lines | S·P | | 51 |

Print Character Commands

| Command | Function | MODE | GS P | Page |
|---------------------------|--|------|------|------|
| CAN | Canceling print data in PAGE MODE | P | | 52 |
| ESC SP | Setting the right spacing of the character | S·P | ○ | 53 |
| ESC ! | Collectively specifying the printing mode | S·P | | 54 |
| ESC % | Specifying/Canceling download character set | S·P | | 56 |
| ESC & | Defining the download characters | S·P | | 57 |
| ESC - | Specifying/canceling underline | S·P | | 59 |
| ESC ? | Deleting download characters | S·P | | 60 |
| ESC E | Specifying/canceling emphasis printing | S·P | | 61 |
| ESC G | Specifying/canceling double strike printing | S·P | | 62 |
| ESC M | Selection of character fonts | S·P | | 63 |
| ESC R | Selecting the international character set | S·P | | 64 |
| ESC V | Specifying/canceling 90°-right-turned characters | S | | 65 |
| ESC t | Selecting the character code table | S·P | | 66 |
| ESC { | Specifying/canceling the inverted characters | S | | 67 |
| ESC ~ J | Specifies/cancels printing in red (black-based paper) | S·P | | 68 |
| DC3 | Specifies/cancels printing in red (black-based paper) | S | | 70 |
| GS ! | Specifying the character size | S·P | | 73 |
| GS B | Specifying/canceling the black/white inverted printing | S·P | | 75 |
| GS b | Specifying/canceling the smoothing | S·P | | 76 |

Print Position Commands

| Command | Function | MODE | GS P | Page |
|------------------------|---|------|------|------|
| HT | Horizontal tab | S·P | | 77 |
| ESC \$ | Specifying the absolute positions | S·P | ○ | 78 |
| ESC D | Setting horizontal tab position | S·P | | 79 |
| ESC T | Selecting the character printing direction in PAGE MODE | P | | 80 |
| ESC W | Defining the print area in PAGE MODE | P | ○ | 81 |
| ESC \ | Specifying the relative position | S·P | ○ | 83 |
| ESC a | Aligning the characters | S | | 84 |
| GS \$ | Specifying the absolute vertical position of characters in PAGE MODE | P | ○ | 85 |
| GS L | Setting the left margin | S | ○ | 86 |
| GS W | Setting the print area width | S·P | ○ | 87 |
| GS \ | Specifying the relative vertical position of a character in PAGE MODE | S·P | ○ | 89 |

Line Feed Span Commands

| Command | Function | MODE | GS P | Page |
|-----------------------|---|------|------|------|
| ESC 2 | Specifying initial line feed rate | S·P | | 90 |
| ESC 3 | Setting line feed rate of minimum pitch | S·P | ○ | 91 |

Bit Image Commands

| Command | Function | MODE | GS P | Page |
|------------------------|-----------------------------------|------|------|------|
| ESC * | Specifying the bit image mode | S·P | | 92 |
| GS * | Defining the download bit image | S·P | | 93 |
| GS / | Printing the downloaded bit image | S·P | | 94 |
| GS v 0 | Printing of raster bit image | S | | 95 |

Status Commands

| Command | Function | MODE | GS P | Page |
|-------------------------|--|------|------|------|
| DLE EOT | Sending status in real-time | S·P | | 97 |
| ESC v | Sending Printer status | S·P | | 115 |
| GS a | Enabling/disabling ASB (Automatic Status Back) | S·P | | 116 |
| GS r | Sending status | S·P | | 120 |

Paper Detecting Commands

| Command | Function | MODE | GS P | Page |
|-------------------------|--|------|------|------|
| ESC c 3 | Selecting the Paper Sensor valid for Paper-end signal output | S·P | | 122 |
| ESC c 4 | Selecting the Paper Near-end Sensor valid for print stop | S·P | | 123 |

Panel Switch Commands

| Command | Function | MODE | GS P | Page |
|-------------------------|---------------------------------------|------|------|------|
| ESC c 5 | Enabling/disabling the panel switches | S·P | | 124 |

Macro Commands

| Command | Function | MODE | GS P | Page |
|----------------------|----------------------------------|------|------|------|
| GS : | Starting/ending macro definition | S·P | | 125 |
| GS ^ | Executing the macro | S·P | | 126 |

Bar Code Commands

| Command | Function | MODE | GS P | Page |
|----------------------|--|------|------|------|
| GS H | Selecting of printing position of HRI characters | S·P | | 130 |
| GS f | Selecting the font of HRI characters | S·P | | 131 |
| GS h | Specifying the height of the bar code | S·P | | 132 |
| GS k | Printing the bar code | S·P | | 133 |
| GS w | Specifying the horizontal size (magnification) of bar code | S·P | | 138 |

Commands for Non-volatile Memory

| Command | Function | MODE | GS P | Page |
|----------------------|-------------------------------------|------|------|------|
| FS p | Printing the download NV bit images | S | | 155 |
| FS q | Defining the download NV bit image | S | | 156 |

Kanji Control Commands

| Command | Function | MODE | GS P | Page |
|--------------------------|---|------|------|------|
| FS ! | Collectively setting Kanji print mode | S·P | | 158 |
| FS & | Setting Kanji mode | S·P | | 159 |
| FS - | Setting/Canceling Kanji underline | S·P | | 160 |
| FS . | Canceling Kanji mode | S·P | | 161 |
| FS 2 | Defining external character | S·P | | 162 |
| FS C | Selecting Kanji code system | S·P | | 164 |
| FS S | Setting Kanji space amount | S·P | ○ | 166 |
| FS W | Setting/Canceling four times enlargement of Kanji | S·P | | 167 |
| FS (A | Setting font attribute of Kanji | S·P | | 168 |

Printer Function Setting Commands

| Command | Function | MODE | GS P | Page |
|------------------------|----------------------------------|------|------|------|
| GS (E | Printer function setting command | S | | 180 |
| GS (K | Selecting print control method | S | | 271 |
| GS (M | Customizing the printer | S | | 275 |
| GS (N | Designating font attribute | S | | 278 |

Other Commands

| Command | Function | MODE | GS P | Page |
|-------------------------|--|------|------|------|
| DLE ENQ | Real-time request to printer | S·P | | 290 |
| DLE DC4 | Buffer clear | S·P | | 292 |
| ESC = | Data input control | S·P | | 293 |
| ESC @ | Initializing the printer | S·P | | 294 |
| ESC L | Selecting PAGE MODE | S | | 295 |
| ESC S | Selecting STANDARD MODE | P | | 296 |
| GS (A | Execution of test printing | S | | 298 |
| GS I | Sending the printer ID | S·P | | 299 |
| GS P | Specifying the basic calculation pitch | S·P | | 309 |

In the Mode column: S = STANDARD MODE, P = PAGE MODE
 O = shows the command affected by GS P.

2.1.2 CT-S281

Print Control Commands

| Commands | Function | MODE | GS P | Page |
|------------------------|---|------|------|------|
| LF | Printing and paper feed | S·P | | 46 |
| CR | Back to printing | S·P | | 47 |
| FF | (1)Printing in PAGE MODE and returning to STANDARD MODE (at the selection of PAGE MODE) (2)Printing of Black mark and paper feeding to the top of the print position (with Black mark/Laebel paper selected) | P | | 48 |
| ESC_FF | Printing data in PAGE MODE | P | | 49 |
| ESC_J | Printing and feeding paper in minimum pitch | S·P | ○ | 50 |
| ESC_d | Printing and feeding the paper by "n" lines | S·P | | 51 |

Print Character Commands

| Command | Function | MODE | GS P | Page |
|---------------------------|--|------|------|------|
| CAN | Canceling print data in PAGE MODE | P | | 52 |
| ESC_SP | Setting the right spacing of the character | S·P | ○ | 53 |
| ESC_! | Collectively specifying the printing mode | S·P | | 54 |
| ESC_% | Specifying/Canceling download character set | S·P | | 56 |
| ESC_& | Defining the download characters | S·P | | 57 |
| ESC_- | Specifying/canceling underline | S·P | | 59 |
| ESC_? | Deleting download characters | S·P | | 60 |
| ESC_E | Specifying/canceling emphasis printing | S·P | | 61 |
| ESC_G | Specifying/canceling double strike printing | S·P | | 62 |
| ESC_M | Selection of character fonts | S·P | | 63 |
| ESC_R | Selecting the international character set | S·P | | 64 |
| ESC_V | Specifying/canceling 90°-right-turned characters | S | | 65 |
| ESC_t | Selecting the character code table | S·P | | 66 |
| ESC_{ | Specifying/canceling the inverted characters | S | | 67 |
| ESC_~_J | Specifies/cancels printing in red (black-based paper) | S·P | | 68 |
| DC3 | Specifies/cancels printing in red (black-based paper) | S | | 70 |
| GS_! | Specifying the character size | S·P | | 73 |
| GS_B | Specifying/canceling the black/white inverted printing | S·P | | 75 |
| GS_b | Specifying/canceling the smoothing | S·P | | 76 |

Print Position Commands

| Command | Function | MODE | GS P | Page |
|------------------------|---|------|------|------|
| HT | Horizontal tab | S·P | | 77 |
| ESC_\$ | Specifying the absolute positions | S·P | ○ | 78 |
| ESC_D | Setting horizontal tab position | S·P | | 79 |
| ESC_I | Selecting the character printing direction in PAGE MODE | P | | 80 |
| ESC_W | Defining the print area in PAGE MODE | P | ○ | 81 |
| ESC_\ | Specifying the relative position | S·P | ○ | 83 |
| ESC_a | Aligning the characters | S | | 84 |
| GS_\$ | Specifying the absolute vertical position of characters in PAGE MODE | P | ○ | 85 |
| GS_L | Setting the left margin | S | ○ | 86 |
| GS_W | Setting the print area width | S·P | ○ | 87 |
| GS_\ | Specifying the relative vertical position of a character in PAGE MODE | S·P | ○ | 89 |

Line Feed Span Commands

| Command | Function | MODE | GS P | Page |
|-----------------------|---|------|------|------|
| ESC 2 | Specifying initial line feed rate | S·P | | 90 |
| ESC 3 | Setting line feed rate of minimum pitch | S·P | ○ | 91 |

Bit Image Commands

| Command | Function | MODE | GS P | Page |
|------------------------|-----------------------------------|------|------|------|
| ESC * | Specifying the bit image mode | S·P | | 92 |
| GS * | Defining the download bit image | S·P | | 93 |
| GS / | Printing the downloaded bit image | S·P | | 94 |
| GS v 0 | Printing of raster bit image | S | | 95 |

Status Commands

| Command | Function | MODE | GS P | Page |
|-------------------------|--|------|------|------|
| DLE EOT | Sending status in real-time | S·P | | 97 |
| ESC v | Sending Printer status | S·P | | 115 |
| GS a | Enabling/disabling ASB (Automatic Status Back) | S·P | | 116 |
| GS r | Sending status | S·P | | 120 |

Paper Detecting Commands

| Command | Function | MODE | GS P | Page |
|-------------------------|--|------|------|------|
| ESC c 4 | Selecting the Paper Near-end Sensor valid for print stop | S·P | | 123 |

Panel Switch Commands

| Command | Function | MODE | GS P | Page |
|-------------------------|---------------------------------------|------|------|------|
| ESC c 5 | Enabling/disabling the panel switches | S·P | | 124 |

Macro Commands

| Command | Function | MODE | GS P | Page |
|----------------------|----------------------------------|------|------|------|
| GS : | Starting/ending macro definition | S·P | | 125 |
| GS ^ | Executing the macro | S·P | | 126 |

Cutter Commands

| Command | Function | MODE | GS P | Page |
|-----------------------|-------------------|------|------|------|
| ESC i | Full cut | S·P | | 127 |
| ESC m | Partial cut | S·P | | 128 |
| GS V | Cutting the paper | S·P | ○ | 129 |

Bar Code Commands

| Command | Function | MODE | GS P | Page |
|----------------------|--|------|------|------|
| GS H | Selecting of printing position of HRI characters | S·P | | 130 |
| GS f | Selecting the font of HRI characters | S·P | | 131 |
| GS h | Specifying the height of the bar code | S·P | | 132 |
| GS k | Printing the bar code | S·P | | 133 |
| GS w | Specifying the horizontal size (magnification) of bar code | S·P | | 138 |

Commands for Non-volatile Memory

| Command | Function | MODE | GS P | Page |
|----------------------|-------------------------------------|------|------|------|
| FS p | Printing the download NV bit images | S | | 155 |
| FS q | Defining the download NV bit image | S | | 156 |

Kanji Control Commands

| Command | Function | MODE | GS P | Page |
|--------------------------|---|------|------|------|
| FS ! | Collectively setting Kanji print mode | S·P | | 158 |
| FS & | Setting Kanji mode | S·P | | 159 |
| FS - | Setting/Canceling Kanji underline | S·P | | 160 |
| FS . | Canceling Kanji mode | S·P | | 161 |
| FS 2 | Defining external character | S·P | | 162 |
| FS C | Selecting Kanji code system | S·P | | 164 |
| FS S | Setting Kanji space amount | S·P | ○ | 166 |
| FS W | Setting/Canceling four times enlargement of Kanji | S·P | | 167 |
| FS (A | Setting font attribute of Kanji | S·P | | 168 |

Black Mark and Label Control Commands

| Command | Function | MODE | GS P | Page |
|-------------------------|--|------|------|------|
| GS FF | Printing and ejecting Black mark paper/Label Paper | S·P | | 169 |
| GS < | Initializing the printer mechanism | S·P | | 170 |
| GS A | Correcting the leader position of Black mark paper | S·P | | 171 |
| GS C 0 | Setting the numbering print mode | S·P | | 172 |
| GS C 1 | Setting the numbering counter mode (A) | S·P | | 173 |
| GS C 2 | Setting the numbering counter | S·P | | 174 |
| GS C ; | Setting the numbering counter mode (B) | S·P | | 175 |
| GS c | Print the counter | S·P | | 176 |
| GS l | Setting the Black mark length | S·P | | 177 |

Printer Function Setting Commands

| Command | Function | MODE | GS P | Page |
|------------------------|---|------|------|------|
| GS (D | Enabling or disabling real-time command | S | | 179 |
| GS (E | Printer function setting command | S | | 180 |
| GS (K | Selecting print control method | S | | 271 |
| GS (M | Customizing the printer | S | | 275 |
| GS (N | Designating font attribute | S | | 278 |

2-dimensional Code Commands

| Command | Function | MODE | GS P | Page |
|------------------------|---|------|------|------|
| GS (k | Setting and printing 2-dimensional code | S·P | | 279 |

Other Commands

| Command | Function | MODE | GS P | Page |
|-------------------------|--|------|------|------|
| DLE ENQ | Real-time request to printer | S·P | | 290 |
| DLE DC4 | Buffer clear | S·P | | 292 |
| ESC = | Data input control | S·P | | 293 |
| ESC @ | Initializing the printer | S·P | | 294 |
| ESC L | Selecting PAGE MODE | S | | 295 |
| ESC S | Selecting STANDARD MODE | P | | 296 |
| GS (A | Execution of test printing | S | | 298 |
| GS I | Sending the printer ID | S·P | | 299 |
| GS P | Specifying the basic calculation pitch | S·P | | 309 |

In the Mode column: S = STANDARD MODE, P = PAGE MODE
 O = shows the command affected by GS P.

2.1.3 CT-S300

Print Control Commands

| Command | Function | MODE | GS P | Page |
|------------------------|--|------|------|------|
| LF | Printing and paper feed | S-P | | 46 |
| CR | Back to printing | S-P | | 47 |
| FF | (1)Printing in PAGE MODE and returning to STANDARD MODE (at the selection of PAGE MODE) (2)Printing of Black mark/Label paper and feeding paper to the top of the print position (with Black mark/Label paper selected) | P | | 48 |
| ESC_FF | Printing data in PAGE MODE | P | | 49 |
| ESC_J | Printing and feeding paper in minimum pitch | S-P | ○ | 50 |
| ESC_d | Printing and feeding the paper by "n" lines | S-P | | 51 |

Print Character Commands

| Command | Function | MODE | GS P | Page |
|---------------------------|--|------|------|------|
| CAN | Canceling print data in PAGE MODE | P | | 52 |
| ESC_SP | Setting the right spacing of the character | S-P | ○ | 53 |
| ESC_! | Collectively specifying the printing mode | S-P | | 54 |
| ESC_% | Specifying/Canceling download character set | S-P | | 56 |
| ESC_& | Defining the download characters | S-P | | 57 |
| ESC_- | Specifying/canceling underline | S-P | | 59 |
| ESC_? | Deleting download characters | S-P | | 60 |
| ESC_E | Specifying/canceling emphasis printing | S-P | | 61 |
| ESC_G | Specifying/canceling double strike printing | S-P | | 62 |
| ESC_M | Selection of character fonts | S-P | | 63 |
| ESC_R | Selecting the international character set | S-P | | 64 |
| ESC_V | Specifying/canceling 90°-right-turned characters | S | | 65 |
| ESC_t | Selecting the character code table | S-P | | 66 |
| ESC_{ | Specifying/canceling the inverted characters | S | | 67 |
| ESC_~_J | Specifies/cancels printing in red (black-based paper) | S-P | | 69 |
| DC3 | Specifies/cancels printing in red (black-based paper) | S | | 72 |
| GS_! | Specifying the character size | S-P | | 73 |
| GS_B | Specifying/canceling the black/white inverted printing | S-P | | 75 |
| GS_b | Specifying/canceling the smoothing | S-P | | 76 |

Print Position Commands

| Command | Function | MODE | GS P | Page |
|------------------------|---|------|------|------|
| HT | Horizontal tab | S-P | | 77 |
| ESC_\$ | Specifying the absolute positions | S-P | ○ | 78 |
| ESC_D | Setting horizontal tab position | S-P | | 79 |
| ESC_T | Selecting the character printing direction in PAGE MODE | P | | 80 |
| ESC_W | Defining the print area in PAGE MODE | P | ○ | 81 |
| ESC_\ | Specifying the relative position | S-P | ○ | 83 |
| ESC_a | Aligning the characters | S | | 84 |
| GS_\$ | Specifying the absolute vertical position of characters in PAGE MODE | P | ○ | 85 |
| GS_L | Setting the left margin | S | ○ | 86 |
| GS_W | Setting the print area width | S-P | ○ | 87 |
| GS_\ | Specifying the relative vertical position of a character in PAGE MODE | S-P | ○ | 89 |

Line Feed Span Commands

| Command | Function | MODE | GS P | Page |
|-----------------------|---|------|------|------|
| ESC 2 | Specifying initial line feed rate | S·P | | 90 |
| ESC 3 | Setting line feed rate of minimum pitch | S·P | ○ | 91 |

Bit Image Commands

| Command | Function | MODE | GS P | Page |
|------------------------|-----------------------------------|------|------|------|
| ESC * | Specifying the bit image mode | S·P | | 92 |
| GS * | Defining the download bit image | S·P | | 93 |
| GS / | Printing the downloaded bit image | S·P | | 94 |
| GS v 0 | Printing of raster bit image | S | | 95 |

Status Commands

| Command | Function | MODE | GS P | Page |
|-------------------------|--|------|------|------|
| DLE EOT | Sending status in real-time | S·P | | 97 |
| ESC u | Transmitting the status of peripheral equipment (Serial Mode Only) | S·P | | 114 |
| ESC v | Sending Printer status | S·P | | 115 |
| GS a | Enabling/disabling ASB (Automatic Status Back) | S·P | | 116 |
| GS r | Sending status | S·P | | 120 |

Paper Detecting Commands

| Command | Function | MODE | GS P | Page |
|-------------------------|--|------|------|------|
| ESC c 3 | Selecting the Paper Sensor valid for Paper-end signal output | S·P | | 122 |
| ESC c 4 | Selecting the Paper Near-end Sensor valid for print stop | S·P | | 123 |

Panel Switch Commands

| Command | Function | MODE | GS P | Page |
|-------------------------|---------------------------------------|------|------|------|
| ESC c 5 | Enabling/disabling the panel switches | S·P | | 124 |

Macro Commands

| Command | Function | MODE | GS P | Page |
|----------------------|----------------------------------|------|------|------|
| GS : | Starting/ending macro definition | S·P | | 125 |
| GS ^ | Executing the macro | S·P | | 126 |

Cutter Commands

| Command | Function | MODE | GS P | Page |
|-----------------------|-------------------|------|------|------|
| ESC i | Full cut | S·P | | 127 |
| ESC m | Partial cut | S·P | | 128 |
| GS V | Cutting the paper | S·P | ○ | 129 |

Bar Code Commands

| Command | Function | MODE | GS P | Page |
|----------------------|--|------|------|------|
| GS H | Selecting of printing position of HRI characters | S·P | | 130 |
| GS f | Selecting the font of HRI characters | S·P | | 131 |
| GS h | Specifying the height of the bar code | S·P | | 132 |
| GS k | Printing the bar code | S·P | | 133 |
| GS w | Specifying the horizontal size (magnification) of bar code | S·P | | 138 |

Commands for Non-volatile Memory

| Command | Function | MODE | GS P | Page |
|----------------------|-------------------------------------|------|------|------|
| FS_p | Printing the download NV bit images | S | | 155 |
| FS_q | Defining the download NV bit image | S | | 156 |

Kanji Control Commands

| Command | Function | MODE | GS P | Page |
|--------------------------|---|------|------|------|
| FS_! | Collectively setting Kanji print mode | S·P | | 158 |
| FS_& | Setting Kanji mode | S·P | | 159 |
| FS_- | Setting/Canceling Kanji underline | S·P | | 160 |
| FS_. | Canceling Kanji mode | S·P | | 161 |
| FS_2 | Defining external character | S·P | | 162 |
| FS_C | Selecting Kanji code system | S·P | | 164 |
| FS_S | Setting Kanji space amount | S·P | ○ | 166 |
| FS_W | Setting/Canceling four times enlargement of Kanji | S·P | | 167 |
| FS_(A | Setting font attribute of Kanji | S·P | | 168 |

Black Mark Control Commands

| Command | Function | MODE | GS P | Page |
|-------------------------|--|------|------|------|
| GS_FF | Printing and ejecting Black mark/Label paper | S·P | | 169 |
| GS_< | Initializing the printer mechanism | S·P | | 170 |
| GS_A | Correcting the leader position of Black mark paper | S·P | | 171 |
| GS_C_0 | Setting the numbering print mode | S·P | | 172 |
| GS_C_1 | Setting the numbering counter mode (A) | S·P | | 173 |
| GS_C_2 | Setting the numbering counter | S·P | | 174 |
| GS_C_; | Setting the numbering counter mode (B) | S·P | | 175 |
| GS_c | Print the counter | S·P | | 176 |

Printer Function Setting Commands

| Command | Function | MODE | GS P | Page |
|-----------------------|---|------|------|------|
| GS_(D | Enabling or disabling real-time command | S | | 179 |
| GS_(E | Printer function setting command | S | | 180 |
| GS_(K | Selecting print control method | S | | 271 |
| GS_(M | Customizing the printer | S | | 275 |
| GS_(N | Designating font attribute | S | | 278 |

Other Commands

| Command | Function | MODE | GS P | Page |
|-------------------------|--|------|------|---------|
| DLE_ENQ | Real-time request to printer | S·P | | 290 |
| DLE_DC4 | Outputting specified pulse in real-time/Buffer clear | S·P | | 291/292 |
| ESC_=_ | Data input control | S·P | | 293 |
| ESC_@ | Initializing the printer | S·P | | 294 |
| ESC_L | Selecting PAGE MODE | S | | 295 |
| ESC_S | Selecting STANDARD MODE | P | | 296 |
| ESC_p | Generating the specified pulses | S·P | | 297 |
| GS_(A | Execution of test printing | S | | 298 |
| GS_I | Sending the printer ID | S·P | | 299 |
| GS_P | Specifying the basic calculation pitch | S·P | | 309 |
| ESC_RS | Sound buzzer | S·P | | 310 |

In the Mode column: S = STANDARD MODE, P = PAGE MODE
 ○ = shows the command affected by GS P.

2.1.4 CT-S310

Print Control Commands

| Command | Function | MODE | GS P | Page |
|------------------------|--|------|------|------|
| LF | Printing and paper feed | S-P | | 46 |
| CR | Back to printing | S-P | | 47 |
| FF | (1)Printing in PAGE MODE and returning to STANDARD MODE (at the selection of PAGE MODE) (2)Printing of Black mark/Label paper and feeding paper to the top of the print position (with Black mark/Label paper selected) | P | | 48 |
| ESC_FF | Printing data in PAGE MODE | P | | 49 |
| ESC_J | Printing and feeding paper in minimum pitch | S-P | ○ | 50 |
| ESC_d | Printing and feeding the paper by "n" lines | S-P | | 51 |

Print Character Commands

| Command | Function | MODE | GS P | Page |
|---------------------------|--|------|------|------|
| CAN | Canceling print data in PAGE MODE | P | | 52 |
| ESC_SP | Setting the right spacing of the character | S-P | ○ | 53 |
| ESC_! | Collectively specifying the printing mode | S-P | | 54 |
| ESC_% | Specifying/Canceling download character set | S-P | | 56 |
| ESC_& | Defining the download characters | S-P | | 57 |
| ESC_- | Specifying/canceling underline | S-P | | 59 |
| ESC_? | Deleting download characters | S-P | | 60 |
| ESC_E | Specifying/canceling emphasis printing | S-P | | 61 |
| ESC_G | Specifying/canceling double strike printing | S-P | | 62 |
| ESC_M | Selection of character fonts | S-P | | 63 |
| ESC_R | Selecting the international character set | S-P | | 64 |
| ESC_V | Specifying/canceling 90°-right-turned characters | S | | 65 |
| ESC_t | Selecting the character code table | S-P | | 66 |
| ESC_{ | Specifying/canceling the inverted characters | S | | 67 |
| ESC_~_J | Specifies/cancels printing in red (black-based paper) | S-P | | 69 |
| DC3 | Specifies/cancels printing in red (black-based paper) | S | | 72 |
| GS_! | Specifying the character size | S-P | | 73 |
| GS_B | Specifying/canceling the black/white inverted printing | S-P | | 75 |
| GS_b | Specifying/canceling the smoothing | S-P | | 76 |

Print Position Commands

| Command | Function | MODE | GS P | Page |
|------------------------|---|------|------|------|
| HT | Horizontal tab | S-P | | 77 |
| ESC_\$ | Specifying the absolute positions | S-P | ○ | 78 |
| ESC_D | Setting horizontal tab position | S-P | | 79 |
| ESC_T | Selecting the character printing direction in PAGE MODE | P | | 80 |
| ESC_W | Defining the print area in PAGE MODE | P | ○ | 81 |
| ESC_\ | Specifying the relative position | S-P | ○ | 83 |
| ESC_a | Aligning the characters | S | | 84 |
| GS_\$ | Specifying the absolute vertical position of characters in PAGE MODE | P | ○ | 85 |
| GS_L | Setting the left margin | S | ○ | 86 |
| GS_W | Setting the print area width | S-P | ○ | 87 |
| GS_\ | Specifying the relative vertical position of a character in PAGE MODE | S-P | ○ | 89 |

Line Feed Span Commands

| Command | Function | MODE | GS P | Page |
|-----------------------|---|------|------|------|
| ESC 2 | Specifying initial line feed rate | S·P | | 90 |
| ESC 3 | Setting line feed rate of minimum pitch | S·P | ○ | 91 |

Bit Image Commands

| Command | Function | MODE | GS P | Page |
|------------------------|-----------------------------------|------|------|------|
| ESC * | Specifying the bit image mode | S·P | | 92 |
| GS * | Defining the download bit image | S·P | | 93 |
| GS / | Printing the downloaded bit image | S·P | | 94 |
| GS v 0 | Printing of raster bit image | S | | 95 |

Status Commands

| Command | Function | MODE | GS P | Page |
|-------------------------|--|------|------|------|
| DLE EOT | Sending status in real-time | S·P | | 97 |
| ESC u | Transmitting the status of peripheral equipment (Serial Mode Only) | S·P | | 114 |
| ESC v | Sending Printer status | S·P | | 115 |
| GS a | Enabling/disabling ASB (Automatic Status Back) | S·P | | 116 |
| GS r | Sending status | S·P | | 120 |

Paper Detecting Commands

| Command | Function | MODE | GS P | Page |
|-------------------------|--|------|------|------|
| ESC c 3 | Selecting the Paper Sensor valid for Paper-end signal output | S·P | | 122 |
| ESC c 4 | Selecting the Paper Near-end Sensor valid for print stop | S·P | | 123 |

Panel Switch Commands

| Command | Function | MODE | GS P | Page |
|-------------------------|---------------------------------------|------|------|------|
| ESC c 5 | Enabling/disabling the panel switches | S·P | | 124 |

Macro Commands

| Command | Function | MODE | GS P | Page |
|----------------------|----------------------------------|------|------|------|
| GS : | Starting/ending macro definition | S·P | | 125 |
| GS ^ | Executing the macro | S·P | | 126 |

Cutter Commands

| Command | Function | MODE | GS P | Page |
|-----------------------|-------------------|------|------|------|
| ESC i | Full cut | S·P | | 127 |
| ESC m | Partial cut | S·P | | 128 |
| GS V | Cutting the paper | S·P | ○ | 129 |

Bar Code Commands

| Command | Function | MODE | GS P | Page |
|----------------------|--|------|------|------|
| GS H | Selecting of printing position of HRI characters | S·P | | 130 |
| GS f | Selecting the font of HRI characters | S·P | | 131 |
| GS h | Specifying the height of the bar code | S·P | | 132 |
| GS k | Printing the bar code | S·P | | 133 |
| GS w | Specifying the horizontal size (magnification) of bar code | S·P | | 138 |

Commands for Non-volatile Memory

| Command | Function | MODE | GS P | Page |
|----------------------|-------------------------------------|------|------|------|
| FS_p | Printing the download NV bit images | S | | 155 |
| FS_q | Defining the download NV bit image | S | | 156 |

Kanji Control Commands

| Command | Function | MODE | GS P | Page |
|--------------------------|---|------|------|------|
| FS_! | Collectively setting Kanji print mode | S·P | | 158 |
| FS_& | Setting Kanji mode | S·P | | 159 |
| FS_- | Setting/Canceling Kanji underline | S·P | | 160 |
| FS_. | Canceling Kanji mode | S·P | | 161 |
| FS_2 | Defining external character | S·P | | 162 |
| FS_C | Selecting Kanji code system | S·P | | 164 |
| FS_S | Setting Kanji space amount | S·P | ○ | 166 |
| FS_W | Setting/Canceling four times enlargement of Kanji | S·P | | 167 |
| FS_(A | Setting font attribute of Kanji | S·P | | 168 |

Black Mark Control Commands

| Command | Function | MODE | GS P | Page |
|-------------------------|--|------|------|------|
| GS_FF | Printing and ejecting Black mark/Label paper | S·P | | 169 |
| GS_< | Initializing the printer mechanism | S·P | | 170 |

Printer Function Setting Commands

| Command | Function | MODE | GS P | Page |
|-----------------------|---|------|------|------|
| GS_(D | Enabling or disabling real-time command | S | | 179 |
| GS_(E | Printer function setting command | S | | 180 |
| GS_(K | Selecting print control method | S | | 271 |
| GS_(M | Customizing the printer | S | | 275 |
| GS_(N | Designating font attribute | S | | 278 |

2-dimensional Code Commands

| Command | Function | MODE | GS P | Page |
|-----------------------|---|------|------|------|
| GS_(k | Setting and printing 2-dimensional code | S·P | | 279 |

Other Commands

| Command | Function | MODE | GS P | Page |
|-------------------------|--|------|------|---------|
| DLE_ENQ | Real-time request to printer | S·P | | 290 |
| DLE_DC4 | Outputting specified pulse in real-time/Buffer clear | S·P | | 291/292 |
| ESC_= | Data input control | S·P | | 293 |
| ESC_@ | Initializing the printer | S·P | | 294 |
| ESC_L | Selecting PAGE MODE | S | | 295 |
| ESC_S | Selecting STANDARD MODE | P | | 296 |
| ESC_p | Generating the specified pulses | S·P | | 297 |
| GS_(A | Execution of test printing | S | | 298 |
| GS_I | Sending the printer ID | S·P | | 299 |
| GS_P | Specifying the basic calculation pitch | S·P | | 309 |
| ESC_RS | Sound buzzer | S·P | | 310 |

In the Mode column: S = STANDARD MODE, P = PAGE MODE
 ○ = shows the command affected by GS P.

2.1.5 CT-S2000

Print Control Commands

| Command | Function | MODE | GS P | Page |
|------------------------|--|------|------|------|
| LF | Printing and paper feed | S-P | | 46 |
| CR | Back to printing | S-P | | 47 |
| FF | (1)Printing in PAGE MODE and returning to STANDARD MODE (at the selection of PAGE MODE) (2)Printing of Black mark/Label paper and feeding paper to the top of the print position (with Black mark/Label paper selected) | P | | 48 |
| ESC_FF | Printing data in PAGE MODE | P | | 49 |
| ESC_J | Printing and feeding paper in minimum pitch | S-P | ○ | 50 |
| ESC_d | Printing and feeding the paper by "n" lines | S-P | | 51 |

Print Character Commands

| Command | Function | MODE | GS P | Page |
|---------------------------|--|------|------|------|
| CAN | Canceling print data in PAGE MODE | P | | 52 |
| ESC_SP | Setting the right spacing of the character | S-P | ○ | 53 |
| ESC_! | Collectively specifying the printing mode | S-P | | 54 |
| ESC_% | Specifying/Canceling download character set | S-P | | 56 |
| ESC_& | Defining the download characters | S-P | | 57 |
| ESC_- | Specifying/canceling underline | S-P | | 59 |
| ESC_? | Deleting download characters | S-P | | 60 |
| ESC_E | Specifying/canceling emphasis printing | S-P | | 61 |
| ESC_G | Specifying/canceling double strike printing | S-P | | 62 |
| ESC_M | Selection of character fonts | S-P | | 63 |
| ESC_R | Selecting the international character set | S-P | | 64 |
| ESC_V | Specifying/canceling 90°-right-turned characters | S | | 65 |
| ESC_t | Selecting the character code table | S-P | | 66 |
| ESC_{ | Specifying/canceling the inverted characters | S | | 67 |
| ESC_~_J | Specifies/cancels printing in red (black-based paper) | S-P | | 69 |
| DC3 | Specifies/cancels printing in red (black-based paper) | S | | 72 |
| GS_! | Specifying the character size | S-P | | 73 |
| GS_B | Specifying/canceling the black/white inverted printing | S-P | | 75 |
| GS_b | Specifying/canceling the smoothing | S-P | | 76 |

Print Position Commands

| Command | Function | MODE | GS P | Page |
|------------------------|---|------|------|------|
| HT | Horizontal tab | S-P | | 77 |
| ESC_\$ | Specifying the absolute positions | S-P | ○ | 78 |
| ESC_D | Setting horizontal tab position | S-P | | 79 |
| ESC_I | Selecting the character printing direction in PAGE MODE | P | | 80 |
| ESC_W | Defining the print area in PAGE MODE | P | ○ | 81 |
| ESC_\ | Specifying the relative position | S-P | ○ | 83 |
| ESC_a | Aligning the characters | S | | 84 |
| GS_\$ | Specifying the absolute vertical position of characters in PAGE MODE | P | ○ | 85 |
| GS_L | Setting the left margin | S | ○ | 86 |
| GS_W | Setting the print area width | S-P | ○ | 87 |
| GS_\ | Specifying the relative vertical position of a character in PAGE MODE | S-P | ○ | 89 |

Line Feed Span Commands

| Command | Function | MODE | GS P | Page |
|-----------------------|---|------|------|------|
| ESC 2 | Specifying initial line feed rate | S·P | | 90 |
| ESC 3 | Setting line feed rate of minimum pitch | S·P | ○ | 91 |

Bit Image Commands

| Command | Function | MODE | GS P | Page |
|------------------------|-----------------------------------|------|------|------|
| ESC * | Specifying the bit image mode | S·P | | 92 |
| GS * | Defining the download bit image | S·P | | 93 |
| GS / | Printing the downloaded bit image | S·P | | 94 |
| GS v 0 | Printing of raster bit image | S | | 95 |

Status Commands

| Command | Function | MODE | GS P | Page |
|-------------------------|--|------|------|------|
| DLE EOT | Sending status in real-time | S·P | | 97 |
| ESC u | Transmitting the status of peripheral equipment (Serial Mode Only) | S·P | | 114 |
| ESC v | Sending Printer status | S·P | | 115 |
| GS a | Enabling/disabling ASB (Automatic Status Back) | S·P | | 116 |
| GS r | Sending status | S·P | | 120 |

Paper Detecting Commands

| Command | Function | MODE | GS P | Page |
|-------------------------|--|------|------|------|
| ESC c 3 | Selecting the Paper Sensor valid for Paper-end signal output | S·P | | 122 |
| ESC c 4 | Selecting the Paper Near-end Sensor valid for print stop | S·P | | 123 |

Panel Switch Commands

| Command | Function | MODE | GS P | Page |
|-------------------------|---------------------------------------|------|------|------|
| ESC c 5 | Enabling/disabling the panel switches | S·P | | 124 |

Macro Commands

| Command | Function | MODE | GS P | Page |
|----------------------|----------------------------------|------|------|------|
| GS : | Starting/ending macro definition | S·P | | 125 |
| GS ^ | Executing the macro | S·P | | 126 |

Cutter Commands

| Command | Function | MODE | GS P | Page |
|-----------------------|-------------------|------|------|------|
| ESC i | Full cut | S·P | | 127 |
| ESC m | Partial cut | S·P | | 128 |
| GS V | Cutting the paper | S·P | ○ | 129 |

Bar Code Commands

| Command | Function | MODE | GS P | Page |
|----------------------|--|------|------|------|
| GS H | Selecting of printing position of HRI characters | S·P | | 130 |
| GS f | Selecting the font of HRI characters | S·P | | 131 |
| GS h | Specifying the height of the bar code | S·P | | 132 |
| GS k | Printing the bar code | S·P | | 133 |
| GS w | Specifying the horizontal size (magnification) of bar code | S·P | | 138 |

Commands for Non-volatile Memory

| Command | Function | MODE | GS P | Page |
|--|-------------------------------------|------|------|------|
| GS (C | Editing user NV memory | S | | 139 |
| GS (L GS 8 L | Specifying graphics data | S | | 145 |
| GS g 0 | Initializing maintenance counter | S | | 153 |
| GS g 2 | Sending maintenance counter | S | | 154 |
| FS p | Printing the download NV bit images | S | | 155 |
| FS q | Defining the download NV bit image | S | | 156 |

Kanji Control Commands

| Command | Function | MODE | GS P | Page |
|--------------------------|---|------|------|------|
| FS ! | Collectively setting Kanji print mode | S·P | | 158 |
| FS & | Setting Kanji mode | S·P | | 159 |
| FS - | Setting/Canceling Kanji underline | S·P | | 160 |
| FS . | Canceling Kanji mode | S·P | | 161 |
| FS 2 | Defining external character | S·P | | 162 |
| FS C | Selecting Kanji code system | S·P | | 164 |
| FS S | Setting Kanji space amount | S·P | ○ | 166 |
| FS W | Setting/Canceling four times enlargement of Kanji | S·P | | 167 |
| FS (A | Setting font attribute of Kanji | S·P | | 168 |

Black Mark and Label Control Commands

| Command | Function | MODE | GS P | Page |
|-------------------------|--|------|------|------|
| GS FF | Printing and ejecting Black mark paper/Label Paper | S·P | | 169 |
| GS < | Initializing the printer mechanism | S·P | | 170 |
| GS A | Correcting the leader position of Black mark/Label paper | S·P | | 171 |
| GS C 0 | Setting the numbering print mode | S·P | | 172 |
| GS C 1 | Setting the numbering counter mode (A) | S·P | | 173 |
| GS C 2 | Setting the numbering counter | S·P | | 174 |
| GS C ; | Setting the numbering counter mode (B) | S·P | | 175 |
| GS c | Print the counter | S·P | | 176 |
| GS l | Setting the Black mark/Label length | S·P | | 177 |

Printer Function Setting Commands

| Command | Function | MODE | GS P | Page |
|------------------------|---|------|------|------|
| GS (D | Enabling or disabling real-time command | S | | 179 |
| GS (E | Printer function setting command | S | | 180 |
| GS (K | Selecting print control method | S | | 271 |
| GS (M | Customizing the printer | S | | 275 |
| GS (N | Designating font attribute | S | | 278 |

2-dimensional Code Commands

| Command | Function | MODE | GS P | Page |
|------------------------|---|------|------|------|
| GS (k | Setting and printing 2-dimensional code | S·P | | 279 |

Other Commands

| Command | Function | MODE | GS P | Page |
|-------------------------|--|------|------|---------|
| DLE_ENQ | Real-time request to printer | S·P | | 290 |
| DLE_DC4 | Outputting specified pulse in real-time/Buffer clear | S·P | | 291/292 |
| ESC_=_ | Data input control | S·P | | 293 |
| ESC_@ | Initializing the printer | S·P | | 294 |
| ESC_L | Selecting PAGE MODE | S | | 295 |
| ESC_S | Selecting STANDARD MODE | P | | 296 |
| ESC_p | Generating the specified pulses | S·P | | 297 |
| GS_(A | Execution of test printing | S | | 298 |
| GS_I | Sending the printer ID | S·P | | 299 |
| GS_P | Specifying the basic calculation pitch | S·P | | 309 |
| ESC_RS | Sound buzzer | S·P | | 310 |

In the Mode column: S = STANDARD MODE, P = PAGE MODE
 O = shows the command affected by GS P.

2.1.6 CT-S4000

Print Control Commands

| Command | Function | MODE | GS P | Page |
|------------------------|--|------|------|------|
| LF | Printing and paper feed | S-P | | 46 |
| CR | Back to printing | S-P | | 47 |
| FF | (1)Printing in PAGE MODE and returning to STANDARD MODE (at the selection of PAGE MODE) (2)Printing of Black mark/Label paper and feeding paper to the top of the print position (with Black mark/Label paper selected) | P | | 48 |
| ESC_FF | Printing data in PAGE MODE | P | | 49 |
| ESC_J | Printing and feeding paper in minimum pitch | S-P | ○ | 50 |
| ESC_d | Printing and feeding the paper by "n" lines | S-P | | 51 |

Print Character Commands

| Command | Function | MODE | GS P | Page |
|---------------------------|--|------|------|------|
| CAN | Canceling print data in PAGE MODE | P | | 52 |
| ESC_SP | Setting the right spacing of the character | S-P | ○ | 53 |
| ESC_! | Collectively specifying the printing mode | S-P | | 54 |
| ESC_% | Specifying/Canceling download character set | S-P | | 56 |
| ESC_& | Defining the download characters | S-P | | 57 |
| ESC_- | Specifying/canceling underline | S-P | | 59 |
| ESC_? | Deleting download characters | S-P | | 60 |
| ESC_E | Specifying/canceling emphasis printing | S-P | | 61 |
| ESC_G | Specifying/canceling double strike printing | S-P | | 62 |
| ESC_M | Selection of character fonts | S-P | | 63 |
| ESC_R | Selecting the international character set | S-P | | 64 |
| ESC_V | Specifying/canceling 90°-right-turned characters | S | | 65 |
| ESC_t | Selecting the character code table | S-P | | 66 |
| ESC_{ | Specifying/canceling the inverted characters | S | | 67 |
| ESC_~_J | Specifies/cancels printing in red (black-based paper) | S-P | | 69 |
| DC3 | Specifies/cancels printing in red (black-based paper) | S | | 72 |
| GS_! | Specifying the character size | S-P | | 73 |
| GS_B | Specifying/canceling the black/white inverted printing | S-P | | 75 |
| GS_b | Specifying/canceling the smoothing | S-P | | 76 |

Print Position Commands

| Command | Function | MODE | GS P | Page |
|------------------------|---|------|------|------|
| HT | Horizontal tab | S-P | | 77 |
| ESC_\$ | Specifying the absolute positions | S-P | ○ | 78 |
| ESC_D | Setting horizontal tab position | S-P | | 79 |
| ESC_I | Selecting the character printing direction in PAGE MODE | P | | 80 |
| ESC_W | Defining the print area in PAGE MODE | P | ○ | 81 |
| ESC_\ | Specifying the relative position | S-P | ○ | 83 |
| ESC_a | Aligning the characters | S | | 84 |
| GS_\$ | Specifying the absolute vertical position of characters in PAGE MODE | P | ○ | 85 |
| GS_L | Setting the left margin | S | ○ | 86 |
| GS_W | Setting the print area width | S-P | ○ | 87 |
| GS_\ | Specifying the relative vertical position of a character in PAGE MODE | S-P | ○ | 89 |

Line Feed Span Commands

| Command | Function | MODE | GS P | Page |
|-----------------------|---|------|------|------|
| ESC 2 | Specifying initial line feed rate | S·P | | 90 |
| ESC 3 | Setting line feed rate of minimum pitch | S·P | ○ | 91 |

Bit Image Commands

| Command | Function | MODE | GS P | Page |
|------------------------|-----------------------------------|------|------|------|
| ESC * | Specifying the bit image mode | S·P | | 92 |
| GS * | Defining the download bit image | S·P | | 93 |
| GS / | Printing the downloaded bit image | S·P | | 94 |
| GS v 0 | Printing of raster bit image | S | | 95 |

Status Commands

| Command | Function | MODE | GS P | Page |
|-------------------------|--|------|------|------|
| DLE EOT | Sending status in real-time | S·P | | 97 |
| ESC u | Transmitting the status of peripheral equipment (Serial Mode Only) | S·P | | 114 |
| ESC v | Sending Printer status | S·P | | 115 |
| GS a | Enabling/disabling ASB (Automatic Status Back) | S·P | | 116 |
| GS r | Sending status | S·P | | 120 |

Paper Detecting Commands

| Command | Function | MODE | GS P | Page |
|-------------------------|--|------|------|------|
| ESC c 3 | Selecting the Paper Sensor valid for Paper-end signal output | S·P | | 122 |
| ESC c 4 | Selecting the Paper Near-end Sensor valid for print stop | S·P | | 123 |

Panel Switch Commands

| Command | Function | MODE | GS P | Page |
|-------------------------|---------------------------------------|------|------|------|
| ESC c 5 | Enabling/disabling the panel switches | S·P | | 124 |

Macro Commands

| Command | Function | MODE | GS P | Page |
|----------------------|----------------------------------|------|------|------|
| GS : | Starting/ending macro definition | S·P | | 125 |
| GS ^ | Executing the macro | S·P | | 126 |

Cutter Commands

| Command | Function | MODE | GS P | Page |
|-----------------------|-------------------|------|------|------|
| ESC i | Full cut | S·P | | 127 |
| ESC m | Partial cut | S·P | | 128 |
| GS V | Cutting the paper | S·P | ○ | 129 |

Bar Code Commands

| Command | Function | MODE | GS P | Page |
|----------------------|--|------|------|------|
| GS H | Selecting of printing position of HRI characters | S·P | | 130 |
| GS f | Selecting the font of HRI characters | S·P | | 131 |
| GS h | Specifying the height of the bar code | S·P | | 132 |
| GS k | Printing the bar code | S·P | | 133 |
| GS w | Specifying the horizontal size (magnification) of bar code | S·P | | 138 |

Commands for Non-volatile Memory

| Command | Function | MODE | GS P | Page |
|--|-------------------------------------|------|------|------|
| GS (C | Editing user NV memory | S | | 139 |
| GS (L GS 8 L | Specifying graphics data | S | | 145 |
| GS g 0 | Initializing maintenance counter | S | | 153 |
| GS g 2 | Sending maintenance counter | S | | 154 |
| FS p | Printing the download NV bit images | S | | 155 |
| FS q | Defining the download NV bit image | S | | 156 |

Kanji Control Commands

| Command | Function | MODE | GS P | Page |
|--------------------------|---|------|------|------|
| FS ! | Collectively setting Kanji print mode | S·P | | 158 |
| FS & | Setting Kanji mode | S·P | | 159 |
| FS - | Setting/Canceling Kanji underline | S·P | | 160 |
| FS . | Canceling Kanji mode | S·P | | 161 |
| FS 2 | Defining external character | S·P | | 162 |
| FS C | Selecting Kanji code system | S·P | | 164 |
| FS S | Setting Kanji space amount | S·P | ○ | 166 |
| FS W | Setting/Canceling four times enlargement of Kanji | S·P | | 167 |
| FS (A | Setting font attribute of Kanji | S·P | | 168 |

Black Mark and Label Control Commands

| Command | Function | MODE | GS P | Page |
|-------------------------|--|------|------|------|
| GS FF | Printing and ejecting Black mark paper/Label Paper | S·P | | 169 |
| GS < | Initializing the printer mechanism | S·P | | 170 |
| GS A | Correcting the leader position of Black mark/Label paper | S·P | | 171 |
| GS C 0 | Setting the numbering print mode | S·P | | 172 |
| GS C 1 | Setting the numbering counter mode (A) | S·P | | 173 |
| GS C 2 | Setting the numbering counter | S·P | | 174 |
| GS C ; | Setting the numbering counter mode (B) | S·P | | 175 |
| GS c | Print the counter | S·P | | 176 |
| GS l | Setting the Black mark/Label length | S·P | | 177 |
| GS p | Changing the paper type | S·P | | 178 |

Printer Function Setting Commands

| Command | Function | MODE | GS P | Page |
|------------------------|---|------|------|------|
| GS (D | Enabling or disabling real-time command | S | | 179 |
| GS (E | Printer function setting command | S | | 180 |
| GS (K | Selecting print control method | S | | 271 |
| GS (M | Customizing the printer | S | | 275 |
| GS (N | Designating font attribute | S | | 278 |

2-dimensional Code Commands

| Command | Function | MODE | GS P | Page |
|------------------------|---|------|------|------|
| GS (k | Setting and printing 2-dimensional code | S·P | | 279 |

Other Commands

| Command | Function | MODE | GS P | Page |
|-------------------------|--|------|------|---------|
| DLE_ENQ | Real-time request to printer | S·P | | 290 |
| DLE_DC4 | Outputting specified pulse in real-time/Buffer clear | S·P | | 291/292 |
| ESC_=_ | Data input control | S·P | | 293 |
| ESC_@ | Initializing the printer | S·P | | 294 |
| ESC_L | Selecting PAGE MODE | S | | 295 |
| ESC_S | Selecting STANDARD MODE | P | | 296 |
| ESC_p | Generating the specified pulses | S·P | | 297 |
| GS_(A | Execution of test printing | S | | 298 |
| GS_I | Sending the printer ID | S·P | | 299 |
| GS_P | Specifying the basic calculation pitch | S·P | | 309 |
| ESC_RS | Sound buzzer | S·P | | 310 |

In the Mode column: S = STANDARD MODE, P = PAGE MODE
 O = shows the command affected by GS P.

2.1.7 CT-S601/651/801/851

Print Control Commands

| Command | Function | MODE | GS P | Page |
|------------------------|--|------|------|------|
| LF | Printing and paper feed | S-P | | 46 |
| CR | Back to printing | S-P | | 47 |
| FF | (1)Printing in PAGE MODE and returning to STANDARD MODE (at the selection of PAGE MODE) (2)Printing of Black mark/Label paper and feeding paper to the top of the print position (with Black mark/Label paper selected) | P | | 48 |
| ESC_FF | Printing data in PAGE MODE | P | | 49 |
| ESC_J | Printing and feeding paper in minimum pitch | S-P | ○ | 50 |
| ESC_d | Printing and feeding the paper by "n" lines | S-P | | 51 |

Print Character Commands

| Command | Function | MODE | GS P | Page |
|---------------------------|--|------|------|------|
| CAN | Canceling print data in PAGE MODE | P | | 52 |
| ESC_SP | Setting the right spacing of the character | S-P | ○ | 53 |
| ESC_! | Collectively specifying the printing mode | S-P | | 54 |
| ESC_% | Specifying/Canceling download character set | S-P | | 56 |
| ESC_& | Defining the download characters | S-P | | 57 |
| ESC_- | Specifying/canceling underline | S-P | | 59 |
| ESC_? | Deleting download characters | S-P | | 60 |
| ESC_E | Specifying/canceling emphasis printing | S-P | | 61 |
| ESC_G | Specifying/canceling double strike printing | S-P | | 62 |
| ESC_M | Selection of character fonts | S-P | | 63 |
| ESC_R | Selecting the international character set | S-P | | 64 |
| ESC_V | Specifying/canceling 90°-right-turned characters | S | | 65 |
| ESC_t | Selecting the character code table | S-P | | 66 |
| ESC_{ | Specifying/canceling the inverted characters | S | | 67 |
| ESC_~_J | Specifies/cancels printing in red (black-based paper) | S-P | | 69 |
| DC3 | Specifies/cancels printing in red (black-based paper) | S | | 72 |
| GS_! | Specifying the character size | S-P | | 73 |
| GS_B | Specifying/canceling the black/white inverted printing | S-P | | 75 |
| GS_b | Specifying/canceling the smoothing | S-P | | 76 |

Print Position Commands

| Command | Function | MODE | GS P | Page |
|------------------------|---|------|------|------|
| HT | Horizontal tab | S-P | | 77 |
| ESC_\$ | Specifying the absolute positions | S-P | ○ | 78 |
| ESC_D | Setting horizontal tab position | S-P | | 79 |
| ESC_I | Selecting the character printing direction in PAGE MODE | P | | 80 |
| ESC_W | Defining the print area in PAGE MODE | P | ○ | 81 |
| ESC_\ | Specifying the relative position | S-P | ○ | 83 |
| ESC_a | Aligning the characters | S | | 84 |
| GS_\$ | Specifying the absolute vertical position of characters in PAGE MODE | P | ○ | 85 |
| GS_L | Setting the left margin | S | ○ | 86 |
| GS_W | Setting the print area width | S-P | ○ | 87 |
| GS_\ | Specifying the relative vertical position of a character in PAGE MODE | S-P | ○ | 89 |

Line Feed Span Commands

| Command | Function | MODE | GS P | Page |
|-----------------------|---|------|------|------|
| ESC 2 | Specifying initial line feed rate | S·P | | 90 |
| ESC 3 | Setting line feed rate of minimum pitch | S·P | ○ | 91 |

Bit Image Commands

| Command | Function | MODE | GS P | Page |
|------------------------|-----------------------------------|------|------|------|
| ESC * | Specifying the bit image mode | S·P | | 92 |
| GS * | Defining the download bit image | S·P | | 93 |
| GS / | Printing the downloaded bit image | S·P | | 94 |
| GS v 0 | Printing of raster bit image | S | | 95 |

Status Commands

| Command | Function | MODE | GS P | Page |
|-------------------------|--|------|------|------|
| DLE EOT | Sending status in real-time | S·P | | 97 |
| ESC u | Transmitting the status of peripheral equipment (Serial Mode Only) | S·P | | 114 |
| ESC v | Sending Printer status | S·P | | 115 |
| GS a | Enabling/disabling ASB (Automatic Status Back) | S·P | | 116 |
| GS r | Sending status | S·P | | 120 |

Paper Detecting Commands

| Command | Function | MODE | GS P | Page |
|-------------------------|--|------|------|------|
| ESC c 3 | Selecting the Paper Sensor valid for Paper-end signal output | S·P | | 122 |
| ESC c 4 | Selecting the Paper Near-end Sensor valid for print stop | S·P | | 123 |

Panel Switch Commands

| Command | Function | MODE | GS P | Page |
|-------------------------|---------------------------------------|------|------|------|
| ESC c 5 | Enabling/disabling the panel switches | S·P | | 124 |

Macro Commands

| Command | Function | MODE | GS P | Page |
|----------------------|----------------------------------|------|------|------|
| GS : | Starting/ending macro definition | S·P | | 125 |
| GS ^ | Executing the macro | S·P | | 126 |

Cutter Commands

| Command | Function | MODE | GS P | Page |
|-----------------------|-------------------|------|------|------|
| ESC i | Full cut | S·P | | 127 |
| ESC m | Partial cut | S·P | | 128 |
| GS V | Cutting the paper | S·P | ○ | 129 |

Bar Code Commands

| Command | Function | MODE | GS P | Page |
|----------------------|--|------|------|------|
| GS H | Selecting of printing position of HRI characters | S·P | | 130 |
| GS f | Selecting the font of HRI characters | S·P | | 131 |
| GS h | Specifying the height of the bar code | S·P | | 132 |
| GS k | Printing the bar code | S·P | | 133 |
| GS w | Specifying the horizontal size (magnification) of bar code | S·P | | 138 |

Commands for Non-volatile Memory

| Command | Function | MODE | GS P | Page |
|--|-------------------------------------|------|------|------|
| GS (C | Editing user NV memory | S | | 139 |
| GS (L GS 8 L | Specifying graphics data | S | | 145 |
| GS g 0 | Initializing maintenance counter | S | | 153 |
| GS g 2 | Sending maintenance counter | S | | 154 |
| FS p | Printing the download NV bit images | S | | 155 |
| FS q | Defining the download NV bit image | S | | 156 |

Kanji Control Commands

| Command | Function | MODE | GS P | Page |
|--------------------------|---|------|------|------|
| FS ! | Collectively setting Kanji print mode | S·P | | 158 |
| FS & | Setting Kanji mode | S·P | | 159 |
| FS - | Setting/Canceling Kanji underline | S·P | | 160 |
| FS . | Canceling Kanji mode | S·P | | 161 |
| FS 2 | Defining external character | S·P | | 162 |
| FS C | Selecting Kanji code system | S·P | | 164 |
| FS S | Setting Kanji space amount | S·P | ○ | 166 |
| FS W | Setting/Canceling four times enlargement of Kanji | S·P | | 167 |
| FS (A | Setting font attribute of Kanji | S·P | | 168 |

Black Mark and Label Control Commands

| Command | Function | MODE | GS P | Page |
|-------------------------|--|------|------|------|
| GS FF | Printing and ejecting Black mark/Label paper | S·P | | 169 |
| GS < | Initializing the printer mechanism | S·P | | 170 |
| GS A | Correcting the leader position of Black mark/Label paper | S·P | | 171 |
| GS C 0 | Setting the numbering print mode | S·P | | 172 |
| GS C 1 | Setting the numbering counter mode (A) | S·P | | 173 |
| GS C 2 | Setting the numbering counter | S·P | | 174 |
| GS C ; | Setting the numbering counter mode (B) | S·P | | 175 |
| GS c | Print the counter | S·P | | 176 |
| GS l | Setting the Black mark/Label length | S·P | | 177 |
| GS p | Changing the paper type | S·P | | 178 |

Printer Function Setting Commands

| Command | Function | MODE | GS P | Page |
|------------------------|---|------|------|------|
| GS (D | Enabling or disabling real-time command | S | | 179 |
| GS (E | Printer function setting command | S | | 180 |
| GS (K | Selecting print control method | S | | 271 |
| GS (M | Customizing the printer | S | | 275 |
| GS (N | Designating font attribute | S | | 278 |

2-dimensional Code Commands

| Command | Function | MODE | GS P | Page |
|------------------------|---|------|------|------|
| GS (k | Setting and printing 2-dimensional code | S·P | | 279 |

Other Commands

| Command | Function | MODE | GS P | Page |
|-------------------------|--|------|------|---------|
| DLE_ENQ | Real-time request to printer | S·P | | 290 |
| DLE_DC4 | Outputting specified pulse in real-time/Buffer clear | S·P | | 291/292 |
| ESC_=_ | Data input control | S·P | | 293 |
| ESC_@ | Initializing the printer | S·P | | 294 |
| ESC_L | Selecting PAGE MODE | S | | 295 |
| ESC_S | Selecting STANDARD MODE | P | | 296 |
| ESC_p | Generating the specified pulses | S·P | | 297 |
| GS_(A | Execution of test printing | S | | 298 |
| GS_I | Sending the printer ID | S·P | | 299 |
| GS_P | Specifying the basic calculation pitch | S·P | | 309 |
| ESC_RS | Sound buzzer | S·P | | 310 |

In the Mode column: S = STANDARD MODE, P = PAGE MODE
 O = shows the command affected by GS P.

2.1.8 BD2-2220

Print Control Commands

| Command | Function | MODE | GS P | Page |
|------------------------|--|------|------|------|
| LF | Printing and paper feed | S·P | | 46 |
| CR | Back to printing | S·P | | 47 |
| FF | Printing in PAGE MODE and returning to STANDARD MODE (at the selection of PAGE MODE) | P | | 48 |
| ESC_FF | Printing data in PAGE MODE | P | | 49 |
| ESC_J | Printing and feeding paper in minimum pitch | S·P | ○ | 50 |
| ESC_d | Printing and feeding the paper by "n" lines | S·P | | 51 |

Print Character Commands

| Command | Function | MODE | GS P | Page |
|---------------------------|--|------|------|------|
| CAN | Canceling print data in PAGE MODE | P | | 52 |
| ESC_SP | Setting the right spacing of the character | S·P | ○ | 53 |
| ESC_! | Collectively specifying the printing mode | S·P | | 54 |
| ESC_% | Specifying/Canceling download character set | S·P | | 56 |
| ESC_& | Defining the download characters | S·P | | 57 |
| ESC_- | Specifying/canceling underline | S·P | | 59 |
| ESC_? | Deleting download characters | S·P | | 60 |
| ESC_E | Specifying/canceling emphasis printing | S·P | | 61 |
| ESC_G | Specifying/canceling double strike printing | S·P | | 62 |
| ESC_M | Selection of character fonts | S·P | | 63 |
| ESC_R | Selecting the international character set | S·P | | 64 |
| ESC_V | Specifying/canceling 90°-right-turned characters | S | | 65 |
| ESC_t | Selecting the character code table | S·P | | 66 |
| ESC_{ | Specifying/canceling the inverted characters | S | | 67 |
| GS_! | Specifying the character size | S·P | | 73 |
| GS_B | Specifying/canceling the black/white inverted printing | S·P | | 75 |
| GS_b | Specifying/canceling the smoothing | S·P | | 76 |

Print Position Commands

| Command | Function | MODE | GS P | Page |
|------------------------|---|------|------|------|
| HT | Horizontal tab | S·P | | 77 |
| ESC_\$ | Specifying the absolute positions | S·P | ○ | 78 |
| ESC_D | Setting horizontal tab position | S·P | | 79 |
| ESC_I | Selecting the character printing direction in PAGE MODE | P | | 80 |
| ESC_W | Defining the print area in PAGE MODE | P | ○ | 81 |
| ESC_\ | Specifying the relative position | S·P | ○ | 83 |
| ESC_a | Aligning the characters | S | | 84 |
| GS_\$ | Specifying the absolute vertical position of characters in PAGE MODE | P | ○ | 85 |
| GS_L | Setting the left margin | S | ○ | 86 |
| GS_W | Setting the print area width | S·P | ○ | 87 |
| GS_\ | Specifying the relative vertical position of a character in PAGE MODE | S·P | ○ | 89 |

Line Feed Span Commands

| Command | Function | MODE | GS P | Page |
|-----------------------|---|------|------|------|
| ESC_2 | Specifying initial line feed rate | S·P | | 90 |
| ESC_3 | Setting line feed rate of minimum pitch | S·P | ○ | 91 |

Bit Image Commands

| Command | Function | MODE | GS P | Page |
|------------------------|-----------------------------------|------|------|------|
| ESC * | Specifying the bit image mode | S·P | | 92 |
| GS * | Defining the download bit image | S·P | | 93 |
| GS / | Printing the downloaded bit image | S·P | | 94 |
| GS v 0 | Printing of raster bit image | S | | 95 |

Status Commands

| Command | Function | MODE | GS P | Page |
|-------------------------|--|------|------|------|
| DLE EOT | Sending status in real-time | S·P | | 97 |
| ESC v | Sending Printer status | S·P | | 115 |
| GS a | Enabling/disabling ASB (Automatic Status Back) | S·P | | 116 |
| GS r | Sending status | S·P | | 120 |

Paper Detecting Commands

| Command | Function | MODE | GS P | Page |
|-------------------------|--|------|------|------|
| ESC c 3 | Selecting the Paper Sensor valid for Paper-end signal output | S·P | | 122 |
| ESC c 4 | Selecting the Paper Near-end Sensor valid for print stop | S·P | | 123 |

Panel Switch Commands

| Command | Function | MODE | GS P | Page |
|-------------------------|---------------------------------------|------|------|------|
| ESC c 5 | Enabling/disabling the panel switches | S·P | | 124 |

Macro Commands

| Command | Function | MODE | GS P | Page |
|----------------------|----------------------------------|------|------|------|
| GS : | Starting/ending macro definition | S·P | | 125 |
| GS ^ | Executing the macro | S·P | | 126 |

Cutter Commands

| Command | Function | MODE | GS P | Page |
|-----------------------|-------------------|------|------|------|
| ESC i | Full cut | S·P | | 127 |
| ESC m | Partial cut | S·P | | 128 |
| GS V | Cutting the paper | S·P | ○ | 129 |

Bar Code Commands

| Command | Function | MODE | GS P | Page |
|----------------------|--|------|------|------|
| GS H | Selecting of printing position of HRI characters | S·P | | 130 |
| GS f | Selecting the font of HRI characters | S·P | | 131 |
| GS h | Specifying the height of the bar code | S·P | | 132 |
| GS k | Printing the bar code | S·P | | 133 |
| GS w | Specifying the horizontal size (magnification) of bar code | S·P | | 138 |

Commands for Non-volatile Memory

| Command | Function | MODE | GS P | Page |
|----------------------|-------------------------------------|------|------|------|
| FS p | Printing the download NV bit images | S | | 155 |
| FS q | Defining the download NV bit image | S | | 156 |

Kanji Control Commands

| Command | Function | MODE | GS P | Page |
|--------------------------|---|------|------|------|
| FS ! | Collectively setting Kanji print mode | S·P | | 158 |
| FS & | Setting Kanji mode | S·P | | 159 |
| FS - | Setting/Canceling Kanji underline | S·P | | 160 |
| FS . | Canceling Kanji mode | S·P | | 161 |
| FS 2 | Defining external character | S·P | | 162 |
| FS C | Selecting Kanji code system | S·P | | 164 |
| FS S | Setting Kanji space amount | S·P | ○ | 166 |
| FS W | Setting/Canceling four times enlargement of Kanji | S·P | | 167 |
| FS (A | Setting font attribute of Kanji | S·P | | 168 |

Printer Function Setting Commands

| Command | Function | MODE | GS P | Page |
|------------------------|----------------------------------|------|------|------|
| GS (E | Printer function setting command | S | | 180 |
| GS (K | Selecting print control method | S | | 271 |
| GS (M | Customizing the printer | S | | 275 |

Other Commands

| Command | Function | MODE | GS P | Page |
|-------------------------|--|------|------|------|
| DLE ENQ | Real-time request to printer | S·P | | 290 |
| DLE DC4 | Buffer clear | S·P | | 292 |
| ESC = | Data input control | S·P | | 293 |
| ESC @ | Initializing the printer | S·P | | 294 |
| ESC L | Selecting PAGE MODE | S | | 295 |
| ESC S | Selecting STANDARD MODE | P | | 296 |
| GS (A | Execution of test printing | S | | 298 |
| GS I | Sending the printer ID | S·P | | 299 |
| GS P | Specifying the basic calculation pitch | S·P | | 309 |

In the Mode column: S = STANDARD MODE, P = PAGE MODE
 O = shows the command affected by GS P.

2.1.9 PMU2XXX

Print Control Commands

| Command | Function | MODE | GS P | Page |
|------------------------|--|------|------|------|
| LF | Printing and paper feed | S·P | | 46 |
| CR | Back to printing | S·P | | 47 |
| FF | (1)Printing in PAGE MODE and returning to STANDARD MODE (at the selection of PAGE MODE) (2)Printing of Black mark/Label paper and feeding paper to the top of the print position (with Black mark/Label paper selected) | P | | 48 |
| ESC_FF | Printing data in PAGE MODE | P | | 49 |
| ESC_J | Printing and feeding paper in minimum pitch | S·P | ○ | 50 |
| ESC_d | Printing and feeding the paper by "n" lines | S·P | | 51 |

Print Character Commands

| Command | Function | MODE | GS P | Page |
|---------------------------|--|------|------|------|
| CAN | Canceling print data in PAGE MODE | P | | 52 |
| ESC_SP | Setting the right spacing of the character | S·P | ○ | 53 |
| ESC_! | Collectively specifying the printing mode | S·P | | 54 |
| ESC_% | Specifying/Canceling download character set | S·P | | 56 |
| ESC_& | Defining the download characters | S·P | | 57 |
| ESC_- | Specifying/canceling underline | S·P | | 59 |
| ESC_? | Deleting download characters | S·P | | 60 |
| ESC_E | Specifying/canceling emphasis printing | S·P | | 61 |
| ESC_G | Specifying/canceling double strike printing | S·P | | 62 |
| ESC_M | Selection of character fonts | S·P | | 63 |
| ESC_R | Selecting the international character set | S·P | | 64 |
| ESC_V | Specifying/canceling 90°-right-turned characters | S | | 65 |
| ESC_t | Selecting the character code table | S·P | | 66 |
| ESC_{ | Specifying/canceling the inverted characters | S | | 67 |
| GS_! | Specifying the character size | S·P | | 73 |
| GS_B | Specifying/canceling the black/white inverted printing | S·P | | 75 |
| GS_b | Specifying/canceling the smoothing | S·P | | 76 |

Print Position Commands

| Command | Function | MODE | GS P | Page |
|------------------------|---|------|------|------|
| HT | Horizontal tab | S·P | | 77 |
| ESC_\$ | Specifying the absolute positions | S·P | ○ | 78 |
| ESC_D | Setting horizontal tab position | S·P | | 79 |
| ESC_I | Selecting the character printing direction in PAGE MODE | P | | 80 |
| ESC_W | Defining the print area in PAGE MODE | P | ○ | 81 |
| ESC_\ | Specifying the relative position | S·P | ○ | 83 |
| ESC_a | Aligning the characters | S | | 84 |
| GS_\$ | Specifying the absolute vertical position of characters in PAGE MODE | P | ○ | 85 |
| GS_L | Setting the left margin | S | ○ | 86 |
| GS_W | Setting the print area width | S·P | ○ | 87 |
| GS_\ | Specifying the relative vertical position of a character in PAGE MODE | S·P | ○ | 89 |

Line Feed Span Commands

| Command | Function | MODE | GS P | Page |
|-----------------------|---|------|------|------|
| ESC 2 | Specifying initial line feed rate | S·P | | 90 |
| ESC 3 | Setting line feed rate of minimum pitch | S·P | ○ | 91 |

Bit Image Commands

| Command | Function | MODE | GS P | Page |
|------------------------|-----------------------------------|------|------|------|
| ESC * | Specifying the bit image mode | S·P | | 92 |
| GS * | Defining the download bit image | S·P | | 93 |
| GS / | Printing the downloaded bit image | S·P | | 94 |
| GS v 0 | Printing of raster bit image | S | | 95 |

Status Commands

| Command | Function | MODE | GS P | Page |
|-------------------------|--|------|------|------|
| DLE EOT | Sending status in real-time | S·P | | 97 |
| ESC v | Sending Printer status | S·P | | 115 |
| GS a | Enabling/disabling ASB (Automatic Status Back) | S·P | | 116 |
| GS r | Sending status | S·P | | 120 |

Paper Detecting Commands

| Command | Function | MODE | GS P | Page |
|-------------------------|--|------|------|------|
| ESC c 3 | Selecting the Paper Sensor valid for Paper-end signal output | S·P | | 122 |
| ESC c 4 | Selecting the Paper Near-end Sensor valid for print stop | S·P | | 123 |

Panel Switch Commands

| Command | Function | MODE | GS P | Page |
|-------------------------|---------------------------------------|------|------|------|
| ESC c 5 | Enabling/disabling the panel switches | S·P | | 124 |

Macro Commands

| Command | Function | MODE | GS P | Page |
|----------------------|----------------------------------|------|------|------|
| GS : | Starting/ending macro definition | S·P | | 125 |
| GS ^ | Executing the macro | S·P | | 126 |

Cutter Commands

| Command | Function | MODE | GS P | Page |
|-----------------------|-------------------|------|------|------|
| ESC i | Full cut | S·P | | 127 |
| ESC m | Partial cut | S·P | | 128 |
| GS V | Cutting the paper | S·P | ○ | 129 |

Bar Code Commands

| Command | Function | MODE | GS P | Page |
|----------------------|--|------|------|------|
| GS H | Selecting of printing position of HRI characters | S·P | | 130 |
| GS f | Selecting the font of HRI characters | S·P | | 131 |
| GS h | Specifying the height of the bar code | S·P | | 132 |
| GS k | Printing the bar code | S·P | | 133 |
| GS w | Specifying the horizontal size (magnification) of bar code | S·P | | 138 |

Commands for Non-volatile Memory

| Command | Function | MODE | GS P | Page |
|----------------------|-------------------------------------|------|------|------|
| FS p | Printing the download NV bit images | S | | 155 |
| FS q | Defining the download NV bit image | S | | 156 |

Kanji Control Commands

| Command | Function | MODE | GS P | Page |
|--------------------------|---|------|------|------|
| FS ! | Collectively setting Kanji print mode | S·P | | 158 |
| FS & | Setting Kanji mode | S·P | | 159 |
| FS - | Setting/Canceling Kanji underline | S·P | | 160 |
| FS . | Canceling Kanji mode | S·P | | 161 |
| FS 2 | Defining external character | S·P | | 162 |
| FS C | Selecting Kanji code system | S·P | | 164 |
| FS S | Setting Kanji space amount | S·P | ○ | 166 |
| FS W | Setting/Canceling four times enlargement of Kanji | S·P | | 167 |
| FS (A | Setting font attribute of Kanji | S·P | | 168 |

Black Mark Control Commands

| Command | Function | MODE | GS P | Page |
|-----------------------|--|------|------|------|
| GS FF | Printing and ejecting Black mark/Label paper | S·P | | 169 |

Printer Function Setting Commands

| Command | Function | MODE | GS P | Page |
|------------------------|----------------------------------|------|------|------|
| GS (E | Printer function setting command | S | | 180 |
| GS (K | Selecting print control method | S | | 271 |
| GS (M | Customizing the printer | S | | 275 |

Other Commands

| Command | Function | MODE | GS P | Page |
|-------------------------|--|------|------|------|
| DLE ENQ | Real-time request to printer | S·P | | 290 |
| DLE DC4 | Buffer clear | S·P | | 292 |
| ESC = | Data input control | S·P | | 293 |
| ESC @ | Initializing the printer | S·P | | 294 |
| ESC L | Selecting PAGE MODE | S | | 295 |
| ESC S | Selecting STANDARD MODE | P | | 296 |
| GS (A | Execution of test printing | S | | 298 |
| GS I | Sending the printer ID | S·P | | 299 |
| GS P | Specifying the basic calculation pitch | S·P | | 309 |

In the Mode column: S = STANDARD MODE, P = PAGE MODE
 ○ = shows the command affected by GS P.

2.1.10 PMU2XXXII

Print Control Commands

| Command | Function | MODE | GS P | Page |
|------------------------|--|------|------|------|
| LF | Printing and paper feed | S·P | | 46 |
| CR | Back to printing | S·P | | 47 |
| FF | (1)Printing in PAGE MODE and returning to STANDARD MODE (at the selection of PAGE MODE) (2)Printing of Black mark/Label paper and feeding paper to the top of the print position (with Black mark/Label paper selected) | P | | 48 |
| ESC_FF | Printing data in PAGE MODE | P | | 49 |
| ESC_J | Printing and feeding paper in minimum pitch | S·P | ○ | 50 |
| ESC_d | Printing and feeding the paper by "n" lines | S·P | | 51 |

Print Character Commands

| Command | Function | MODE | GS P | Page |
|---------------------------|--|------|------|------|
| CAN | Canceling print data in PAGE MODE | P | | 52 |
| ESC_SP | Setting the right spacing of the character | S·P | ○ | 53 |
| ESC_! | Collectively specifying the printing mode | S·P | | 54 |
| ESC_% | Specifying/Canceling download character set | S·P | | 56 |
| ESC_& | Defining the download characters | S·P | | 57 |
| ESC_- | Specifying/canceling underline | S·P | | 59 |
| ESC_? | Deleting download characters | S·P | | 60 |
| ESC_E | Specifying/canceling emphasis printing | S·P | | 61 |
| ESC_G | Specifying/canceling double strike printing | S·P | | 62 |
| ESC_M | Selection of character fonts | S·P | | 63 |
| ESC_R | Selecting the international character set | S·P | | 64 |
| ESC_V | Specifying/canceling 90°-right-turned characters | S | | 65 |
| ESC_t | Selecting the character code table | S·P | | 66 |
| ESC_{ | Specifying/canceling the inverted characters | S | | 67 |
| GS_! | Specifying the character size | S·P | | 73 |
| GS_B | Specifying/canceling the black/white inverted printing | S·P | | 75 |
| GS_b | Specifying/canceling the smoothing | S·P | | 76 |

Print Position Commands

| Command | Function | MODE | GS P | Page |
|------------------------|---|------|------|------|
| HT | Horizontal tab | S·P | | 77 |
| ESC_\$ | Specifying the absolute positions | S·P | ○ | 78 |
| ESC_D | Setting horizontal tab position | S·P | | 79 |
| ESC_I | Selecting the character printing direction in PAGE MODE | P | | 80 |
| ESC_W | Defining the print area in PAGE MODE | P | ○ | 81 |
| ESC_\ | Specifying the relative position | S·P | ○ | 83 |
| ESC_a | Aligning the characters | S | | 84 |
| GS_\$ | Specifying the absolute vertical position of characters in PAGE MODE | P | ○ | 85 |
| GS_L | Setting the left margin | S | ○ | 86 |
| GS_W | Setting the print area width | S·P | ○ | 87 |
| GS_\ | Specifying the relative vertical position of a character in PAGE MODE | S·P | ○ | 89 |

Line Feed Span Commands

| Command | Function | MODE | GS P | Page |
|-----------------------|---|------|------|------|
| ESC 2 | Specifying initial line feed rate | S·P | | 90 |
| ESC 3 | Setting line feed rate of minimum pitch | S·P | ○ | 91 |

Bit Image Commands

| Command | Function | MODE | GS P | Page |
|------------------------|-----------------------------------|------|------|------|
| ESC * | Specifying the bit image mode | S·P | | 92 |
| GS * | Defining the download bit image | S·P | | 93 |
| GS / | Printing the downloaded bit image | S·P | | 94 |
| GS v 0 | Printing of raster bit image | S | | 95 |

Status Commands

| Command | Function | MODE | GS P | Page |
|-------------------------|--|------|------|------|
| DLE EOT | Sending status in real-time | S·P | | 97 |
| ESC v | Sending Printer status | S·P | | 115 |
| GS a | Enabling/disabling ASB (Automatic Status Back) | S·P | | 116 |
| GS r | Sending status | S·P | | 120 |

Paper Detecting Commands

| Command | Function | MODE | GS P | Page |
|-------------------------|--|------|------|------|
| ESC c 3 | Selecting the Paper Sensor valid for Paper-end signal output | S·P | | 122 |
| ESC c 4 | Selecting the Paper Near-end Sensor valid for print stop | S·P | | 123 |

Panel Switch Commands

| Command | Function | MODE | GS P | Page |
|-------------------------|---------------------------------------|------|------|------|
| ESC c 5 | Enabling/disabling the panel switches | S·P | | 124 |

Macro Commands

| Command | Function | MODE | GS P | Page |
|----------------------|----------------------------------|------|------|------|
| GS : | Starting/ending macro definition | S·P | | 125 |
| GS ^ | Executing the macro | S·P | | 126 |

Cutter Commands

| Command | Function | MODE | GS P | Page |
|-----------------------|-------------------|------|------|------|
| ESC i | Full cut | S·P | | 127 |
| ESC m | Partial cut | S·P | | 128 |
| GS V | Cutting the paper | S·P | ○ | 129 |

Bar Code Commands

| Command | Function | MODE | GS P | Page |
|----------------------|--|------|------|------|
| GS H | Selecting of printing position of HRI characters | S·P | | 130 |
| GS f | Selecting the font of HRI characters | S·P | | 131 |
| GS h | Specifying the height of the bar code | S·P | | 132 |
| GS k | Printing the bar code | S·P | | 133 |
| GS w | Specifying the horizontal size (magnification) of bar code | S·P | | 138 |

Commands for Non-volatile Memory

| Command | Function | MODE | GS P | Page |
|----------------------|-------------------------------------|------|------|------|
| FS p | Printing the download NV bit images | S | | 155 |
| FS q | Defining the download NV bit image | S | | 156 |

Kanji Control Commands

| Command | Function | MODE | GS P | Page |
|--------------------------|---|------|------|------|
| FS ! | Collectively setting Kanji print mode | S·P | | 158 |
| FS & | Setting Kanji mode | S·P | | 159 |
| FS - | Setting/Canceling Kanji underline | S·P | | 160 |
| FS . | Canceling Kanji mode | S·P | | 161 |
| FS 2 | Defining external character | S·P | | 162 |
| FS C | Selecting Kanji code system | S·P | | 164 |
| FS S | Setting Kanji space amount | S·P | ○ | 166 |
| FS W | Setting/Canceling four times enlargement of Kanji | S·P | | 167 |
| FS (A | Setting font attribute of Kanji | S·P | | 168 |

Black Mark Control Commands

| Command | Function | MODE | GS P | Page |
|-----------------------|--|------|------|------|
| GS FF | Printing and ejecting Black mark/Label paper | S·P | | 169 |

Printer Function Setting Commands

| Command | Function | MODE | GS P | Page |
|------------------------|---|------|------|------|
| GS (D | Enabling or disabling real-time command | S | | 179 |
| GS (E | Printer function setting command | S | | 180 |
| GS (K | Selecting print control method | S | | 271 |
| GS (M | Customizing the printer | S | | 275 |
| GS (N | Designating font attribute | S | | 278 |

2-dimensional Code Commands

| Command | Function | MODE | GS P | Page |
|------------------------|---|------|------|------|
| GS (k | Setting and printing 2-dimensional code | S·P | | 279 |

Other Commands

| Command | Function | MODE | GS P | Page |
|-------------------------|--|------|------|------|
| DLE ENQ | Real-time request to printer | S·P | | 290 |
| DLE DC4 | Buffer clear | S·P | | 292 |
| ESC ≡ | Data input control | S·P | | 293 |
| ESC @ | Initializing the printer | S·P | | 294 |
| ESC L | Selecting PAGE MODE | S | | 295 |
| ESC S | Selecting STANDARD MODE | P | | 296 |
| GS (A | Execution of test printing | S | | 298 |
| GS I | Sending the printer ID | S·P | | 299 |
| GS P | Specifying the basic calculation pitch | S·P | | 309 |

In the Mode column: S = STANDARD MODE, P = PAGE MODE
 ○ = shows the command affected by GS P.

2.1.11 CT-P292/293

Print Control Commands

| Command | Function | MODE | GS P | Page |
|------------------------|--|------|------|------|
| LF | Printing and paper feed | S·P | | 46 |
| CR | Back to printing | S·P | | 47 |
| FF | (1)Printing in PAGE MODE and returning to STANDARD MODE (at the selection of PAGE MODE) (2)Printing of Black mark/Label paper and feeding paper to the top of the print position (with Black mark/Label paper selected) | P | | 48 |
| ESC_FF | Printing data in PAGE MODE | P | | 49 |
| ESC_J | Printing and feeding paper in minimum pitch | S·P | ○ | 50 |
| ESC_d | Printing and feeding the paper by "n" lines | S·P | | 51 |

Print Character Commands

| Command | Function | MODE | GS P | Page |
|---------------------------|--|------|------|------|
| CAN | Canceling print data in PAGE MODE | P | | 52 |
| ESC_SP | Setting the right spacing of the character | S·P | ○ | 53 |
| ESC_! | Collectively specifying the printing mode | S·P | | 54 |
| ESC_% | Specifying/Canceling download character set | S·P | | 56 |
| ESC_& | Defining the download characters | S·P | | 57 |
| ESC_- | Specifying/canceling underline | S·P | | 59 |
| ESC_? | Deleting download characters | S·P | | 60 |
| ESC_E | Specifying/canceling emphasis printing | S·P | | 61 |
| ESC_G | Specifying/canceling double strike printing | S·P | | 62 |
| ESC_M | Selection of character fonts | S·P | | 63 |
| ESC_R | Selecting the international character set | S·P | | 64 |
| ESC_V | Specifying/canceling 90°-right-turned characters | S | | 65 |
| ESC_t | Selecting the character code table | S·P | | 66 |
| ESC_{ | Specifying/canceling the inverted characters | S | | 67 |
| GS_! | Specifying the character size | S·P | | 73 |
| GS_B | Specifying/canceling the black/white inverted printing | S·P | | 75 |
| GS_b | Specifying/canceling the smoothing | S·P | | 76 |

Print Position Commands

| Command | Function | MODE | GS P | Page |
|------------------------|---|------|------|------|
| HT | Horizontal tab | S·P | | 77 |
| ESC_\$ | Specifying the absolute positions | S·P | ○ | 78 |
| ESC_D | Setting horizontal tab position | S·P | | 79 |
| ESC_I | Selecting the character printing direction in PAGE MODE | P | | 80 |
| ESC_W | Defining the print area in PAGE MODE | P | ○ | 81 |
| ESC_\ | Specifying the relative position | S·P | ○ | 83 |
| ESC_a | Aligning the characters | S | | 84 |
| GS_\$ | Specifying the absolute vertical position of characters in PAGE MODE | P | ○ | 85 |
| GS_L | Setting the left margin | S | ○ | 86 |
| GS_W | Setting the print area width | S·P | ○ | 87 |
| GS_\ | Specifying the relative vertical position of a character in PAGE MODE | S·P | ○ | 89 |

Line Feed Span Commands

| Command | Function | MODE | GS P | Page |
|-----------------------|---|------|------|------|
| ESC 2 | Specifying initial line feed rate | S·P | | 90 |
| ESC 3 | Setting line feed rate of minimum pitch | S·P | ○ | 91 |

Bit Image Commands

| Command | Function | MODE | GS P | Page |
|------------------------|-----------------------------------|------|------|------|
| ESC * | Specifying the bit image mode | S·P | | 92 |
| GS * | Defining the download bit image | S·P | | 93 |
| GS / | Printing the downloaded bit image | S·P | | 94 |
| GS v 0 | Printing of raster bit image | S | | 95 |

Status Commands

| Command | Function | MODE | GS P | Page |
|-------------------------|--|------|------|------|
| DLE EOT | Sending status in real-time | S·P | | 97 |
| ESC v | Sending Printer status | S·P | | 115 |
| GS a | Enabling/disabling ASB (Automatic Status Back) | S·P | | 116 |
| GS r | Sending status | S·P | | 120 |

Paper Detecting Commands

| Command | Function | MODE | GS P | Page |
|-------------------------|--|------|------|------|
| ESC c 3 | Selecting the Paper Sensor valid for Paper-end signal output | S·P | | 122 |
| ESC c 4 | Selecting the Paper Near-end Sensor valid for print stop | S·P | | 123 |

Panel Switch Commands

| Command | Function | MODE | GS P | Page |
|-------------------------|---------------------------------------|------|------|------|
| ESC c 5 | Enabling/disabling the panel switches | S·P | | 124 |

Macro Commands

| Command | Function | MODE | GS P | Page |
|----------------------|----------------------------------|------|------|------|
| GS : | Starting/ending macro definition | S·P | | 125 |
| GS ^ | Executing the macro | S·P | | 126 |

Cutter Commands

| Command | Function | MODE | GS P | Page |
|-----------------------|-------------------|------|------|------|
| ESC i | Full cut | S·P | | 127 |
| ESC m | Partial cut | S·P | | 128 |
| GS V | Cutting the paper | S·P | ○ | 129 |

Bar Code Commands

| Command | Function | MODE | GS P | Page |
|----------------------|--|------|------|------|
| GS H | Selecting of printing position of HRI characters | S·P | | 130 |
| GS f | Selecting the font of HRI characters | S·P | | 131 |
| GS h | Specifying the height of the bar code | S·P | | 132 |
| GS k | Printing the bar code | S·P | | 133 |
| GS w | Specifying the horizontal size (magnification) of bar code | S·P | | 138 |

Commands for Non-volatile Memory

| Command | Function | MODE | GS P | Page |
|----------------------|-------------------------------------|------|------|------|
| FS p | Printing the download NV bit images | S | | 155 |
| FS q | Defining the download NV bit image | S | | 156 |

Kanji Control Commands

| Command | Function | MODE | GS P | Page |
|--------------------------|---|------|------|------|
| FS ! | Collectively setting Kanji print mode | S·P | | 158 |
| FS & | Setting Kanji mode | S·P | | 159 |
| FS - | Setting/Canceling Kanji underline | S·P | | 160 |
| FS . | Canceling Kanji mode | S·P | | 161 |
| FS 2 | Defining external character | S·P | | 162 |
| FS C | Selecting Kanji code system | S·P | | 164 |
| FS S | Setting Kanji space amount | S·P | ○ | 166 |
| FS W | Setting/Canceling four times enlargement of Kanji | S·P | | 167 |
| FS (A | Setting font attribute of Kanji | S·P | | 168 |

Printer Function Setting Commands

| Command | Function | MODE | GS P | Page |
|------------------------|---|------|------|------|
| GS (D | Enabling or disabling real-time command | S | | 179 |
| GS (E | Printer function setting command | S | | 180 |
| GS (K | Selecting print control method | S | | 271 |
| GS (M | Customizing the printer | S | | 275 |
| GS (N | Designating font attribute | S | | 278 |

2-dimensional Code Commands

| Command | Function | MODE | GS P | Page |
|------------------------|---|------|------|------|
| GS (k | Setting and printing 2-dimensional code | S·P | | 279 |

Other Commands

| Command | Function | MODE | GS P | Page |
|-------------------------|--|------|------|------|
| DLE ENQ | Real-time request to printer | S·P | | 290 |
| DLE DC4 | Buffer clear | S·P | | 292 |
| ESC = | Data input control | S·P | | 293 |
| ESC @ | Initializing the printer | S·P | | 294 |
| ESC L | Selecting PAGE MODE | S | | 295 |
| ESC S | Selecting STANDARD MODE | P | | 296 |
| GS (A | Execution of test printing | S | | 298 |
| GS I | Sending the printer ID | S·P | | 299 |
| GS P | Specifying the basic calculation pitch | S·P | | 309 |

In the Mode column: S = STANDARD MODE, P = PAGE MODE
 ○ = shows the command affected by GS P.

2.2 Command Details

2.2.1 Description of Items

XXXX

| | | | | | |
|---------------|--|--|--|--|--|
| support model | | | | | |
|---------------|--|--|--|--|--|

[Function] The name of a command.

[Code] The string of codes comprising the command is represented by <>H for hexadecimal numbers, <>B for binary numbers, and <> for decimal numbers, [] k denotes the number of repetition of "k" times.

[Range] Indicates the values (setting range) of arguments of the command.

Note: If values outside the defined domain specified with control codes are used, malfunctions could possibly occur, so be sure to use the values within the defined domain.

*The defined domain may differ depending on the model or printer setting.

[Outline] **[The specification which is common to the model]**

Indicates command functions common to relevant models.

[The specification which depend on the model]

Indicates the command function dependent on the model.

[Caution] Describes important points and cautionary notes, as required.

[Default] Initial values for the command if it has arguments.

[See Also] Describes commands related to the command when it is used.

[Sample Program]

Describes examples of coding on Quick-Basic.

* Examples are only for reference. They may vary depending on language and version. For details, please refer to a manual in your language.

[Print Results]

Describes the print results obtained by executing the above programs. However, the print results shown are different in scale from actual print results

2.2.2 Print Control Commands

LF

| | | | | | | |
|---------------|---------|---------|-------------|-------------|-------------|-----------|
| Support model | CT-S280 | CT-S300 | CT-S2000 | CT-S4000 | BD2-2220 | PMU2XXX |
| | CT-S281 | CT-S310 | CT-S801/851 | CT-S601/651 | CT-P292/293 | PMU2XXXII |

[Function] Printing and paper feed

[Code] <0A>H

[Outline] **[The specification which is common to the model]**
 • Prints data inside the print buffer and feeds paper based on the line feed amount having been set.

[Caution] **[The specification which is common to the model]**
 • After this command is executed, the beginning of the line is taken as the start position for the next point.

[See Also] [ESC 2](#)、[ESC 3](#)

[Sample Program]

```
LPRINT "AAA"; CHR$(&HA);
LPRINT "BBB"; CHR$(&HA); CHR$(&HA);
LPRINT "CCC"; CHR$(&HA);
```

[Print Results]

```
AAA ←—— Print and line feed
BBB ←—— Print and line feed
      ←—— Line feed only
CCC ←—— Print and line feed
```

CR

| | | | | | | |
|---------------|---------|---------|-------------|-------------|-------------|-----------|
| Support model | CT-S280 | CT-S300 | CT-S2000 | CT-S4000 | BD2-2220 | PMU2XXX |
| | CT-S281 | CT-S310 | CT-S801/851 | CT-S601/651 | CT-P292/293 | PMU2XXXII |

[Function] Back to printing

[Code] <0D>H

[Outline] **[The specification which is common to the model]**

(1) MSW* 1-5 OFF:

This command is ignored.

(2) MSW 1-5 ON:

The same operation as LF is executed.

* Memory switch

[See Also] [LF](#)

[Sample Program]

```
LPRINT "AAA"; CHR$(&HD);  
LPRINT "BBB"; CHR$(&HD);  
LPRINT CHR$(&HD);  
LPRINT "CCC"; CHR$(&HD);
```

[Print Results]

In case of (2)

```
AAA ← Print and line feed  
BBB ← Print and line feed  
← Line feed only  
CCC ← Print and line feed
```


FF (At selection of PAGE MODE)

| | | | | | | |
|---------------|---------|---------|-------------|-------------|-------------|-----------|
| Support model | CT-S280 | CT-S300 | CT-S2000 | CT-S4000 | BD2-2220 | PMU2XXX |
| | CT-S281 | CT-S310 | CT-S801/851 | CT-S601/651 | CT-P292/293 | PMU2XXXII |

[Function] Printing in PAGE MODE and returning to STANDARD MODE (at the selection of PAGE MODE)

[Code] <0>H

[Outline] **[The specification which is common to the model]**

- Executes a batch printout of the data mapped in the entire print area, and then returns to STANDARD MODE.

[Caution] **[The specification which is common to the model]**

- All mapped data is erased after printout.
- The print area set up by ESC W is initialized.
- This command does not execute a paper cut.
- After this command is executed, the beginning of the line is taken as the start position for the next print.
- This command is only effective when the PAGE MODE is selected.

CT-S4000

- When selecting BM paper or label paper to specify the PAGE MODE, data extended to all printing area is printed in batch. After returning to the STANDARD MODE, setting the start position of next label is carried out.

[See Also] Appendix 5.1.4 "Example of Using PAGE MODE"

[ESC FF](#), [ESCL](#), [ESCS](#)

FF (valid only for Black mark/Label specification)

| | | | | | | |
|---------------|---------|---------|-------------|-------------|-------------|-----------|
| Support model | CT-S280 | CT-S300 | CT-S2000 | CT-S4000 | BD2-2220 | PMU2XXX |
| | CT-S281 | CT-S310 | CT-S801/851 | CT-S601/651 | CT-P292/293 | PMU2XXXII |

[Function] At selection of Black mark/Label paper (valid only for Black mark/Label specification)

[Outline] **[The specification which is common to the model]**

- This command prints the data in the printer buffer and searches for the head of the next Black mark/Label (Black mark position/Top of label)

[Caution] **[The specification which is common to the model]**

- This command does not execute a paper cut.
- After this command is executed, the beginning of the line is taken as the start position for the next print.
- Valid only for label- or BM-supported model.
(Please confirm specifications for the details.)

[See Also] [GS FF](#)

ESC FF

| | | | | | | |
|---------------|---------|---------|-------------|-------------|-------------|-----------|
| Support model | CT-S280 | CT-S300 | CT-S2000 | CT-S4000 | BD2-2220 | PMU2XXX |
| | CT-S281 | CT-S310 | CT-S801/851 | CT-S601/651 | CT-P292/293 | PMU2XXXII |

[Function] Printing data in PAGE MODE

[Code] <1B>H<0C>H

[Outline] **[The specification which is common to the model]**
• Executes a batch printout of the data mapped in the entire print area in PAGE MODE.

[Caution] **[The specification which is common to the model]**
• This command is only effective when PAGE MODE is selected.
• Mapped data, as well as the ESC T and ESC W settings, and the character mapping position are held even after printing.

[See Also] Appendix 5.1 "Explanation on PAGE MODE"
[FF](#), [ESC L](#), [ESC S](#)

ESC J n

| | | | | | | |
|---------------|---------|---------|-------------|-------------|-------------|-----------|
| Support model | CT-S280 | CT-S300 | CT-S2000 | CT-S4000 | BD2-2220 | PMU2XXX |
| | CT-S281 | CT-S310 | CT-S801/851 | CT-S601/651 | CT-P292/293 | PMU2XXXII |

[Function] Printing and feeding paper in minimum pitch

[Code] <1B>H<4A>H<n>

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

[Outline] **[The specification which is common to the model]**

- Prints the data held in the print buffer and feeds paper by [$n \times$ basic calculation pitch] inches.

[Caution] **[The specification which is common to the model]**

- After this command is executed, the beginning of the line is taken as the start position for the next print.
- The line feed width can be set separately for the STANDARD and PAGE MODES.
- This command does not affect the line feed width defined by ESC 2 or ESC 3.
- The basic calculation pitch is set by GS P.
- Fractions resulting from calculation are corrected with the minimum pitch of the mechanism, and the remainder is omitted.
- In STANDARD MODE, this command uses the vertical (paper feed direction) basic calculation pitch (y).
- In PAGE MODE, this command acts differently depending on the start point:
 - (1) If the start point specified by ESC T is top left or bottom right, the command uses the vertical (Paper feed direction) basic calculation pitch (y).
 - (2) If the start point specified by ESC T is top right or bottom left, the command uses the horizontal (Perpendicular to the paper feed direction) basic calculation pitch (x).
- The maximum settable line feed width is 1016 mm (40 inches). A setting greater than this maximum is trimmed to the maximum.

[Default] The initial value is not defined.

ESC d n

| | | | | | | |
|---------------|---------|---------|-------------|-------------|-------------|-----------|
| Support model | CT-S280 | CT-S300 | CT-S2000 | CT-S4000 | BD2-2220 | PMU2XXX |
| | CT-S281 | CT-S310 | CT-S801/851 | CT-S601/651 | CT-P292/293 | PMU2XXXII |

[Function] Printing and feeding the paper by "n" lines

[Code] <1B>H<64>H<n>

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

[Outline] **[The specification which is common to the model]**
Prints data in the print buffer and feeds paper by "n" lines. Specified lines do not remain.

[Caution]

- After this command is executed, the beginning of the line is taken as the start position for the next print.
- If [n×line feed width] exceeds approximately 1016 mm, this command feeds paper by approximately 1016 mm (40 inches).

[Default] The initial value is not defined.

[Sample Program]

```
LPRINT "AAAAA";
LPRINT CHR$(&H1B);"d";CHR$(2);
LPRINT "AAAAA";CHR$(&HA);
```

[Print Results]

```
AAAAA
      |
      | 2/6-inch line feed
      |
AAAAA
```

2.2.3 Print Character Commands

CAN

| | | | | | | |
|---------------|---------|---------|-------------|-------------|-------------|-----------|
| Support model | CT-S280 | CT-S300 | CT-S2000 | CT-S4000 | BD2-2220 | PMU2XXX |
| | CT-S281 | CT-S310 | CT-S801/851 | CT-S601/651 | CT-P292/293 | PMU2XXXII |

[Function] Canceling print data in PAGE MODE

[Code] <18>H

[Outline] **[The specification which is common to the model]**
Erases all data contained in the currently effective print area in PAGE MODE.

[Caution]

- This command is only effective when PAGE MODE is selected.
- If the previously established print area overlaps the currently effective print area, the overlapped data in the previously established area will be erased.

[See Also] Appendix 5.1 "Explanation on PAGE MODE"
[ESC L](#), [ESC W](#)

ESC SP n

| | | | | | | |
|---------------|---------|---------|-------------|-------------|-------------|-----------|
| Support model | CT-S280 | CT-S300 | CT-S2000 | CT-S4000 | BD2-2220 | PMU2XXX |
| | CT-S281 | CT-S310 | CT-S801/851 | CT-S601/651 | CT-P292/293 | PMU2XXXII |

[Function] Setting the right spacing of the character

[Code] <1B>H<20>H<n>

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

[Outline] **[The specification which is common to the model]**
 • Sets the right spacing of character to [n×basic calculation pitch] inches.

[Caution] **[The specification which is common to the model]**

- If the horizontal magnification of character is 2 or more, the right spacing increases with the magnification.
- Does not affect Kanji.
- The right spacing can be set separately for the STANDARD and PAGE MODES.
- The basic calculation pitch is set by GS P. Once defined, the right spacing is not changed if the basic calculation pitch is changed by GS P.
- Fractions resulting from calculation are corrected with the minimum pitch of the mechanism, and the remainder is omitted.
- In STANDARD MODE, this command uses the horizontal basic calculation pitch (x).
- In PAGE MODE, the basic calculation pitch used by this command depends on the start point:
 - (1) If the start point specified by ESC T is top left or bottom right, the command uses the horizontal basic calculation pitch (x).
 - (2) If the start point specified by ESC T is top right or bottom left, the command uses the vertical basic calculation pitch (y).
- The maximum right spacing is capable of approximately 31.906 mm (255/203 inches). A setting greater than this maximum is trimmed to the maximum.

[Default] n=0

[The specification which depend on the model]

CT-S801/CT-S851/CT-S601/CT-S651

MSW6-2 ON : n=0

MSW6-2 OFF: n=1

[See Also] [GS P](#)

[Sample Program]

```
LPRINT CHR$(&H1B);" "; CHR$(0);
LPRINT "AAAAA"; CHR$(&HA);
LPRINT CHR$(&H1B);" "; CHR$(1);
LPRINT "AAAAA"; CHR$(&HA);
LPRINT CHR$(&H1B);" "; CHR$(12);
LPRINT "AAAAA"; CHR$(&HA);
```

[Print Results]

```
A A A A A ← 0-dot space
A A A A A ← 1-dot space
A A A A A ← 12-dots space
```

ESC ! n

| | | | | | | |
|---------------|---------|---------|-------------|-------------|-------------|-----------|
| Support model | CT-S280 | CT-S300 | CT-S2000 | CT-S4000 | BD2-2220 | PMU2XXX |
| | CT-S281 | CT-S310 | CT-S801/851 | CT-S601/651 | CT-P292/293 | PMU2XXXII |

[Function] Collectively specifying the printing mode

[Code] <1B>H<21>H<n>

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

[Outline] **[The specification which is common to the model]**
Printing mode is assigned.

[The specification which depend on the model]
CT-S300/CT-S310/ CT-S801/CT-S851/CT-S601/CT-S651/CT-P292/293

| Bit | Function | Value | |
|-----|----------------|----------------|---------------|
| | | 0 | 1 |
| 0 | Character Font | Font A (12×24) | Font B (9×17) |
| 1 | Undefined | — | — |
| 2 | Undefined | — | — |
| 3 | Emphasis | Canceled | Specified |
| 4 | Double height | Canceled | Specified |
| 5 | Double width | Canceled | Specified |
| 6 | Undefined | — | — |
| 7 | Underline | Canceled | Specified |

CT-S280/CT-S281/CT-S2000/CT-S4000 /BD2-2220/PMU2XXX/PMU2XXXII

| Bit | Function | Value | |
|-----|----------------|----------------|---------------|
| | | 0 | 1 |
| 0 | Character Font | Font A (12×24) | Font B (9×24) |
| 1 | Undefined | — | — |
| 2 | Undefined | — | — |
| 3 | Emphasis | Canceled | Specified |
| 4 | Double height | Canceled | Specified |
| 5 | Double width | Canceled | Specified |
| 6 | Undefined | — | — |
| 7 | Underline | Canceled | Specified |

[Caution]

- With double height and double width being specified simultaneously, quadruple characters are created.
- An underline is attached to the full character width, which, however, is not attached to the part having been skipped by the horizontal tab (HT). Neither is it attached to 90°-right-turned characters.
- The underline width is as specified by the ESC – command. (The default setting is 1 dot width.)
- Setting by this command is invalid for Kanji except setting and canceling of enhanced printing.
- In case characters with different vertical magnification ratios coexist on the same line, they are printed on the same base line.
- ESC E, ESC M, ESC –, and GS ! can individually set or cancel the mode but the command processed last is valid.
- Setting or canceling of enhanced 3rd bit is valid for alphanumeric and kana and kanji. Other print mode is valid only for alphanumeric and kana characters.
- Setting memory SW 3-7 to ON allows the horizontal and vertical relations to be interchanged when 90°-right-turning of character is specified.

[Default] n=0

[See Also] [ESC E](#), [ESC -](#), [GS !](#)

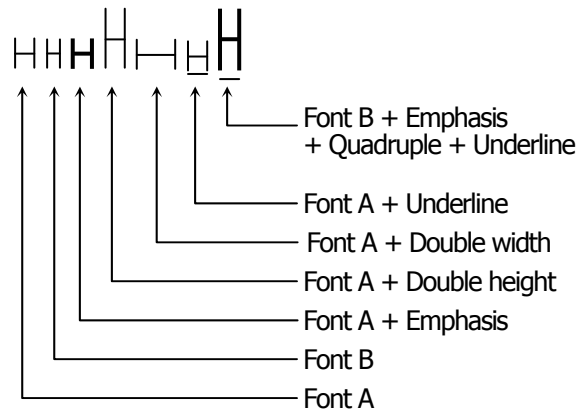
[Sample Program]

```

LPRINT CHR$(&H1B);"!"; CHR$(&H00);"H";
LPRINT CHR$(&H1B);"!"; CHR$(&H01);"H";
LPRINT CHR$(&H1B);"!"; CHR$(&H08);"H";
LPRINT CHR$(&H1B);"!"; CHR$(&H10);"H";
LPRINT CHR$(&H1B);"!"; CHR$(&H20);"H";
LPRINT CHR$(&H1B);"!"; CHR$(&H80);"H";
LPRINT CHR$(&H1B);"!"; CHR$(&HB9);"H";
LPRINT CHR$(&HA);

```

[Print Results]



ESC % n

| | | | | | | |
|---------------|---------|---------|-------------|-------------|-------------|-----------|
| Support model | CT-S280 | CT-S300 | CT-S2000 | CT-S4000 | BD2-2220 | PMU2XXX |
| | CT-S281 | CT-S310 | CT-S801/851 | CT-S601/651 | CT-P292/293 | PMU2XXXII |

[Function] Specifying/canceling download character set

[Code] <1B>H<25>H<n>

[Range] 0 ≤ n ≤ 255

[Outline] **[The specification which is common to the model]**

Specifying/canceling download characters.

- "n" is valid only for the lowest bit (n0).
- Control by the lowest bit (n0) is shown as follows:

| n0 | Function |
|----|-----------------------------------|
| 0 | Canceling download character set |
| 1 | Specifying download character set |

[Default] n=0

[See Also] [ESC &](#)

[Sample Program]

```

GOSUB SETCHR                                DATA 6
LPRINT CHR$(&H1B);"%";CHR$(0);             DATA &HFF,&H80,&H00
LPRINT "@A";CHR$(&HA);                      DATA &H80,&H80,&H00
LPRINT CHR$(&H1B);"%";CHR$(1);             DATA &H80,&H80,&H00
LPRINT "@A";CHR$(&HA);                      DATA &H80,&H80,&H00
END                                           DATA &HFF,&HFF,&HFF
SETCHR:                                       DATA &HFF,&HFF,&HFF
LPRINT CHR$(&H1B);"&";                       DATA 12
LPRINT CHR$(3);"@";"A";                    DATA &HFF,&HFF,&HFF
FOR J=1 TO 2                                  DATA &H80,&H07,&HF9
  READ REP                                    DATA &H80,&HFF,&HF9
  LPRINT CHR$(REP);                          DATA &H87,&HFE,&H01
  FOR I=1 TO REP*3                            DATA &H9F,&H06,&H01
    READ D                                    DATA &HF8,&H06,&H01
    LPRINT CHR$(D);                          DATA &HF8,&H06,&H01
  NEXT I                                      DATA &H9F,&H06,&H01
NEXT J                                        DATA &H87,&HFE,&H01
RETURN                                       DATA &H80,&HFF,&HF9
                                           DATA &H80,&H07,&HF9
                                           DATA &HFF,&HFF,&HFF

```

[Print Results]

@ A ← Internal character set
 A ← Download character

ESC & s n m [a [p] s x a] m-n+1

| | | | | | | |
|---------------|---------|---------|-------------|-------------|-------------|-----------|
| Support model | CT-S280 | CT-S300 | CT-S2000 | CT-S4000 | BD2-2220 | PMU2XXX |
| | CT-S281 | CT-S310 | CT-S801/851 | CT-S601/651 | CT-P292/293 | PMU2XXXII |

[Function] Defining the download characters

[Code] <1B>H<26>H<s>H<n>H<m>H[<a>H<p1>H<p2>···<ps>a]m-n+1

[Range] s=3(Font A, B), s=2(FontC)
 $32 \leq n \leq m \leq 126$
 $0 \leq a \leq 12$ (Font A)
 $0 \leq a \leq 9$ (Font B)
 $0 \leq a \leq 8$ (Font C)
 $0 \leq p1 \cdots ps \times a \leq 255$

[Outline] **[The specification which is common to the model]**

- Defines the font of download characters of alphanumeric characters.
- "s" indicates the number of bytes in vertical direction.
- "n" indicates the start character code and "m" the end character code. To define only one character, set n = m.
- Character codes definable includes 95 ASCII codes in total in the range of 20H to 7EH.
- "a" indicates the number of dots to be defined in horizontal direction.
- "p" is the data to be defined, which indicate a pattern equal to "a" dots in horizontal direction from the left end. The rest of the pattern on the right side is filled with space.
- The number of data to be defined is "s × a".
- Download characters thus defined remain valid until redefinition, execution of ESC @, GS *, FS q, GS (A, deletion by ESC ?, or power OFF is performed.

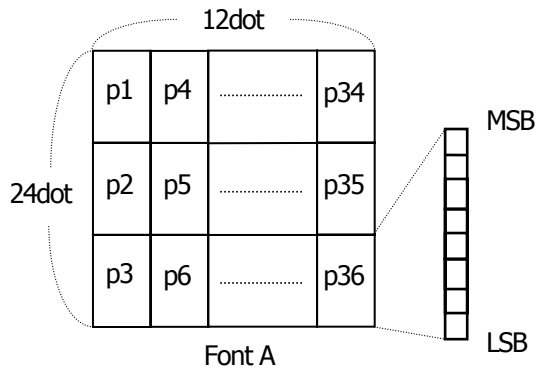
[Caution] **[The specification which depend on the model]**
 CT-S280/CT-S281/CT-S300/CT-S310/BD2-2220/PMU2XXX/PMU2XXXII
 CT-P292/293

- Running this command clears the definition of the download bit image.
 CT-S2000/CT-S4000 /CT-S801/CT-S851/CT-S601/CT-S651
- Running this command doesn't clear the definition of the download bit image.

[Default] Same as the internal character set.

[See Also] [ESC %](#), [ESC ?](#)

[Example]



Create each data bit by setting "1" for a printed dot and "0" for an unprinted dot.

[Sample Program]

[Refer to Sample Program and Print Results for ESC %.](#)

ESC - n

| | | | | | | |
|---------------|---------|---------|-------------|-------------|-------------|-----------|
| Support model | CT-S280 | CT-S300 | CT-S2000 | CT-S4000 | BD2-2220 | PMU2XXX |
| | CT-S281 | CT-S310 | CT-S801/851 | CT-S601/651 | CT-P292/293 | PMU2XXXII |

[Function] Specifying /canceling underline

[Code] <1B>H<2D>H<n>

[Range] $0 \leq n \leq 2$, $48 \leq n \leq 50$

[Outline] **[The specification which is common to the model]**

- Specifying /canceling an underline.

| n | Function |
|------|-------------------------------|
| 0,48 | Canceling underline |
| 1,49 | Setting 1-dot width underline |
| 2,50 | Setting 2-dot width underline |

[Caution] **[The specification which is common to the model]**

- An underline is attached to the full character width. It is, however, not attached to the part having been skipped by horizontal tab (HT) command.
- An underline is not attached to 90°-right-turned characters and white-on-black character.
- Underline can also be specified/canceled by ESC ! but the setting of command last processed is valid.
- Specifying/canceling by this command is not valid for kanji.
- Underline width is constant in the specified thickness regardless of the character size.

[Default] n=0

[See Also] [ESC !](#), [FS -](#)

[Sample Program]

```
LPRINT CHR$(&H1B);"-"; CHR$(0);
LPRINT "AAAAA";
LPRINT CHR$(&H1B);"-"; CHR$(1);
LPRINT "AAAAA"; CHR$(&HA);
```

[Print Results]

Underline canceled
 A A A A A A A A A A
 Underline specified

ESC ? n

| | | | | | | |
|---------------|---------|---------|-------------|-------------|-------------|-----------|
| Support model | CT-S280 | CT-S300 | CT-S2000 | CT-S4000 | BD2-2220 | PMU2XXX |
| | CT-S281 | CT-S310 | CT-S801/851 | CT-S601/651 | CT-P292/293 | PMU2XXXII |

[Function] Deleting download characters

[Code] <1B>H<3F>H<n>

[Range] $32 \leq n \leq 126$

[Outline] **[The specification which is common to the model]**

Deletes the downloaded characters of specified code.

[Caution] **[The specification which is common to the model]**

- The character "n" indicates the character code used to delete the defined pattern. After the deletion, characters are printed in the same pattern as the internal characters.
- This command deletes the code-defined pattern of the character font selected by ESC !.
- This command is ignored if the specified character code is undefined.

[See Also] [ESC &](#), [ESC %](#)

ESC E n

| | | | | | | |
|---------------|---------|---------|-------------|-------------|-------------|-----------|
| Support model | CT-S280 | CT-S300 | CT-S2000 | CT-S4000 | BD2-2220 | PMU2XXX |
| | CT-S281 | CT-S310 | CT-S801/851 | CT-S601/651 | CT-P292/293 | PMU2XXXII |

[Function] Specifying/canceling emphasis printing

[Code] <1B>H<45>H<n>

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

[Outline] **[The specification which is common to the model]**

- Specifying/canceling the emphasized characters.
- "n" is valid only for the lowest bit (n0).
- Control by the lowest bit (n0) is shown as follows:

| n0 | Function |
|----|------------------------------|
| 0 | Canceling emphasis printing |
| 1 | Specifying emphasis printing |

[Caution] **[The specification which is common to the model]**

- Emphasis printing can also be specified/canceled by ESC ! but the setting of command last processed is valid.
- Valid for all character types except HRI characters.

[Default] n=0

[See Also] [ESC !](#)

[Sample Program]

[Print Results]

```
LPRINT CHR$(&H1B);"E"; CHR$(0);
LPRINT "AAABBB"; CHR$(&HA);
LPRINT CHR$(&H1B);"E"; CHR$(1);
LPRINT "AAABBB"; CHR$(&HA);
```

```
AAABBB ← Emphasis canceled
AAABBB ← Emphasis specified
```

ESC G n

| | | | | | | |
|---------------|---------|---------|-------------|-------------|-------------|-----------|
| Support model | CT-S280 | CT-S300 | CT-S2000 | CT-S4000 | BD2-2220 | PMU2XXX |
| | CT-S281 | CT-S310 | CT-S801/851 | CT-S601/651 | CT-P292/293 | PMU2XXXII |

[Function] Specifying/canceling double strike printing

[Code] <1B>H<47>H<n>

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

[Outline] **[The specification which is common to the model]**

- Specifying /canceling the double strike printing.
- "n" is valid only for the lowest bit (n0).
- Control by the lowest bit (n0) is shown as follows:

| n0 | Function |
|----|-----------------------------------|
| 0 | Canceling double strike printing |
| 1 | Specifying double strike printing |

[Caution] **[The specification which is common to the model]**

- With this printer, double-strike printing and emphasis printing provide completely the same results.
- Valid for all character types except HRI characters.

[Default] n=0

[See Also] [ESC E](#)

[Sample Program]

```
LPRINT CHR$(&H1B);"G"; CHR$(0);
LPRINT "AAABBB"; CHR$(&HA);
LPRINT CHR$(&H1B);"G"; CHR$(1);
LPRINT "AAABBB"; CHR$(&HA);
```

[Print Results]

```
AAABBB ← Double strike printing canceled
AAABBB ← Double strike printing specified
```

ESC M n

| | | | | | | |
|---------------|---------|---------|-------------|-------------|-------------|-----------|
| Support model | CT-S280 | CT-S300 | CT-S2000 | CT-S4000 | BD2-2220 | PMU2XXX |
| | CT-S281 | CT-S310 | CT-S801/851 | CT-S601/651 | CT-P292/293 | PMU2XXXII |

[Function] Selection of character fonts

[Code] <1B>H<4D>H<n>

[Range] $0 \leq n \leq 2, 48 \leq n \leq 50$

[Outline] **[The specification which is common to the model]**

- Selects character fonts.

[The specification which depend on the model]

CT-S300/CT-S310/CT-S801/CT-S851/CT-S601/CT-S651/CT-P292/293

| n | Function |
|-------|-------------------------------|
| 0, 48 | Selection of font A (12 × 24) |
| 1, 49 | Selection of font B (9 × 17) |
| 2, 50 | Selection of font C (8 × 16) |

CT-S280/CT-S281/CT-S2000/CT-S4000/BD2-2220/PMU2XXX/PMU2XXXII

| n | Function |
|-------|-------------------------------|
| 0, 48 | Selection of font A (12 × 24) |
| 1, 49 | Selection of font B (9 × 24) |
| 2, 50 | Selection of font C (8 × 16) |

[Caution] • ESC ! can also select fonts, but the setting made by the command that has last been processed becomes valid.

[Default] n=0

[See Also] [ESC!](#)

ESC R n

| | | | | | | |
|---------------|---------|---------|-------------|-------------|-------------|-----------|
| Support model | CT-S280 | CT-S300 | CT-S2000 | CT-S4000 | BD2-2220 | PMU2XXX |
| | CT-S281 | CT-S310 | CT-S801/851 | CT-S601/651 | CT-P292/293 | PMU2XXXII |

[Function] Selecting the international character set

[Code] <1B>H<52>H<n>

[Range] **[The specification which depend on the model]**
 CT-S280/CT-S300/BD2-2220
 $0 \leq n \leq 13$
 CT-S281/CT-S310/CT-S2000/CT-S4000
 CT-S801/CT-S851/CT-S601/CT-S651/PMU2XXX/PMU2XXXII/CT-P292/293
 $0 \leq n \leq 15$

[Outline] **[The specification which is common to the model]**
 • Depending on the value of “n”, one of the following character sets is specified;

| n | Character Set | n | Character Set |
|---|---------------|----|---------------|
| 0 | U.S.A. | 8 | Japan |
| 1 | France | 9 | Norway |
| 2 | Germany | 10 | Denmark II |
| 3 | U.K. | 11 | Spain II |
| 4 | Denmark I | 12 | Latin America |
| 5 | Sweden | 13 | Korea |
| 6 | Italy | 14 | Croatia |
| 7 | Spain I | 15 | China |

[Default] **[The specification which is common to the model]**
 standard specifications:
 n=0 (International), n=8 (Japan)

Hangul specifications:
 n=13

[The specification which depend on the model]
 Chinese specifications:
 CT-S300/CT-S310 (U.S.A)
 n=0
 CT-S310 (Australia)/CT-S2000/CT-S4000/CT-S801/CT-S851
 CT-S601/CT-S651
 n=15

[See Also] [3.2 “International Character Code Table”](#)

ESC V n

| | | | | | | |
|---------------|---------|---------|-------------|-------------|-------------|-----------|
| Support model | CT-S280 | CT-S300 | CT-S2000 | CT-S4000 | BD2-2220 | PMU2XXX |
| | CT-S281 | CT-S310 | CT-S801/851 | CT-S601/651 | CT-P292/293 | PMU2XXXII |

[Function] Specifying/canceling 90°-right-turned characters

[Code] <1B>H<56>H<n>

[Range] $0 \leq n \leq 1$, $48 \leq n \leq 49$

[Outline] **[The specification which is common to the model]**

- Specifying/canceling 90°-right-turned characters.

| n | Function |
|------|--|
| 0,48 | Canceling 90°-right-turned characters |
| 1,49 | Specifying 90°-right-turned characters |

[Caution] **[The specification which is common to the model]**

- No underlines are attached to 90°-right-turned characters.
- This command does not affect PAGE MODE but setting is maintained.

[Default] n=0

[Sample Program]

```
LPRINT CHR$(&H1B);"V"; CHR$(0);
LPRINT "AAAAA";
LPRINT CHR$(&H1B);"V"; CHR$(1);
LPRINT "AAAAA"; CHR$(&HA);
```

[Print Results]

ESC t n

| | | | | | | |
|---------------|---------|---------|-------------|-------------|-------------|-----------|
| Support model | CT-S280 | CT-S300 | CT-S2000 | CT-S4000 | BD2-2220 | PMU2XXX |
| | CT-S281 | CT-S310 | CT-S801/851 | CT-S601/651 | CT-P292/293 | PMU2XXXII |

[Function] Selecting the character code table

[Code] <1B>H<74>H<n>

[Range] $0 \leq n \leq 9$, $16 \leq n \leq 19$, $n=26, 40, 255$

[Outline] **[The specification which is common to the model]**

- Selecting the character code table.
- The character code table is selected based on the value of "n".

| n | Character Code Table | n | Character Code Table |
|------|----------------------|------|-------------------------------|
| 0 | Codepage PC437 | 7,17 | Codepage PC866 |
| 1 | Katakana | 8 | Codepage PC857 |
| 2 | Codepage PC850 | 9,16 | Windows code |
| 3 | Codepage PC860 | 19 | Codepage PC858 |
| 4 | Codepage PC863 | 26 | Thai code 18 |
| 5 | Codepage PC865 | 40 | Codepage PC864 |
| 6,18 | Codepage PC852 | 255 | Space page (For user setting) |

[Default] n=0 (International)
n=1 (Japan)

[Sample Program]

```
LPRINT CHR$(&H1B);"t"; CHR$(0);
LPRINT "n=0 ";
FOR C=&HB1 TO &HB5
  LPRINT CHR$(C);
NEXT C
LPRINT CHR$(&HA);
LPRINT CHR$(&H1B);"t"; CHR$(1);
LPRINT "n=1 ";
FOR C=&HB1 TO &HB5
  LPRINT CHR$(C);
NEXT C
LPRINT CHR$(&HA);
```

[Print Results]

n=0 ㊦ | ㊦
n=1 アイウエ

ESC { n

| | | | | | | |
|---------------|---------|---------|-------------|-------------|-------------|-----------|
| Support model | CT-S280 | CT-S300 | CT-S2000 | CT-S4000 | BD2-2220 | PMU2XXX |
| | CT-S281 | CT-S310 | CT-S801/851 | CT-S601/651 | CT-P292/293 | PMU2XXXII |

[Function] Specifying/canceling the inverted characters

[Code] <1B>H<7B>H<n>

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

[Outline] **[The specification which is common to the model]**

- "n" is valid only for the lowest bit (n0).
- Rotate data in the line by 180 degrees and print it.
- Control by the lowest bit (n0) is shown as follows:

| n0 | Function |
|----|---------------------------------|
| 0 | Canceling inverted characters. |
| 1 | Specifying inverted characters. |

[Caution] **[The specification which is common to the model]**

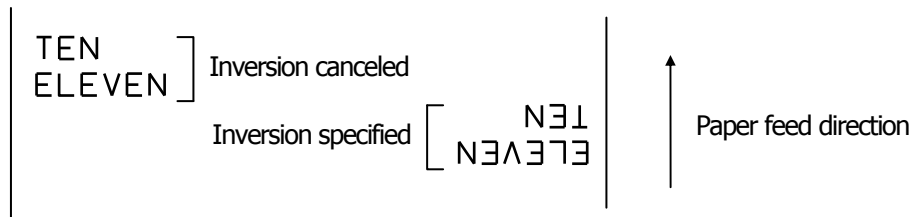
- This command is valid only when it is specified at the beginning of a line.
- This command does not affect the PAGE MODE.

[Default] n=0

[Sample Program]

```
LPRINT CHR$(&H1B) ,"{" ; CHR$(0);
LPRINT "TEN"; CHR$(&HA);
LPRINT "ELEVEN"; CHR$(&HA);
LPRINT CHR$(&H1B) ,"{" ; CHR$(1);
LPRINT "TEN"; CHR$(&HA);
LPRINT "ELEVEN"; CHR$(&HA);
```

[Print Results]



ESC ~ J n (Valid in CBM-270-Compatible Mode)

| | | | | | | |
|---------------|---------|---------|-------------|-------------|-------------|-----------|
| Support model | CT-S280 | CT-S300 | CT-S2000 | CT-S4000 | BD2-2220 | PMU2XXX |
| | CT-S281 | CT-S310 | CT-S801/851 | CT-S601/651 | CT-P292/293 | PMU2XXXII |

[Function] Specifies/cancels printing in red (black-based paper)

[Code] <1B>H<7E>H<4A>H<n>

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

[Outline] **[The specification which is common to the model]**

- Specifies or cancels printing in red.
- Red printing is valid on black-based thermal paper. Specifies or cancels printing in black on red-based thermal paper.
- "n" is valid only for the lowest bit (n0).
- Control by the lowest bit (n0) is shown as follows:

| n0 | Function | |
|----|--------------------------|----------------------------|
| | black-based paper | red-based paper |
| 0 | Canceling red printing. | Canceling black printing. |
| 1 | Specifying red printing. | Specifying black printing. |

[Caution] **[The specification which is common to the model]**

- Valid when 2-color paper is specified by the GS (E command).
- This command must not be used for normal thermal paper.
- At the time of setting, conducting pulse amount is increased to change the coloring.
- In case of MSW3-7=OFF, this command is invalid.

[Default] n=0

[Sample Program]

```
LPRINT CHR$(&H1B);"~";"J"; CHR$(1);
LPRINT "AAAAA"; CHR$(&HA);
LPRINT CHR$(&H1B);"~";"J"; CHR$(0);
LPRINT "AAAAA"; CHR$(&HA);
```

[Print Results]

```

A A A A A ← Red printing
A A A A A ← Black printing
```

* When dedicated thermal paper (black-based paper) is used.

ESC ~ J n (Valid in CBM1000-Compatible Mode)

| | | | | | | |
|---------------|---------|---------|-------------|-------------|-------------|-----------|
| Support model | CT-S280 | CT-S300 | CT-S2000 | CT-S4000 | BD2-2220 | PMU2XXX |
| | CT-S281 | CT-S310 | CT-S801/851 | CT-S601/651 | CT-P292/293 | PMU2XXXII |

[Function] Specifies/cancels printing in red (black-based paper)

[Code] <1B>H<7E>H<4A>H<n>

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

[Outline] **[The specification which is common to the model]**

- Specifies or cancels printing in red.
- Red printing is valid on black-based thermal paper. Specifies or cancels printing in black on red-based thermal paper.
- "n" is valid only for the lowest bit (n0).
- Control by the lowest bit (n0) is shown as follows:

| n0 | Function | |
|----|--------------------------|----------------------------|
| | black-based paper | red-based paper |
| 0 | Specifying red printing. | Specifying black printing. |
| 1 | Canceling red printing. | Canceling black printing. |

[Caution] **[The specification which is common to the model]**

- Valid when 2-color paper is specified by the GS (E command).
- This command must not be used for normal thermal paper.
- Conducting pulse amount after cancellation is standard value. At the time of setting, conducting pulse amount is increased to change the coloring.
- In case of MSW3-7=OFF, this command is invalid.

[Default] n=0

[Sample Program]

```
LPRINT CHR$(&H1B);"~";"J"; CHR$(1);
LPRINT "AAAAA"; CHR$(&HA);
LPRINT CHR$(&H1B);"~";"J"; CHR$(0);
LPRINT "AAAAA"; CHR$(&HA);
```

[Print Results]

A A A A A ← Black printing
A A A A A ← Red printing

* When dedicated thermal paper (black-based paper) is used.

DC3 n (Valid in CBM-270-Compatible Mode)

| | | | | | | |
|---------------|---------|---------|-------------|-------------|-------------|-----------|
| Support model | CT-S280 | CT-S300 | CT-S2000 | CT-S4000 | BD2-2220 | PMU2XXX |
| | CT-S281 | CT-S310 | CT-S801/851 | CT-S601/651 | CT-P292/293 | PMU2XXXII |

[Function] Specifies/cancels printing in red (black-based paper)

[Code] <13>H<n>

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

[Outline] **[The specification which is common to the model]**

- Specifies or cancels printing in red.
- Red printing is valid on black-based thermal paper. Specifies or cancels printing in black on red-based thermal paper.
- "n" is valid only for the lowest bit (n0).
- Control by the lowest bit (n0) is shown as follows:

| n0 | Function | |
|----|--------------------------|----------------------------|
| | black-based paper | red-based paper |
| 0 | Canceling red printing. | Canceling black printing. |
| 1 | Specifying red printing. | Specifying black printing. |

[Caution] **[The specification which is common to the model]**

- Valid only at the top of a line.
- This command must not be used for normal thermal paper.
- At the time of setting, conducting pulse amount is increased to change the coloring.
- In case of MSW3-7=OFF, this command is invalid.
- Valid only in standard mode.

[The specification which depend on the model]

CT-S281

When normal thermal paper mode is specified, the command is used, it becomes 2-color paper mode.

It executes command <ESC @> or becomes effective until turning off power.

CT-S280

- Depending on the setting of MSW4-7, function set by DC3 command is switched as per the table below.

| n0 | MSW4-7:DC3 command function | |
|----|-----------------------------|----------------------------------|
| | OFF=2 color printing | ON=Black/White reverse |
| 0 | 2 color printing is invalid | B/W reverse printing is invalid. |
| 1 | 2 color printing is valid. | B/W reverse printing is valid. |

[Default] n=0

[Sample Program]

```
LPRINT CHR$(&H13); CHR$(1);  
LPRINT "AAAAA"; CHR$(&HA);  
LPRINT CHR$(&H13); CHR$(0);  
LPRINT "AAAAA"; CHR$(&HA);
```

[Print Results]

A A A A A ← Red printing
A A A A A ← Black printing

* When dedicated thermal paper (Black-based paper) is used.

DC3 n (Valid in CBM1000-Compatible Mode)

| | | | | | | |
|---------------|---------|---------|-------------|-------------|-------------|-----------|
| Support model | CT-S280 | CT-S300 | CT-S2000 | CT-S4000 | BD2-2220 | PMU2XXX |
| | CT-S281 | CT-S310 | CT-S801/851 | CT-S601/651 | CT-P292/293 | PMU2XXXII |

[Function] Specifies/cancels printing in red (black-based paper)

[Code] <13>H<n>

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

[Outline] **[The specification which is common to the model]**

- Specifies or cancels printing in red.
- Red printing is valid on black-based thermal paper. Specifies or cancels printing in black on red-based thermal paper.
- "n" is valid only for the lowest bit (n0).
- Control by the lowest bit (n0) is shown as follows:

| n0 | Function | |
|----|--------------------------|----------------------------|
| | black-based paper | red-based paper |
| 0 | Specifying red printing. | Specifying black printing. |
| 1 | Canceling red printing. | Canceling black printing. |

[Caution] **[The specification which is common to the model]**

- Valid when 2-color paper is specified by the GS (E command).
- Valid only at the top of a line.
- This command must not be used for normal thermal paper.
- At the time of setting, conducting pulse amount is increased to change the coloring.
- In case of MSW3-7=OFF, this command is invalid.

[Default] n=0

[Sample Program]

```
LPRINT CHR$(&H13); CHR$(1);
LPRINT "AAAAA"; CHR$(&HA);
LPRINT CHR$(&H13); CHR$(0);
LPRINT "AAAAA"; CHR$(&HA);
```

[Print Results]

```
A A A A A ← Black printing
A A A A A ← Red printing
```

* When dedicated thermal paper (Black-based paper) is used.

GS ! n

| | | | | | | |
|---------------|---------|---------|-------------|-------------|-------------|-----------|
| Support model | CT-S280 | CT-S300 | CT-S2000 | CT-S4000 | BD2-2220 | PMU2XXX |
| | CT-S281 | CT-S310 | CT-S801/851 | CT-S601/651 | CT-P292/293 | PMU2XXXII |

[Function] Specifying the character size

[Code] <1D>H<21>H<n>

[Range] $0 \leq n \leq 255$
Where: $1 \leq \text{vertical magnification} \leq 8$, $1 \leq \text{horizontal magnification} \leq 8$

[Outline] **[The specification which is common to the model]**
• Specifies the character size (Vertical and horizontal magnification).

| Bit | Function | Value | |
|-----|--|---|----------------|
| | | Hex. Number | Decimal Number |
| 0 | Vertical magnification specification | Refer to Table 2, "Vertical Magnification". | |
| 1 | | | |
| 2 | | | |
| 3 | | | |
| 4 | Horizontal magnification specification | Refer to Table 1, "Horizontal Magnification". | |
| 5 | | | |
| 6 | | | |
| 7 | | | |

Table 1 Horizontal Magnification

| Hex. | Decimal | Magnification |
|------|---------|--------------------|
| 00H | 0 | 1 × (Standard) |
| 10H | 16 | 2 × (Double width) |
| 20H | 32 | 3 × |
| 30H | 48 | 4 × |
| 40H | 64 | 5 × |
| 50H | 80 | 6 × |
| 60H | 96 | 7 × |
| 70H | 112 | 8 × |

Table 2 Vertical Magnification

| Hex. | Decimal | Magnification |
|------|---------|----------------|
| 00H | 0 | 1 × (Standard) |
| 01H | 1 | 2 × (Double) |
| 02H | 2 | 3 × |
| 03H | 3 | 4 × |
| 04H | 4 | 5 × |
| 05H | 5 | 6 × |
| 06H | 6 | 7 × |
| 07H | 7 | 8 × |

[Caution]

[The specification which is common to the model]

- This command is valid for all characters (alphanumeric, kana, and kanji) except for HRI characters.
- This command is ignored if either the vertical magnification or horizontal magnification is out of the defined range.
- In PAGE MODE, the vertical direction means the top-bottom direction of each character. The horizontal direction means the side-to-side direction of each character. If characters of different vertical magnification are contained in a line, the baseline of each character is lined up.
- Horizontal and vertical magnification can also be specified/canceled by ESC ! but the setting of command last processed is valid.
- In STANDARD MODE, the vertical direction is defined as the paper feed direction, and the horizontal direction is defined as the direction perpendicular to the paper feed.
- Setting memory SW 3-7 to ON allows the horizontal and vertical relations to be interchanged when 90°-right-turning of character is specified.

[Default]

n=0

[See Also]

[ESC!](#)

GS B n

| | | | | | | |
|---------------|---------|---------|-------------|-------------|-------------|-----------|
| Support model | CT-S280 | CT-S300 | CT-S2000 | CT-S4000 | BD2-2220 | PMU2XXX |
| | CT-S281 | CT-S310 | CT-S801/851 | CT-S601/651 | CT-P292/293 | PMU2XXXII |

[Function] Specifying/canceling the black/white inverted printing

[Code] <1D>H<42>H<n>

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

[Outline] **[The specification which is common to the model]**

- This command specifies or cancels the black/white inverted printing.
- "n" is valid only for the lowest bit (n0).
- Control by the lowest bit (n0) is shown as follows:

| n0 | Function |
|----|---|
| 0 | The black/white inverted printing is canceled. |
| 1 | The black/white inverted printing is specified. |

[Caution] **[The specification which is common to the model]**

- The black/white inversion works on internal and downloaded characters.
- The black/white inversion works also on the right spacing of characters defined by ESC SP.
- This command does not affect the bit image, downloaded bit image, bar code, HRI characters, or the skip area specified by HT, ESC \$, or ESC \.
- This command does not affect the space between lines.
- Black/white inversion specification takes precedence over underline specification. Underline printing specified is, therefore, nullified if black/white inversion is specified; the underline setting, however, remains unchanged.

[Default] n=0

GS b n

| | | | | | | |
|---------------|---------|---------|-------------|-------------|-------------|-----------|
| Support model | CT-S280 | CT-S300 | CT-S2000 | CT-S4000 | BD2-2220 | PMU2XXX |
| | CT-S281 | CT-S310 | CT-S801/851 | CT-S601/651 | CT-P292/293 | PMU2XXXII |

[Function] Specifying/canceling the smoothing

[Code] <1D>H<62>H<n>

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

[Outline] **[The specification which is common to the model]**

- This command specifies or cancels the smoothing.
- "n" is valid only for the lowest bit (n0).
- Control by the lowest bit (n0) is shown as follows:

| n0 | Function |
|----|-----------------------------|
| 0 | The smoothing is canceled. |
| 1 | The smoothing is specified. |

[Caution] **[The specification which is common to the model]**

- Smoothing is effective to printer's internal characters, download characters, and non-standard characters.
- Smoothing is not effective to characters with either of their vertical or horizontal magnification is x1.

[Default] n=0

[See Also] [ESC!](#) , [GS!](#)

2.2.4 Print Position Commands

HT

| | | | | | | |
|---------------|---------|---------|-------------|-------------|-------------|-----------|
| Support model | CT-S280 | CT-S300 | CT-S2000 | CT-S4000 | BD2-2220 | PMU2XXX |
| | CT-S281 | CT-S310 | CT-S801/851 | CT-S601/651 | CT-P292/293 | PMU2XXXII |

[Function] Horizontal tab

[Code] <09>H

[Outline] **[The specification which is common to the model]**

- Shifts the printing position to the next horizontal tab position.
- Ignored when the next horizontal tab position has not been set.

[Caution] **[The specification which is common to the model]**

- The horizontal tab position is set by ESC D.

[Default] At the selection of font A, tabs are set every 8 characters (at 9th, 17th, 25th, ...) with right space amount of a character set at 0 and horizontal enlargement rate of a character set at 1.

[See Also] [ESC D](#)

[Sample Program]

```
LPRINT "012345678901234567890"; CHR$(&HA);
LPRINT CHR$(&H9);"AAA";
LPRINT CHR$(&H9);"BBB"; CHR$(&HA);
LPRINT CHR$(&H1B);"D";
LPRINT CHR$(3); CHR$(7); CHR$(14); CHR$(0);
LPRINT CHR$(&H9);"AAA";
LPRINT CHR$(&H9);"BBB";
LPRINT CHR$(&H9);"CCC"; CHR$(&HA);
```

[Printing Result]

```
012345678901234567890
    AAA    BBB    ← Initially set horizontal tab
    AAA BBB   CCC ← When set to the 4th, 8th, and 15th columns
```

ESC \$ n1 n2

| | | | | | | |
|---------------|---------|---------|-------------|-------------|-------------|-----------|
| Support model | CT-S280 | CT-S300 | CT-S2000 | CT-S4000 | BD2-2220 | PMU2XXX |
| | CT-S281 | CT-S310 | CT-S801/851 | CT-S601/651 | CT-P292/293 | PMU2XXXII |

[Function] Specifying the absolute positions

[Code] <1B>H<24>H<n1><n2>

[Range] $0 \leq n1 \leq 255$
 $0 \leq n2 \leq 255$

[Outline] **[The specification which is common to the model]**

- The printing start position is specified by the absolute position from the left margin with the number of dots divided by 256 and quotient specified as "n2" and remainder as "n1". Therefore, the printing start position is designated as $n1 + n2 \times 256$ basic calculation pitch from the left margin.

[Caution] **[The specification which is common to the model]**

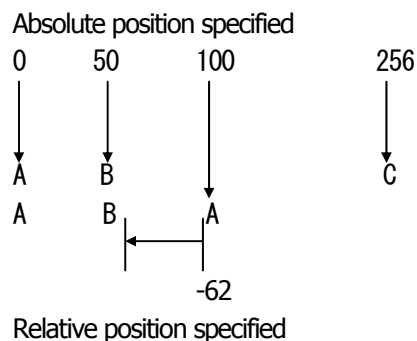
- The basic calculation pitch is set by GS P. After the line feed width is set, if the basic calculation by GS P leaves a fraction, the fraction is corrected with the minimum pitch of the mechanism, and the remainder is omitted.
- In STANDARD MODE, this command uses the horizontal (Paper feed direction) basic calculation pitch (x).
- In PAGE MODE, this command acts differently depending on the start point:
 - If the start point specified by ESC T is top right or bottom left, the command uses the vertical (Paper feed direction) basic calculation pitch (y).
 - If the start point specified by ESC T is top left or bottom right, the command uses the horizontal (Perpendicular to the paper feed direction) basic calculation pitch (x). Specification beyond the end of the line is ignored.

[See Also] [ESC \](#), [GS P](#), [GS \](#), [GS \\$](#)

[Sample Program]

```
LPRINT CHR$(&H1B);"$";
LPRINT CHR$(0); CHR$(0);"A";
LPRINT CHR$(&H1B);"$";
LPRINT CHR$(50); CHR$(0);"B";
LPRINT CHR$(&H1B);"$";
LPRINT CHR$(0); CHR$(1);"C"; CHR$(&HA);
LPRINT CHR$(&H1B);"$";
LPRINT CHR$(100); CHR$(0);"A";
LPRINT CHR$(&H1B);" \";
LPRINT CHR$(&HC2); CHR$(&HFF);"B"; CHR$(&HA);
```

[Print Results]



ESC D [n]k NULL

| | | | | | | |
|---------------|---------|---------|-------------|-------------|-------------|-----------|
| support model | CT-S280 | CT-S300 | CT-S2000 | CT-S4000 | BD2-2220 | PMU2XXX |
| | CT-S281 | CT-S310 | CT-S801/851 | CT-S601/651 | CT-P292/293 | PMU2XXXII |

[Function] Setting horizontal tab position

[Code] <1B>H<44>H[<n>]k<00>H

[Range] $1 \leq n \leq 255$
 $0 \leq k \leq 32$

[Outline] **[The specification which is common to the model]**

- Specifying a horizontal tab position.
- "n" indicates the number of columns from the beginning to the horizontal tab position. Note, however, that "n = set position - 1". For example, to set the position at 9th column, n = 8 is to be specified.
- "k" denotes the number of horizontal tab positions you want to set.
- The tab position is set at a position where it is "character width × n" from the beginning of a line. The character width, at this time, includes the space on the right. In double width characters, it is made double the ordinary case.
- Tab positions that can be specified are maximum 32. Specifying tab positions exceeding this limit is ignored.
- <n> k, which denotes a setting position, is input in the increasing order and ends at 00H.
- ESC D <NULL> clears all the set tab positions. Following clearing, the horizontal tab command is ignored.

[Caution] **[The specification which is common to the model]**

- When the data, <n> k, is equal to or smaller than its preceding data, <n> k-1, it is assumed that tab setting is finished. If this is the case, the next data onward will be processed as normal data.
- When the data, <n> k, exceeds a 1-line print area, set the horizontal tab position, as "Set column position = Maximum print columns + 1".
- The horizontal tab position does not change even if the character width is altered after setting the horizontal tab position.

[Default] At the selection of font A, tabs are set every 8 characters (at 9th, 17th, 25th, ...) with right space amount of a character set at 0 and horizontal enlargement rate of a character set at 1.

[See Also] [HT](#)

[Sample Program]

[Refer to Sample Program and Print Results for HT.](#)

ESC T n

| | | | | | | |
|---------------|---------|---------|-------------|-------------|-------------|-----------|
| support model | CT-S280 | CT-S300 | CT-S2000 | CT-S4000 | BD2-2220 | PMU2XXX |
| | CT-S281 | CT-S310 | CT-S801/851 | CT-S601/651 | CT-P292/293 | PMU2XXXII |

[Function] Selecting the character printing direction in PAGE MODE

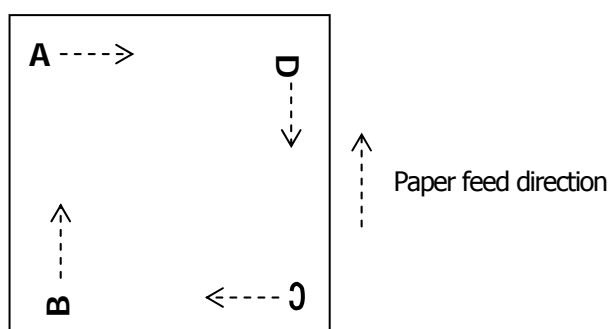
[Code] <1B>H<54>H<n>

[Range] $0 \leq n \leq 3$, $48 \leq n \leq 51$

[Outline] **[The specification which is common to the model]**

- Selects the direction and start point of character printing in PAGE MODE.

| n | Printing Direction | Start Point |
|-------|--------------------|----------------------------------|
| 0, 48 | Left to right | Top left ("A" in the figure) |
| 1, 49 | Bottom to top | Bottom left ("B" in the figure) |
| 2, 50 | Right to left | Bottom right ("C" in the figure) |
| 3, 51 | Top to bottom | Top right ("D" in the figure) |



[Caution] **[The specification which is common to the model]**

- When STANDARD MODE is selected, this command only executes the internal flagging of the printer without affecting the printing in STANDARD MODE.
- The character mapping position will be the start point of the print area specified by ESC W.
- The basic calculation pitch (x or y) used by the following commands varies with the start point.
 - (1) If the start point is the top left or bottom right (The characters are mapped in the direction perpendicular to the paper feed),
 - Commands using x: ESC SP, ESC S, ESC \
 - Commands using y: ESC 3, ESC J, GS \$, GS \
 - (2) If the start point is the top right or bottom left (The characters are mapped in the paper feed direction),
 - Commands using x: ESC 3, ESC J, GS \$, GS \
 - Commands using y: ESC SP, ESC S, ESC \

[Default] n=0

[See Also] [Appendix 5.1 "Explanation on PAGE MODE"](#)
[ESC \\$](#), [ESC L](#), [ESC W](#), [ESC \](#), [GS \\$](#), [GS P](#), [GS \](#)

ESC W xL xH yL yH dxL dxH dyL dyH

| | | | | | | |
|---------------|---------|---------|-------------|-------------|-------------|-----------|
| support model | CT-S280 | CT-S300 | CT-S2000 | CT-S4000 | BD2-2220 | PMU2XXX |
| | CT-S281 | CT-S310 | CT-S801/851 | CT-S601/651 | CT-P292/293 | PMU2XXXII |

[Function] Defining the print area in PAGE MODE

[Code] <1B>H<57>H<xL><xH><yL><yH><dxL><dxH><dyL><dyH>

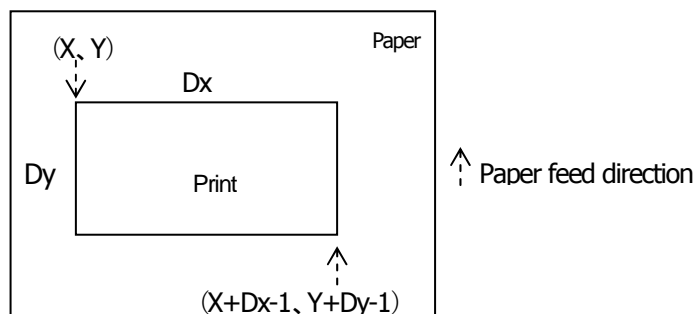
[Range] $0 \leq xL, xH, yL, yH, dxL, dxH, dyL, dyH \leq 255$
except for $dxL=dxH=0$ or $dyL=dyH=0$

[Outline] **[The specification which is common to the model]**

- Defines the location and size of the print area.
- Horizontal start point = $[(xL+xH \times 256) \times \text{basic calculation pitch}]$ inches
- Vertical start point = $[(yL+yH \times 256) \times \text{basic calculation pitch}]$ inches
- Horizontal length = $[(dxL+dxH \times 256) \times \text{basic calculation pitch}]$ inches
- Vertical length = $[(dyL+dyH \times 256) \times \text{basic calculation pitch}]$ inches

[Caution] **[The specification which is common to the model]**

- When STANDARD MODE is selected, this command only executes the internal flagging of the printer without affecting the printing in STANDARD MODE.
- If the horizontal start point or vertical start point is out of the printable area, this command is canceled and the next data is handled as normal data.
- If the horizontal length or vertical length is 0, this command is canceled and the next data is handled as normal data.
- The character mapping position will be the start point specified by ESC T in the print area.
- If the "horizontal start point + horizontal length" is greater than the horizontal printable area, the "horizontal printable area – horizontal start point" is taken as the horizontal length.
- If the "vertical start point + vertical length" is greater than the vertical printable area, the "vertical printable area – vertical start point" is taken as the vertical length.
- The basic calculation pitch is defined by GS P. Once defined, the print area is not changed if the basic calculation pitch is changed by GS P.
- Fractions resulting from calculations are corrected with the minimum pitch of the mechanism, and the remainder is omitted.
- The horizontal start point and horizontal length are calculated with the basic calculation pitch (x). The vertical start point and vertical length are calculated with the basic calculation pitch (y).
- The figure below illustrates the print area, where X = horizontal start point, Y = vertical start point, Dx = horizontal length, and Dy = vertical length.



- The printable area is approximately 117 mm (938/203 inches) vertically, and horizontal area depends on the model. (Refer to the below Table)

[Default] xL=xH=yL=yH=0
 dyL=126, dyH=6
 dxL,dyH depends on paper width. (Refer to the below Table)

| paper width | print width/(dot) | dxL | dxH | support model |
|-------------|-------------------|-----|-----|--|
| 112mm | 104mm/(832) | 96 | 3 | CT-S4000 |
| 112mm | 90mm/(720) | 208 | 2 | CT-S4000 |
| 83mm | 82.5mm/(660) | 148 | 2 | CT-S4000 |
| 83mm | 80mm/(640) | 128 | 2 | CT-S2000/CT-S4000/CT-S801/CT-S851/CT-S601/CT-S651 |
| 80mm | 72mm/(576) | 64 | 2 | CT-S300/CT-S310/CT-S2000/CT-S4000/CT-S801/CT-S851 CT-S601/CT-S651/BD2-2220/PMU2XXX/PMU2XXXII CT-P292/293 |
| 80mm | 68.25mm(546) | 34 | 2 | CT-S801/CT-S851/CT-S601/CT-S651 |
| 80mm | 64mm/(512) | 0 | 2 | CT-S300/CT-S310/CT-S2000/CT-S4000/CT-S801/CT-S851 CT-S601/CT-S651 |
| 60mm | 54.5mm/(436) | 180 | 1 | CT-S2000/CT-S801/CT-S851/CT-S601/CT-S651 |
| 58mm | 54mm/(432) | 176 | 1 | CT-S2000/CT-S801/CT-S851/CT-S601/CT-S651 BD2-2220/PMU2XXX/PMU2XXXII/CT-P292/293 |
| 58mm | 52.5mm/(420) | 156 | 1 | CT-S2000/CT-S801/CT-S851/CT-S601/CT-S651 |
| 58mm | 51mm/(408) | 152 | 1 | CT-P292/293 |
| 58mm | 48.75mm(390) | 134 | 1 | CT-S801/CT-S851/CT-S601/CT-S651 |
| 58mm | 48mm/(384) | 128 | 1 | CT-S280/CT-S281/CT-S300/CT-S310/CT-S2000 CT-S801/CT-S851/CT-S601/CT-S651/CT-P292/293 |
| 58mm | 45mm/(360) | 104 | 1 | CT-S300/CT-S310/CT-S2000/CT-S801/CT-S851 CT-S601/CT-S651 |

[See Also] [Appendix 5.1 "Explanation on PAGE MODE"](#)
[CAN](#)、[ESCL](#)、[ESC T](#)、[GS P](#)

ESC \ nL nH

| | | | | | | |
|---------------|---------|---------|-------------|-------------|-------------|-----------|
| support model | CT-S280 | CT-S300 | CT-S2000 | CT-S4000 | BD2-2220 | PMU2XXX |
| | CT-S281 | CT-S310 | CT-S801/851 | CT-S601/651 | CT-P292/293 | PMU2XXXII |

[Function] Specifying the relative position

[Code] <1B>H<5C>H<nL><nH>

[Range] $0 \leq nL \leq 255$
 $0 \leq nH \leq 255$

[Outline] **[The specification which is common to the model]**

- This command specifies the next print start position in a relative position with respect to the current position.
- The next print start position will be at a point of $[(nL+nH \times 256) \times \text{basic calculation pitch}]$ inches away from the current position.

[Caution] **[The specification which is common to the model]**

- Specification of a position outside the print area is ignored.
- If a new position is specified to the right of the current position in the direction of printing, it should be specified as positive (+). If it is to the left, it should be as negative (-).
- A negative value is the complement of 65536. For example, to move the position by N pitches to the left, specify it as: $nL + nH \times 256 = 65536 - N$
- Fractions resulting from calculation are corrected with the minimum pitch of the mechanism, and the remainder is omitted.
- In STANDARD MODE, this command uses the horizontal basic calculation pitch (x).
- In PAGE MODE, this command acts differently depending on the start point:
 - (1) If the start point specified by ESC T is top left or bottom right, the command specifies the relative position in the direction perpendicular to the paper feed (The character's side-to-side direction), using the horizontal basic calculation pitch (x).
 - (2) If the start point is top right or bottom left, the command specifies the relative position in the paper feed direction (The character's side-to-side direction), using the vertical basic calculation pitch (y).

[See Also] [ESC \\$](#), [GS P](#)

[Sample Program]

[Refer to Sample Program and Print Results for ESC \\$.](#)

ESC a n

| | | | | | | |
|---------------|---------|---------|-------------|-------------|-------------|-----------|
| support model | CT-S280 | CT-S300 | CT-S2000 | CT-S4000 | BD2-2220 | PMU2XXX |
| | CT-S281 | CT-S310 | CT-S801/851 | CT-S601/651 | CT-P292/293 | PMU2XXXII |

[Function] Aligning the characters

[Code] <1B>H<61>H<n>

[Range] $0 \leq n \leq 2, 48 \leq n \leq 50$

[Outline] **[The specification which is common to the model]**

- All the printed data within one line are aligned in the specified position.
- Depending on the value "n", positional alignment is carried out as shown in the table below:

| n | Position |
|-------|---------------------|
| 0, 48 | Left end alignment |
| 1, 49 | Centering |
| 2, 50 | Right end alignment |

[Caution] **[The specification which is common to the model]**

- This command is valid only when it is inputted at the beginning of a line.
- This command does not affect the PAGE MODE.
- Executes justification in the print area being set.

[Default] n=0

[Sample Program]

```
LPRINT CHR$(&H1B);"a"; CHR$(0);
LPRINT "AAAAA"; CHR$(&HA);
LPRINT CHR$(&H1B);"a"; CHR$(1);
LPRINT "AAAAA"; CHR$(&HA);
LPRINT CHR$(&H1B);"a"; CHR$(2);
LPRINT "AAAAA"; CHR$(&HA);
```

[Print Results]



GS \$ nL nH

| | | | | | | |
|---------------|---------|---------|-------------|-------------|-------------|-----------|
| support model | CT-S280 | CT-S300 | CT-S2000 | CT-S4000 | BD2-2220 | PMU2XXX |
| | CT-S281 | CT-S310 | CT-S801/851 | CT-S601/651 | CT-P292/293 | PMU2XXXII |

- [Function]** Specifying the absolute position of character vertical direction in PAGE MODE
- [Code]** <1D>H<24>H<nL><nH>
- [Range]** $0 \leq nL \leq 255$, $0 \leq nH \leq 255$
- [Outline]** **[The specification which is common to the model]**
- Specifies the vertical position of character at the start point of data development in PAGE MODE using absolute position based on the start position.
 - The position of vertical direction of character at the start position of next data development is the position $[(nL+nH \times 256) \times \text{basic calculation pitch}]$ from the start position.
- [Caution]** **[The specification which is common to the model]**
- This command is ignored except at PAGE MODE selection.
 - Absolute position setting exceeding the specified print area is ignored.
 - Position in horizontal direction of character at the start position of data development is not shifted.
 - Start point used as the reference is set by ESC T.
 - The following operation occurs at the start point of ESC T.
 - (1) When start point is set at "upper left" or "lower right", the absolute position of paper feed direction (vertical direction of character) is set. In this case, basic calculation pitch (y) of vertical direction is used.
 - (2) When start point is set at "upper right" or "lower left", the absolute position of vertical direction of paper feed (vertical direction of character) is set. In this case, basic calculation pitch (x) of horizontal direction is used.
 - Basic calculation pitch is set by GS P.
 - When fractional number is caused by the calculation, it is corrected by the minimum pitch of mechanism and the rest is discarded.
- [See Also]** [ESC \\$](#), [ESC T](#), [ESC W](#), [ESC \](#), [GS P](#), [GS \](#)

GS L nL nH

| | | | | | | |
|---------------|---------|---------|-------------|-------------|-------------|-----------|
| support model | CT-S280 | CT-S300 | CT-S2000 | CT-S4000 | BD2-2220 | PMU2XXX |
| | CT-S281 | CT-S310 | CT-S801/851 | CT-S601/651 | CT-P292/293 | PMU2XXXII |

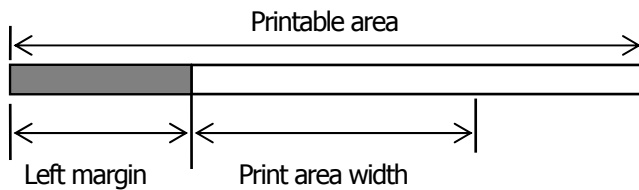
[Function] Setting the left margin

[Code] <1D>H<4C>H<nL><nH>

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

[Outline] **[The specification which is common to the model]**

- This command sets the left margin specified by nL and nH.
- The value of the left margin is $[(nL+nH \times 256) \times \text{basic calculation pitch}]$ inches.



[Caution] **[The specification which is common to the model]**

- This command only works when it is entered at the beginning of a line.
- When PAGE MODE is selected, this command only executes the internal flagging of the printer.
- The setting of this command does not affect PAGE MODE.
- The maximum settable left margin is equal to the horizontal printable area. A setting greater than this maximum is trimmed to the maximum.
- The basic calculation pitch is defined by GS P. Once defined, the left margin is not changed if the basic calculation pitch is changed by GS P.
- The left margin is calculated with the horizontal basic calculation pitch (x) set by GS P. A fraction resulting from the calculation is corrected with the minimum pitch of the mechanism, and the remainder is omitted.
- When you progress the first character in start of the line, if the print area specified is not wide enough to accommodate the wide of one character(*Right space is contained.),only the line for that character data is handled as follows:
 - (1) The print area is extended toward the right to be equivalent to one character of the current font, but not wider than the printable area.
 - (2) If an area for one character cannot be provided as a result of step (1), the print area is extended toward the left. (So, the left margin is decreased.)
- When mapping non-character data (bit image, downloaded bit image, or bar code), if the print area specified is narrower than 9-bits, only the line for that data is handled as follows:
 - (1) The print area is extended toward the left (so, the left margin is decreased) until it is 9-dot wide, but not wider than the printable area.

[Default] nL=0, nH=0

[See Also] [GS P](#), [GS W](#)

GS W nL nH

| | | | | | | |
|---------------|---------|---------|-------------|-------------|-------------|-----------|
| Support model | CT-S280 | CT-S300 | CT-S2000 | CT-S4000 | BD2-2220 | PMU2XXX |
| | CT-S281 | CT-S310 | CT-S801/851 | CT-S601/651 | CT-P292/293 | PMU2XXXII |

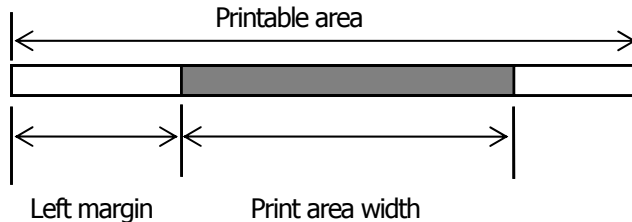
[Function] Setting the print area width

[Code] <1D>H<57>H<nL><nH>

[Range] $0 \leq nL \leq 255$
 $0 \leq nH \leq 255$

[Outline] **[The specification which is common to the model]**

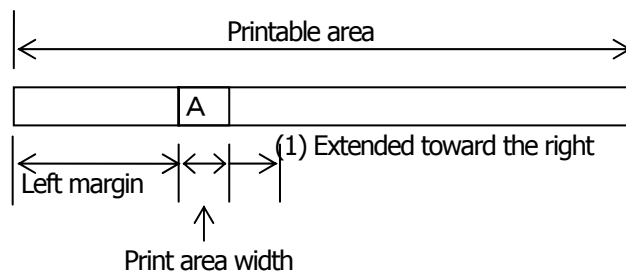
- Sets the print area width specified by nL and nH.
- The print area width will be $[(nL+nH \times 256) \times \text{basic calculation pitch}]$ inches.



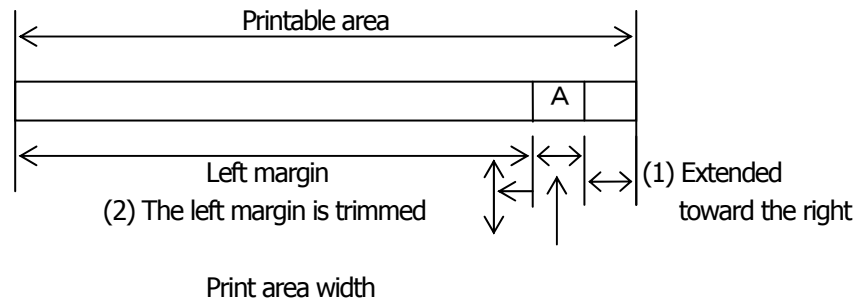
[Caution] **[The specification which is common to the model]**

- This command only works when it is entered at the beginning of a line.
- When PAGE MODE is selected, this command only executes the internal flagging of the printer.
- The setting of this command does not affect PAGE MODE.
- If the value entered with this command exceeds the printable area for one line, the entire area except the left margin is set as the print area width.
- The basic calculation pitches are defined by GS P. Once defined, the print area width is not changed if the basic calculation pitch is changed by GS P.
- The print area width is calculated with the horizontal basic calculation pitch (x) defined by GS P. A fraction resulting from the calculation is corrected with the minimum pitch of the mechanism, and the remainder is omitted.
- If the first character to be mapped at the beginning of a line has a width (including the right spacing) greater than the print area width, only that line is handled as follows:

(1) The print area is extended toward the right to accommodate the first character, but not wider than the printable area.



(2) If a sufficient area cannot be provided as a result of step (1), the print area is extended toward the left (so, the left margin is decreased).



(3) If a sufficient area cannot be provided as a result of step (2), the right spacing is trimmed.

- When mapping a bit image (or downloaded bit image), if the print area is narrower than the minimum width of the bit image (two dots for single density, or one dot for double density), only the line for that image is handled as follows:
 - (1) The print area is extended toward the left (so, the left margin is decreased) until it is equal to the minimum width of the image, but not wider than the printable area.

[Default]

| paper width | print width/(dot) | nL | nH | support model |
|-------------|-------------------|-----|----|--|
| 112mm | 104mm/(832) | 96 | 3 | CT-S4000 |
| 112mm | 90mm/(720) | 208 | 2 | CT-S4000 |
| 83mm | 82.5/(660) | 148 | 2 | CT-S4000 |
| 83mm | 80mm/(640) | 128 | 2 | CT-S300/CT-S310/CT-S2000/CT-S4000/ CT-S801/CT-S851/CT-S601/CT-S651 |
| 80mm | 72mm/(576) | 64 | 2 | CT-S300/CT-S310/CT-S2000/CT-S4000/CT-S801/CT-S851 CT-S601/CT-S651/BD2-2220/PMU2XXX/PMU2XXXII CT-P292/293 |
| 80mm | 68.25mm(546) | 34 | 2 | CT-S801/CT-S851/CT-S601/CT-S651 |
| 80mm | 64mm/(512) | 0 | 2 | CT-S300/CT-S310/CT-S2000/CT-S4000 CT-S801/CT-S851/CT-S601/CT-S651 |
| 60mm | 54.5mm/(436) | 180 | 1 | CT-S2000/CT-S801/CT-S851/CT-S601/CT-S651 |
| 58mm | 54mm/(432) | 176 | 1 | CT-S2000/CT-S801/CT-S851/CT-S601/CT-S651 BD2-2220/PMU2XXX/PMU2XXXII |
| 58mm | 52.5mm/(420) | 156 | 1 | CT-S2000/CT-S801/CT-S851/CT-S601/CT-S651 |
| 58mm | 51mm(408) | 152 | 1 | CT-P292/293 |
| 58mm | 48.75mm(390) | 134 | 1 | CT-S801/CT-S851/CT-S601/CT-S651 |
| 58mm | 48mm/(384) | 128 | 1 | CT-S280/CT-S281/CT-S300/CT-S310/CT-S2000 CT-S801/CT-S851/CT-S601/CT-S651/CT-P292/293 |
| 58mm | 45mm/(360) | 104 | 1 | CT-S300/CT-S310/CT-S2000/CT-S801/CT-S601 |

[See Also] [GSL](#), [GSP](#)

GS \ nL nH

| | | | | | | |
|---------------|---------|---------|-------------|-------------|-------------|-----------|
| Support model | CT-S280 | CT-S300 | CT-S2000 | CT-S4000 | BD2-2220 | PMU2XXX |
| | CT-S281 | CT-S310 | CT-S801/851 | CT-S601/651 | CT-P292/293 | PMU2XXXII |

[Function] Specifying the relative vertical position of a character in PAGE MODE

[Code] <1D>H<5C>H<nL><nH>

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

[Outline] **[The specification which is common to the model]**

- This command is used in PAGE MODE to specify the vertical position of a character in the data mapping start position, in a relative position with respect to the current position.
- The next data mapping start position will be at a point $[(nL+nH \times 256) \times \text{basic calculation pitch}]$ inches away from the current position.

[Caution] **[The specification which is common to the model]**

- This command is ignored when PAGE MODE is not selected.
- If a new position is specified for a character located beneath the current position, it should be specified as positive (+). If it is above the current position, it should be negative (-).
- A negative value is the complement of 65536. For example, to move the position by N pitches up, specify it as: $nL + nH \times 256 = 65536 - N$
- The specification of a relative position outside the specified print area is ignored.
- Depending on the start point specified by ESC T, this command acts as follows:
 - (1) If the start point is the top left or bottom right, the command specifies the relative position in the paper feed direction (the character's top-bottom direction) using the vertical basic calculation pitch (y).
 - (2) If the start point is the top right or bottom left, the command specifies the relative position in the direction perpendicular to the paper feed (the character's top-bottom direction) using the horizontal basic calculation pitch (x).
- The basic calculation pitch is set by GS P.
- Fractions resulting from calculations are corrected with the minimum pitch of the mechanism, and the remainder is omitted.

2.2.5 Line Feed Span Commands

ESC 2

| | | | | | | |
|---------------|---------|---------|-------------|-------------|-------------|-----------|
| Support model | CT-S280 | CT-S300 | CT-S2000 | CT-S4000 | BD2-2220 | PMU2XXX |
| | CT-S281 | CT-S310 | CT-S801/851 | CT-S601/651 | CT-P292/293 | PMU2XXXII |

[Function] Specifying 1/6-inch line feed rate

[Code] <1B>H<32>H

[Outline] **[The specification which depend on the model]**
CT-S280/CT-S281/CT-S300/CT-S310/BD2-2220/PMU2XXX/PMU2XXXII
CT-P292/293

The line feed rate per line is specified by 1/6 inch.

CT-S2000/CT-S4000/CT-S801/CT-S851/CT-S601/CT-S651

The line feed rate per line is specified by MSW5-2 setting.

[Caution] **[The specification which is common to the model]**
• Line feed rate can be specified respectively for both STANDARD MODE and PAGE MODE.

[Default] **[The specification which depend on the model]**
CT-S280/CT-S281/CT-S300/CT-S310/BD2-2220/PMU2XXX/PMU2XXXII
CT-P292/293

Approx. 4.23mm (1/360 inches)

CT-S2000/CT-S4000/CT-S801/CT-S851/CT-S601/CT-S651

(1) MSW 5-2 OFF:

Approx. 4.23mm

(2) MSW 5-2 ON:

Approx. 3.75 mm

ESC 3 n

| | | | | | | |
|---------------|---------|---------|-------------|-------------|-------------|-----------|
| Support model | CT-S280 | CT-S300 | CT-S2000 | CT-S4000 | BD2-2220 | PMU2XXX |
| | CT-S281 | CT-S310 | CT-S801/851 | CT-S601/651 | CT-P292/293 | PMU2XXXII |

- [Function]** Setting line feed rate of minimum pitch
- [Code]** <1B>H<33>H<n>
- [Range]** $0 \leq n \leq 255$
- [Outline]** **[The specification which is common to the model]**
Sets the line feed width per line to [n×basic calculation pitch] inches.
- [Caution]** **[The specification which is common to the model]**
- The line feed width can be set separately for the STANDARD and PAGE MODES.
 - The basic calculation pitch is set by GS P. Once defined, the line feed width is not changed if the basic calculation pitch is changed by GS P.
 - Fractions resulting from calculation are corrected with the minimum pitch of the mechanism, and the remainder is omitted.
 - In STANDARD MODE, this command uses the vertical (paper feed direction) basic calculation pitch (y).
 - In PAGE MODE, this command acts differently depending on the start point:
 - (1) If the start point specified by ESC T is top left or bottom right, the command uses the vertical (paper feed direction) basic calculation pitch (y).
 - (2) If the start point specified by ESC T is top right or bottom left, the command uses the horizontal (perpendicular to the paper feed direction) basic calculation pitch (x).
 - The maximum settable line feed width is 1016 mm (40 inches). A setting greater than this maximum is trimmed to the maximum.
- [Default]** **[The specification which depend on the model]**
 CT-S280/CT-S281/CT-S300/CT-S310/BD2-2220/PMU2XXX/PMU2XXXII
 CT-P292/293
- Approx. 4.23mm
- CT-S2000/CT-S4000/CT-S801/CT-S851/CT-S601/CT-S651
- (1) MSW 5-2 OFF:
Approx. 4.23mm
- (2) MSW 5-2 ON:
Approx. 3.75 mm
- [See Also]** [ESC 2](#), [GS P](#)

2.2.6 Bit Image Commands

ESC * m n1 n2 [d] k

| | | | | | | |
|---------------|---------|---------|-------------|-------------|-------------|-----------|
| Support model | CT-S280 | CT-S300 | CT-S2000 | CT-S4000 | BD2-2220 | PMU2XXX |
| | CT-S281 | CT-S310 | CT-S801/851 | CT-S601/651 | CT-P292/293 | PMU2XXXII |

[Function] Specifying the bit image mode

[Code] <1B>H<2A>H<m>H<n1><n2>[<d>]k

[Range] m=0, 1, 32, 33
 $0 \leq n1 \leq 255, 0 \leq n2 \leq 2$
 $0 \leq d \leq 255$
 $k = n1 + 256 \times n2$ (m=0, 1), $k = (n1 + 256 \times n2) \times 3$ (m=32, 33)

[Outline] **[The specification which is common to the model]**

- According to the number of dots specified in "n1", "n2", specify the bit image of mode "m".
- The number of dots printed is divided by 256, whose quotient is taken as n2 and residual as "n1".
The total number of dots printed in the horizontal direction is equal to $n1 + (256 \times n2)$.
- When bit image data have been input in excess of dot positions that can be printed on one line, the excess data are discarded.
- "d" is bit image data. Bits to be printed are specified as "1" and those not as "0".
- The bit image modes specified by "m" are shown as follows:

| m | Mode | Vertical Direction | | Horizontal Direction | |
|----|-----------------------|--------------------|-------------|----------------------|-------------------|
| | | Dot Count | Dot Density | Dot Density | Maximum Dot Count |
| 0 | 8 dot single density | 8 | 67dpi | 101dpi | (1) |
| 1 | 8 dot double density | 8 | 67dpi | 203dpi | (2) |
| 32 | 24 dot single density | 24 | 203dpi | 101dpi | (3) |
| 33 | 24 dot double density | 24 | 203dpi | 203dpi | (4) |

[The specification which depend on the model]

(1)~(4) unit: dpi

| support model | paper width | print width | (1) | (2) | (3) | (4) |
|--|-------------|-------------|-----|-----|-----|-----|
| CT-S4000 | 112mm | 104mm | 416 | 832 | 416 | 832 |
| CT-S4000 | 112mm | 90mm | 360 | 720 | 360 | 720 |
| CT-S4000 | 83mm | 82.5mm | 330 | 660 | 330 | 660 |
| CT-S2000/CT-S4000/CT-S801/CT-S851/CT-S601/CT-S651 | 83mm | 80mm | 320 | 640 | 320 | 640 |
| CT-S300/CT-S310/CT-S2000/CT-S4000/CT-S801/CT-S851/CT-S601/CT-S651/BD2-2220/PMU2XXX/PMU2XXXII/CT-P292/293 | 80mm | 72mm | 286 | 576 | 286 | 576 |
| CT-S801/CT-S601 | 80mm | 68.25mm | 273 | 546 | 273 | 546 |
| CT-S300/CT-S310/CT-S2000/CT-S4000/CT-S801/CT-S851/CT-S601/CT-S651 | 80mm | 64mm | 256 | 512 | 256 | 512 |
| CT-S2000/CT-S801/CT-S601 | 60mm | 54.5mm | 218 | 436 | 218 | 436 |
| CT-S2000/CT-S801/CT-S851/CT-S601/CT-S651 | 58mm | 54mm | 216 | 432 | 216 | 432 |
| BD2-2220/PMU2XXX/PMU2XXXII/CT-P292/293 | 58mm | 52.5mm | 210 | 420 | 210 | 420 |
| CT-S2000/CT-S801/CT-S851/CT-S601/CT-S651 | 58mm | 51mm | 204 | 408 | 204 | 408 |
| CT-P292/293 | 58mm | 48.75mm | 195 | 390 | 195 | 390 |
| CT-S801/CT-S851/CT-S601/CT-S651 | 58mm | 48mm | 192 | 384 | 192 | 384 |
| CT-S280/CT-S281/CT-S300/CT-S310/CT-S2000/CT-S801/CT-S851/CT-S601/CT-S651 | 58mm | 45mm | 180 | 360 | 180 | 360 |

- [Caution]**
- When the value of "m" is out of the above range, the data following after "n1" is processed as normal printing data.
 - After completion of bit image printing, the printer returns to normal data processing mode.

GS * n1 n2 [d] n1xn2x8

| | | | | | | |
|---------------|---------|---------|-------------|-------------|-------------|-----------|
| Support model | CT-S280 | CT-S300 | CT-S2000 | CT-S4000 | BD2-2220 | PMU2XXX |
| | CT-S281 | CT-S310 | CT-S801/851 | CT-S601/651 | CT-P292/293 | PMU2XXXII |

[Function] Defining the download bit image

[Code] <1D>H<2A>H<n1><n2>[<d>]n1xn2x8

[Range]
 $1 \leq n1 \leq 255$
 $1 \leq n2 \leq 48$
 $n1 \times n2 \leq 1536$

[Outline] **[The specification which is common to the model]**

- Defines download bit images of the number of dots specified by "n1" and "n2".
- The numbers of dots are $n1 \times 8$ in horizontal direction and $n2 \times 8$ in vertical direction.
- "d" indicates bit image data.
- Once defined, the download bit image remains effective until it is redefined, ESC @, ESC &, GS (A, or FS q, is executed, or power is turned OFF.

[Caution] **[The specification which is common to the model]**

- Relations between the bit image data and the dots defined are shown below.

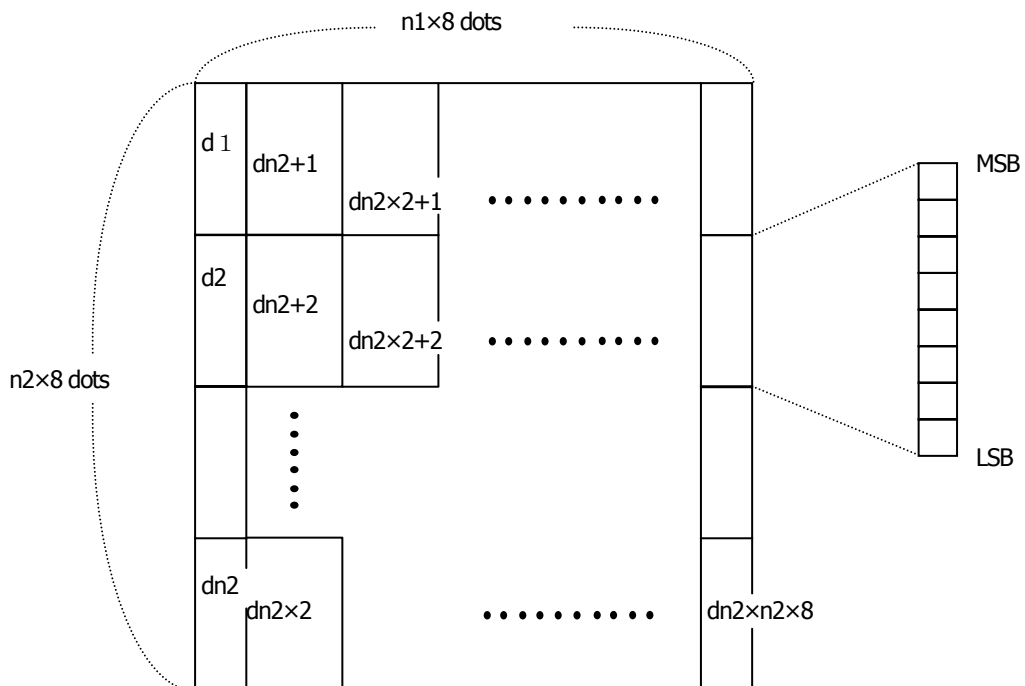
[The specification which depend on the model]
CT-S280/CT-S281/CT-S300/CT-S310/BD2-2220/PMU2XXX/PMU2XXXII
CT-P292/293

- With this command executed, the defined content of a downloaded character is cleared.

CT-S2000/CT-S4000/CT-S801/CT-S851/CT-S601/CT-S651

- With this command executed, the defined content of a downloaded character is not cleared.

[See Also] [GS/](#)



GS / m

| | | | | | | |
|---------------|---------|---------|-------------|-------------|-------------|-----------|
| Support model | CT-S280 | CT-S300 | CT-S2000 | CT-S4000 | BD2-2220 | PMU2XXX |
| | CT-S281 | CT-S310 | CT-S801/851 | CT-S601/651 | CT-P292/293 | PMU2XXXII |

[Function] Printing the downloaded bit image

[Code] <1D>H<2F>H<m>

[Range] $0 \leq m \leq 3, 48 \leq m \leq 51$

[Caution] **[The specification which is common to the model]**

- Prints downloaded bit image in a mode specified by "m".
- Modes that can be selected by "m" are shown below.

| m | Mode Name | Dot Density in Vertical Direction | Dot Density in Horizontal Direction |
|-------|---------------------|-----------------------------------|-------------------------------------|
| 0, 48 | NORMAL MODE | 203DPI | 203DPI |
| 1, 49 | DOUBLE WIDTH MODE | 203DPI | 101DPI |
| 2, 50 | DOUBLE HEIGHT MODE | 101DPI | 203DPI |
| 3, 51 | QUADRUPLE SIZE MODE | 101DPI | 101DPI |

[Caution] **[The specification which is common to the model]**

- When a downloaded bit image has not been defined, this command is ignored.
- When data exist in the print buffer, this command is ignored.
- A portion of a downloaded bit image exceeding one line length is not printed.

[See Also] [ESC & GS *](#)

GS v 0 m xL xH yL yH d1 ... dk

| | | | | | | |
|---------------|---------|---------|-------------|-------------|-------------|-----------|
| Support model | CT-S280 | CT-S300 | CT-S2000 | CT-S4000 | BD2-2220 | PMU2XXX |
| | CT-S281 | CT-S310 | CT-S801/851 | CT-S601/651 | CT-P292/293 | PMU2XXXII |

[Function] Printing of raster bit image

[Code] <1D>H<76>H<30>H<m><xL><xH><yL><yH>[<d>]k

[Range] $0 \leq m \leq 3$, $48 \leq m \leq 51$, $0 \leq xL \leq 255$, $0 \leq xH \leq 255$,
 $0 \leq yL \leq 255$, $0 \leq yH \leq 8$, $0 \leq d \leq 255$,
 $k = (xL + xH \times 256) \times (yL + yH \times 256)$, however, $k \neq 0$

[Outline] **[The specification which is common to the model]**

- Prints raster bit images in mode "m".

| m | Mode Name | Dot Density in Vertical Direction | Dot Density in Horizontal Direction |
|-------|---------------------|-----------------------------------|-------------------------------------|
| 0, 48 | NORMAL MODE | 203dpi | 203dpi |
| 1, 49 | DOUBLE WIDTH MODE | 203dpi | 101dpi |
| 2, 50 | DOUBLE HEIGHT MODE | 101dpi | 203dpi |
| 3, 51 | QUADRUPLE SIZE MODE | 101dpi | 101dpi |

- xL, xH specify the number of data in horizontal direction of the bit image to $(xL + xH \times 256)$ bytes.
- yL, yH specify the number of data in vertical direction of the bit image to $(yL + yH \times 256)$ bytes.

[Caution] **[The specification which is common to the model]**

- Any of the print modes (character size, emphasis, double strike, inverting, underlining, back-to-white reversing, etc.) does not affect the raster bit image.
- If the print area specified by GS L and GS W is narrower than a minimum width, the print area for that line only is extended to the minimum width. The minimum width is one dot in NORMAL MODE (m=0, 48) and DOUBLE HEIGHT MODE (m=2, 50), and 2 dots in DOUBLE WIDTH MODE (m=1, 49) and QUADRUPLE SIZE MODE (m=3, 51).
- Any part of data that is out of the print area is only read and discarded in units of dot.
- The print start position can arbitrarily be specified with HT (horizontal tab), ESC \$ (specifying absolute position), ESC \ (specifying relative positions), and GS L (setting left margins). Note that if the print start position is not a multiple of 8, the printing speed may decrease.
- The setting of ESC a (aligning characters) are also valid for the raster bit image.
- If this command is executed during macro definition, the macro definition is suspended, and the processing of the command starts. The macro is left undefined.
- "d" denotes defined data. Dots to be printed are specified as "1", and those not to be printed as "0".

[The specification which depend on the model]

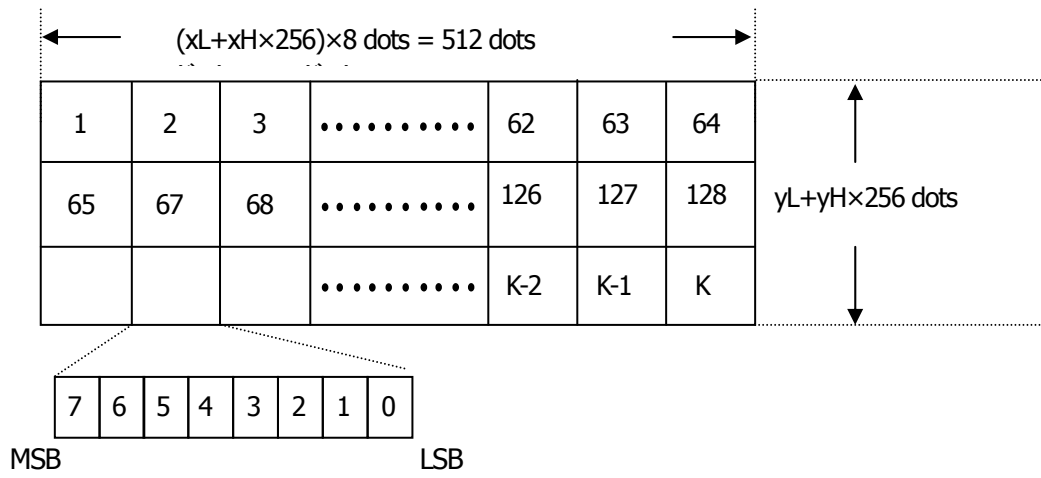
CT-S280/CT-S281/CT-S300/CT-S310/BD2-2220/PMU2XXX/PMU2XXXII
 CT-P292/293

- Valid only when no print data is present in the print buffer at the selection of STANDARD MODE.

CT-S2000/CT-S4000/CT-S801/CT-S851/CT-S601/CT-S651

- Valid only when no print data is present in the print buffer (at the top of a line).

[Example] When $x_L + x_H \times 256 = 64$



2.2.7 Status Commands

DLE EOT n

| | | | | | | |
|---------------|---------|---------|-------------|-------------|-------------|-----------|
| Support model | CT-S280 | CT-S300 | CT-S2000 | CT-S4000 | BD2-2220 | PMU2XXX |
| | CT-S281 | CT-S310 | CT-S801/851 | CT-S601/651 | CT-P292/293 | PMU2XXXII |

[Function] Sending status in real-time

[Code] <10>H<04>H<n>

[Range] $1 \leq n \leq 4$

[Outline] **[The specification which is common to the model]**

- Sends in real-time the status specified by "n".

| n | Status |
|---|---------------------------------------|
| 1 | Printer status |
| 2 | Status caused by an offline condition |
| 3 | Status caused by an error |
| 4 | Continuous paper detector status |

[Caution]

- Each status represents the current status. It is 1 byte data.
- The status is transferred without checking whether the host is ready to receive or busy.
- This command is executed even if the printer is in offline state, receive-buffer full state, or error state.
- This command is dealt with when it is received.
- With serial interface specifications, this command is executed in offline state, receiving buffer full state, and error state.
- With parallel interface specifications, this command cannot be executed while the printer is in Busy state.
When memory SW1-3 is ON, the printer does not enter Busy state in the offline state and error state.
- If ASB (Automatic Status Back) is enabled by GS a, it is necessary to discriminate between the status due to ASB and the status due to this command
- This command can be executed even if printer setting by ESC = is invalid.
- If another data string of 10H 04H n (1 n 4) is received, the printer acts the same way as with this command. Therefore, the user should be reminded of this fact.

[Example 1]

Suppose a command "ESC * m nL nH [d1 ... dk]", where d1 = 10H, d2 = 04H, d3 = 01H.

- The DLE EOT n command cannot be interleaved into the code string of another command consisting of 2 bytes or more.

[Example 2]

If the printer sends DLE EOT 3 after the host has sent up to ESC 3 in its attempt to send ESC 3 n, the printer handles the ESC 3 as ESC 3 10H. Thus, the user should be cautious.

[See Also] [Appendix 5.3 "Identification of Send Status"](#)
[DLE ENQ](#), [ESC c 4](#), [GS a](#), [GS r](#)

CT-S280

(1) Printer status (When n = 1 is specified)

| Bit | Status | Hex. | Decimal |
|-----|-----------------------------|------|---------|
| 0 | Fixed | 00H | 0 |
| 1 | Fixed | 02H | 2 |
| 2 | Fixed | 04H | 4 |
| 3 | Online status | 00H | 0 |
| | Offline status | 08H | 8 |
| 4 | Fixed | 10H | 16 |
| 5 | Not waiting online recovery | 00H | 0 |
| | Waiting online recovery | 20H | 32 |
| 6 | FEED switch is not pressed | 00H | 0 |
| | FEED switch is pressed | 40H | 64 |
| 7 | Fixed | 00H | 0 |

(2) Status caused by an offline condition (When n = 2 is specified)

| Bit | Status | Hex. | Decimal |
|-----|--|------|---------|
| 0 | Fixed | 00H | 0 |
| 1 | Fixed | 02H | 2 |
| 2 | Cover closed | 00H | 0 |
| | Cover open | 04H | 4 |
| 3 | Not in paper feed state triggered by FEED switch | 00H | 0 |
| | In paper feed state triggered by FEED switch | 08H | 8 |
| 4 | Fixed | 10H | 16 |
| 5 | Printing is not stopped because of "paper out" state | 00H | 0 |
| | Printing is stopped because of "paper out" state | 20H | 32 |
| 6 | Error not occurred | 00H | 0 |
| | Error occurred | 40H | 64 |
| 7 | Fixed | 00H | 0 |

Bit 5: Printing is stopped if the Paper-end detector detects a "paper out" state, or if the printer is out of paper when the Paper Near-end Sensor is enabled by ESC c 4. At this time, bit 5= 1.

(3) Status caused by an error (when n = 3 is specified)

| Bit | Status | Hex. | Decimal |
|-----|----------------------------------|------|---------|
| 0 | Fixed | 00H | 0 |
| 1 | Fixed | 02H | 2 |
| 2 | Fixed | 00H | 0 |
| 3 | Fixed | 00H | 0 |
| 4 | Fixed | 10H | 16 |
| 5 | Unrecoverable error not occurred | 00H | 0 |
| | Unrecoverable error occurred | 20H | 32 |
| 6 | Auto recovery error not occurred | 00H | 0 |
| | Auto recovery error occurred | 40H | 64 |
| 7 | Fixed | 00H | 0 |

Bit 6: If a head overheat error is detected, the printing is stopped until the head temperature falls. At this time, bit 6 = 1.

(4) Continuous paper detector status (When n = 4 is specified)

| Bit | Status | Hex. | Decimal |
|-----|--|------|---------|
| 0 | Fixed | 00H | 0 |
| 1 | Fixed | 02H | 2 |
| 2 | Paper found by Paper Near-end Sensor | 00H | 0 |
| | Paper not found by Paper Near-end Sensor | 04H | 4 |
| 3 | Paper found by Paper Near-end Sensor | 00H | 0 |
| | Paper not found by Paper Near-end Sensor | 08H | 8 |
| 4 | Fixed | 10H | 16 |
| 5 | Paper found by Paper-end Sensor | 00H | 0 |
| | Paper not found by Paper-end Sensor | 60H | 96 |
| 6 | Paper found by Paper-end Sensor | 00H | 0 |
| | Paper not found by Paper-end Sensor | 40H | 64 |
| 7 | Fixed | 00H | 0 |

* If the command is executed right after power on in error status, correct status may not be sent out.

CT-S281

(1) Printer status (When n = 1 is specified)

| Bit | Status | Hex. | Decimal |
|-----|-----------------------------|------|---------|
| 0 | Fixed | 00H | 0 |
| 1 | Fixed | 02H | 2 |
| 2 | Fixed | 04H | 4 |
| 3 | Online status | 00H | 0 |
| | Offline status | 08H | 8 |
| 4 | Fixed | 10H | 16 |
| 5 | Not waiting online recovery | 00H | 0 |
| | Waiting online recovery | 20H | 32 |
| 6 | FEED switch is not pressed | 00H | 0 |
| | FEED switch is pressed | 40H | 64 |
| 7 | Fixed | 00H | 0 |

(2) Status caused by an offline condition (When n = 2 is specified)

| Bit | Status | Hex. | Decimal |
|-----|--|------|---------|
| 0 | Fixed | 00H | 0 |
| 1 | Fixed | 02H | 2 |
| 2 | Cover closed | 00H | 0 |
| | Cover open | 04H | 4 |
| 3 | Not in paper feed state triggered by FEED switch | 00H | 0 |
| | In paper feed state triggered by FEED switch | 08H | 8 |
| 4 | Fixed | 10H | 16 |
| 5 | Printing is not stopped because of "paper out" state | 00H | 0 |
| | Printing is stopped because of "paper out" state | 20H | 32 |
| 6 | Error not occurred | 00H | 0 |
| | Error occurred | 40H | 64 |
| 7 | Fixed | 00H | 0 |

Bit 5: When Paper Near-end sensor (option) is installed, Printing is stopped if the Paper-end detector detects a "paper out" state, or if the printer is out of paper when the Paper Near-end Sensor is enabled by ESC c 4. At this time, bit 5 = 1.

(3) Status caused by an error (when n = 3 is specified)

| Bit | Status | Hex. | Decimal |
|-----|--|------|---------|
| 0 | Fixed | 00H | 0 |
| 1 | Fixed | 02H | 2 |
| 2 | No Mechanism error occurred. No BM detection error occurred.(only when B.M paper is selected) | 00H | 0 |
| | A Mechanism error occurred. A BM detection error occurred.(only when B.M paper is selected) | 04H | 4 |
| 3 | Auto cutter error not occurred | 00H | 0 |
| | Auto cutter error occurred | 08H | 8 |
| 4 | Fixed | 10H | 16 |
| 5 | Unrecoverable error not occurred | 00H | 0 |
| | Unrecoverable error occurred | 20H | 32 |
| 6 | Auto recovery error not occurred | 00H | 0 |
| | Auto recovery error occurred | 40H | 64 |
| 7 | Fixed | 00H | 0 |

Bit 2: It is generated by cover-open.

At BM/Label model, it is generated by BM/Label-error.

Bit 3: If this error occurred because of a paper jam, for example, remove the cause of the error, and then DLE ENQ n (1 n 2) can be used to recover from the error. However, it is not possible to recover from any error due to a circuit problem (e.g., broken wire).

Bit 6: If a head overheat error is detected, the printing is stopped until the head temperature falls. At this time, bit 6 = 1.

CT-S281

(4) Continuous paper detector status (When n = 4 is specified)

| Bit | Status | Hex. | Decimal |
|-----|--|------|---------|
| 0 | Fixed | 00H | 0 |
| 1 | Fixed | 02H | 2 |
| 2 | Paper found by Paper Near-end Sensor | 00H | 0 |
| | Paper not found by Paper Near-end Sensor | 04H | 4 |
| 3 | Paper found by Paper Near-end Sensor | 00H | 0 |
| | Paper not found by Paper Near-end Sensor | 08H | 8 |
| 4 | Fixed | 10H | 16 |
| 5 | Paper found by Paper-end Sensor | 00H | 0 |
| | Paper not found by Paper-end Sensor | 60H | 96 |
| 6 | Paper found by Paper-end Sensor | 00H | 0 |
| | Paper not found by Paper-end Sensor | 40H | 64 |
| 7 | Fixed | 00H | 0 |

Bit 2, 3: if the Paper-end detector is uninstalled, or if MSW2-8 = 0. At this time, bit 2, 3 = 0

Bit5/6: When cover is open, paper end may be detected as well.

CT-S300/CT-S310

(1) Printer status (When n = 1 is specified)

| Bit | Status | Hex. | Decimal |
|-----|--|------|---------|
| 0 | Fixed | 00H | 0 |
| 1 | Fixed | 02H | 2 |
| 2 | Status of pin 3 of drawer kick-out connector = L | 00H | 0 |
| | Status of pin 3 of drawer kick-out connector = H | 04H | 4 |
| 3 | Online status | 00H | 0 |
| | Offline status | 08H | 8 |
| 4 | Fixed | 10H | 16 |
| 5 | Not waiting online recovery | 00H | 0 |
| | Waiting online recovery | 20H | 32 |
| 6 | FEED switch is not pressed | 00H | 0 |
| | FEED switch is pressed | 40H | 64 |
| 7 | Fixed | 00H | 0 |

(2) Status caused by an offline condition (When n = 2 is specified)

| Bit | Status | Hex. | Decimal |
|-----|--|------|---------|
| 0 | Fixed | 00H | 0 |
| 1 | Fixed | 02H | 2 |
| 2 | Cover closed | 00H | 0 |
| | Cover open | 04H | 4 |
| 3 | Not in paper feed state triggered by FEED switch | 00H | 0 |
| | In paper feed state triggered by FEED switch | 08H | 8 |
| 4 | Fixed | 10H | 16 |
| 5 | Printing is not stopped because of "paper out" state | 00H | 0 |
| | Printing is stopped because of "paper out" state | 20H | 32 |
| 6 | Error not occurred | 00H | 0 |
| | Error occurred | 40H | 64 |
| 7 | Fixed | 00H | 0 |

Bit 5: Printing is stopped if the Paper-end detector detects a "paper out" state, or if the printer is out of paper when the Paper Near-end Sensor is enabled by ESC c 4. At this time, bit 5 = 1.

(3) Status caused by an error (when n = 3 is specified)

| Bit | Status | Hex. | Decimal |
|-----|---|------|---------|
| 0 | Fixed | 00H | 0 |
| 1 | Fixed | 02H | 2 |
| 2 | No Mechanism error occurred. No BM detection error occurred.(only when BM paper is selected) | 00H | 0 |
| | A Mechanism error occurred. A BM detection error occurred.(only when BM paper is selected) | 04H | 4 |
| 3 | Auto cutter error not occurred | 00H | 0 |
| | Auto cutter error occurred | 08H | 8 |
| 4 | Fixed | 10H | 16 |
| 5 | Unrecoverable error not occurred | 00H | 0 |
| | Unrecoverable error occurred | 20H | 32 |
| 6 | Auto recovery error not occurred | 00H | 0 |
| | Auto recovery error occurred | 40H | 64 |
| 7 | Fixed | 00H | 0 |

Bit 2: It is generated by cover-open.

At BM/Label model, it is generated by BM/Label-error.

Bit 3: If this error occurred because of a paper jam, for example, remove the cause of the error, and then DLE ENQ n (1 n 2) can be used to recover from the error. However, it is not possible to recover from any error due to a circuit problem (e.g., broken wire).

Bit 6: If a head overheat error is detected, the printing is stopped until the head temperature falls. At this time, bit 6 = 1.

CT-S300/CT-S310

(4) Continuous paper detector status (When n = 4 is specified)

| Bit | Status | Hex. | Decimal |
|-----|--|------|---------|
| 0 | Fixed | 00H | 0 |
| 1 | Fixed | 02H | 2 |
| 2 | Paper found by Paper Near-end Sensor | 00H | 0 |
| | Paper not found by Paper Near-end Sensor | 04H | 4 |
| 3 | Paper found by Paper Near-end Sensor | 00H | 0 |
| | Paper not found by Paper Near-end Sensor | 08H | 8 |
| 4 | Fixed | 10H | 16 |
| 5 | Paper found by Paper-end Sensor | 00H | 0 |
| | Paper not found by Paper-end Sensor | 60H | 96 |
| 6 | Paper found by Paper-end Sensor | 00H | 0 |
| | Paper not found by Paper-end Sensor | 40H | 64 |
| 7 | Fixed | 00H | 0 |

CT-S2000

(1) Printer status (When n = 1 is specified)

| Bit | Status | Hex. | Decimal |
|-----|--|------|---------|
| 0 | Fixed | 00H | 0 |
| 1 | Fixed | 02H | 2 |
| 2 | Status of pin 3 of drawer kick-out connector = L | 00H | 0 |
| | Status of pin 3 of drawer kick-out connector = H | 04H | 4 |
| 3 | Online status | 00H | 0 |
| | Offline status | 08H | 8 |
| 4 | Fixed | 10H | 16 |
| 5 | Not waiting online recovery | 00H | 0 |
| | Waiting online recovery | 20H | 32 |
| 6 | FEED switch is not pressed | 00H | 0 |
| | FEED switch is pressed | 40H | 64 |
| 7 | Fixed | 00H | 0 |

(2) Status caused by an offline condition (When n = 2 is specified)

| Bit | Status | Hex. | Decimal |
|-----|--|------|---------|
| 0 | Fixed | 00H | 0 |
| 1 | Fixed | 02H | 2 |
| 2 | Cover closed | 00H | 0 |
| | Cover open | 04H | 4 |
| 3 | Not in paper feed state triggered by FEED switch | 00H | 0 |
| | In paper feed state triggered by FEED switch | 08H | 8 |
| 4 | Fixed | 10H | 16 |
| 5 | Printing is not stopped because of "paper out" state | 00H | 0 |
| | Printing is stopped because of "paper out" state | 20H | 32 |
| 6 | Error not occurred | 00H | 0 |
| | Error occurred | 40H | 64 |
| 7 | Fixed | 00H | 0 |

Bit 5: Printing is stopped if the Paper-end detector detects a "paper out" state, or if the printer is out of paper when the Paper Near-end Sensor is enabled by ESC c 4. At this time, bit 5 = 1.

(3) Status caused by an error (when n = 3 is specified)

| Bit | Status | Hex. | Decimal |
|-----|---|------|---------|
| 0 | Fixed | 00H | 0 |
| 1 | Fixed | 02H | 2 |
| 2 | No Mechanism error occurred. No BM/Label detection error occurred.(only when BM/Label paper is selected) | 00H | 0 |
| | A Mechanism error occurred. A BM/Label detection error occurred.(only when BM/Label paper is selected) | 04H | 4 |
| 3 | Auto cutter error not occurred | 00H | 0 |
| | Auto cutter error occurred | 08H | 8 |
| 4 | Fixed | 10H | 16 |
| 5 | Unrecoverable error not occurred | 00H | 0 |
| | Unrecoverable error occurred | 20H | 32 |
| 6 | Auto recovery error not occurred | 00H | 0 |
| | Auto recovery error occurred | 40H | 64 |
| 7 | Fixed | 00H | 0 |

Bit 2: It is generated by cover-open.

At BM/Label model, it is generated by BM/Label-error.

Bit 3: If this error occurred because of a paper jam, for example, remove the cause of the error, and then DLE ENQ n (1 n 2) can be used to recover from the error. However, it is not possible to recover from any error due to a circuit problem (e.g., broken wire).

Bit 6: If a head overheat error is detected, the printing is stopped until the head temperature falls. At this time, bit 6 = 1.

CT-S2000

(4) Continuous paper detector status (When n = 4 is specified)

| Bit | Status | Hex. | Decimal |
|-----|--|------|---------|
| 0 | Fixed | 00H | 0 |
| 1 | Fixed | 02H | 2 |
| 2 | Paper found by Paper Near-end Sensor | 00H | 0 |
| | Paper not found by Paper Near-end Sensor | 04H | 4 |
| 3 | Paper found by Paper Near-end Sensor | 00H | 0 |
| | Paper not found by Paper Near-end Sensor | 08H | 8 |
| 4 | Fixed | 10H | 16 |
| 5 | Paper found by Paper-end Sensor | 00H | 0 |
| | Paper not found by Paper-end Sensor | 60H | 96 |
| 6 | Paper found by Paper-end Sensor | 00H | 0 |
| | Paper not found by Paper-end Sensor | 40H | 64 |
| 7 | Fixed | 00H | 0 |

CT-S4000

(1) Printer status (When n = 1 is specified)

| Bit | Status | Hex. | Decimal |
|-----|--|------|---------|
| 0 | Fixed | 00H | 0 |
| 1 | Fixed | 02H | 2 |
| 2 | Status of pin 3 of drawer kick-out connector = L | 00H | 0 |
| | Status of pin 3 of drawer kick-out connector = H | 04H | 4 |
| 3 | Online status | 00H | 0 |
| | Offline status | 08H | 8 |
| 4 | Fixed | 10H | 16 |
| 5 | Not waiting online recovery | 00H | 0 |
| | Waiting online recovery | 20H | 32 |
| 6 | FEED switch is not pressed | 00H | 0 |
| | FEED switch is pressed | 40H | 64 |
| 7 | Fixed | 00H | 0 |

(2) Status caused by an offline condition (When n = 2 is specified)

| Bit | Status | Hex. | Decimal |
|-----|--|------|---------|
| 0 | Fixed | 00H | 0 |
| 1 | Fixed | 02H | 2 |
| 2 | Cover closed | 00H | 0 |
| | Cover open | 04H | 4 |
| 3 | Not in paper feed state triggered by FEED switch | 00H | 0 |
| | In paper feed state triggered by FEED switch | 08H | 8 |
| 4 | Fixed | 10H | 16 |
| 5 | Printing is not stopped because of "paper out" state | 00H | 0 |
| | Printing is stopped because of "paper out" state | 20H | 32 |
| 6 | Error not occurred | 00H | 0 |
| | Error occurred | 40H | 64 |
| 7 | Fixed | 00H | 0 |

Bit 5: Printing is stopped if the Paper-end detector detects a "paper out" state, or if the printer is out of paper when the Paper Near-end Sensor is enabled by ESC c 4. At this time, bit 5 = 1.

(3) Status caused by an error (when n = 3 is specified)

| Bit | Status | Hex. | Decimal |
|-----|---|------|---------|
| 0 | Fixed | 00H | 0 |
| 1 | Fixed | 02H | 2 |
| 2 | No Mechanism error occurred. No BM/Label detection error occurred.(only when BM/Label paper is selected) | 00H | 0 |
| | A Mechanism error occurred. A BM/Label detection error occurred.(only when BM/Label paper is selected) | 04H | 4 |
| 3 | Auto cutter error not occurred | 00H | 0 |
| | Auto cutter error occurred | 08H | 8 |
| 4 | Fixed | 10H | 16 |
| 5 | Unrecoverable error not occurred | 00H | 0 |
| | Unrecoverable error occurred | 20H | 32 |
| 6 | Auto recovery error not occurred | 00H | 0 |
| | Auto recovery error occurred | 40H | 64 |
| 7 | Fixed | 00H | 0 |

Bit 2: It is generated by cover-open.

At BM/Label model, it is generated by BM/Label-error.

Bit 3: If this error occurred because of a paper jam, for example, remove the cause of the error, and then DLE ENQ n (1 n 2) can be used to recover from the error. However, it is not possible to recover from any error due to a circuit problem (e.g., broken wire).

Bit 6: If a head overheat error is detected, the printing is stopped until the head temperature falls. At this time, bit 6 = 1.

CT-S4000

(4) Continuous paper detector status (When n = 4 is specified)

| Bit | Status | Hex. | Decimal |
|-----|--|------|---------|
| 0 | Fixed | 00H | 0 |
| 1 | Fixed | 02H | 2 |
| 2 | Paper found by Paper Near-end Sensor | 00H | 0 |
| | Paper not found by Paper Near-end Sensor | 04H | 4 |
| 3 | Paper found by Paper Near-end Sensor | 00H | 0 |
| | Paper not found by Paper Near-end Sensor | 08H | 8 |
| 4 | Fixed | 10H | 16 |
| 5 | Paper found by Paper-end Sensor | 00H | 0 |
| | Paper not found by Paper-end Sensor | 60H | 96 |
| 6 | Paper found by Paper-end Sensor | 00H | 0 |
| | Paper not found by Paper-end Sensor | 40H | 64 |
| 7 | Fixed | 00H | 0 |

CT-S801/CT-S851/CT-S601/CT-S651

(1) Printer status (When n = 1 is specified)

| Bit | Status | Hex. | Decimal |
|-----|--|------|---------|
| 0 | Fixed | 00H | 0 |
| 1 | Fixed | 02H | 2 |
| 2 | Status of pin 3 of drawer kick-out connector = L | 00H | 0 |
| | Status of pin 3 of drawer kick-out connector = H | 04H | 4 |
| 3 | Online status | 00H | 0 |
| | Offline status | 08H | 8 |
| 4 | Fixed | 10H | 16 |
| 5 | Not waiting online recovery | 00H | 0 |
| | Waiting online recovery | 20H | 32 |
| 6 | FEED switch is not pressed | 00H | 0 |
| | FEED switch is pressed | 40H | 64 |
| 7 | Fixed | 00H | 0 |

(2) Status caused by an offline condition (When n = 2 is specified)

| Bit | Status | Hex. | Decimal |
|-----|--|------|---------|
| 0 | Fixed | 00H | 0 |
| 1 | Fixed | 02H | 2 |
| 2 | Cover closed | 00H | 0 |
| | Cover open | 04H | 4 |
| 3 | Not in paper feed state triggered by FEED switch | 00H | 0 |
| | In paper feed state triggered by FEED switch | 08H | 8 |
| 4 | Fixed | 10H | 16 |
| 5 | Printing is not stopped because of "paper out" state | 00H | 0 |
| | Printing is stopped because of "paper out" state | 20H | 32 |
| 6 | Error not occurred | 00H | 0 |
| | Error occurred | 40H | 64 |
| 7 | Fixed | 00H | 0 |

Bit 5: Printing is stopped if the Paper-end detector detects a "paper out" state, or if the printer is out of paper when the Paper Near-end Sensor is enabled by ESC c 4. At this time, bit 5 = 1.

(3) Status caused by an error (when n = 3 is specified)

| Bit | Status | Hex. | Decimal |
|-----|---|------|---------|
| 0 | Fixed | 00H | 0 |
| 1 | Fixed | 02H | 2 |
| 2 | No Mechanism error occurred. No BM/Label detection error occurred.(only when BM/Label paper is selected) | 00H | 0 |
| | A Mechanism error occurred. A BM/Label detection error occurred.(only when BM/Label paper is selected) | 04H | 4 |
| 3 | Auto cutter error not occurred | 00H | 0 |
| | Auto cutter error occurred | 08H | 8 |
| 4 | Fixed | 10H | 16 |
| 5 | Unrecoverable error not occurred | 00H | 0 |
| | Unrecoverable error occurred | 20H | 32 |
| 6 | Auto recovery error not occurred | 00H | 0 |
| | Auto recovery error occurred | 40H | 64 |
| 7 | Fixed | 00H | 0 |

Bit 2: It is generated by cover-open.

At BM/Label model, it is generated by BM/Label-error.

Bit 3: If this error occurred because of a paper jam, for example, remove the cause of the error, and then DLE ENQ n (1 n 2) can be used to recover from the error. However, it is not possible to recover from any error due to a circuit problem (e.g., broken wire).

Bit 6: If a head overheat error is detected, the printing is stopped until the head temperature falls. At this time, bit 6 = 1.

CT-S801/CT-S851/CT-S601/CT-S651

(4) Continuous paper detector status (When n = 4 is specified)

| Bit | Status | Hex. | Decimal |
|------------|--|-------------|----------------|
| 0 | Fixed | 00H | 0 |
| 1 | Fixed | 02H | 2 |
| 2 | Paper found by Paper Near-end Sensor | 00H | 0 |
| | Paper not found by Paper Near-end Sensor | 04H | 4 |
| 3 | Paper found by Paper Near-end Sensor | 00H | 0 |
| | Paper not found by Paper Near-end Sensor | 08H | 8 |
| 4 | Fixed | 10H | 16 |
| 5 | Paper found by Paper-end Sensor | 00H | 0 |
| | Paper not found by Paper-end Sensor | 60H | 96 |
| 6 | Paper found by Paper-end Sensor | 00H | 0 |
| | Paper not found by Paper-end Sensor | 40H | 64 |
| 7 | Fixed | 00H | 0 |

BD2-2220

(1) Printer status (When n = 1 is specified)

| Bit | Status | Hex. | Decimal |
|-----|-----------------------------|------|---------|
| 0 | Fixed | 00H | 0 |
| 1 | Fixed | 02H | 2 |
| 2 | Fixed | 04H | 4 |
| 3 | Online status | 00H | 0 |
| | Offline status | 08H | 8 |
| 4 | Fixed | 10H | 16 |
| 5 | Not waiting online recovery | 00H | 0 |
| | Waiting online recovery | 20H | 32 |
| 6 | LF-SW signal is High-Level | 00H | 0 |
| | LF-SW signal is Low-Level | 40H | 64 |
| 7 | Fixed | 00H | 0 |

(2) Status caused by an offline condition (When n = 2 is specified)

| Bit | Status | Hex. | Decimal |
|-----|--|------|---------|
| 0 | Fixed | 00H | 0 |
| 1 | Fixed | 02H | 2 |
| 2 | Head-down | 00H | 0 |
| | Head-up | 04H | 4 |
| 3 | Not in paper feed state triggered by LF-SW signal | 00H | 0 |
| | In paper feed state triggered by LF-SW signal | 08H | 8 |
| 4 | Fixed | 10H | 16 |
| 5 | Printing is not stopped because of "paper out" state | 00H | 0 |
| | Printing is stopped because of "paper out" state | 20H | 32 |
| 6 | Error not occurred | 00H | 0 |
| | Error occurred | 40H | 64 |
| 7 | Fixed | 00H | 0 |

Bit 5: Printing is stopped if the Paper-end detector detects a "paper out" state, or if the printer is out of paper when the Paper Near-end Sensor is enabled by ESC c 4. At this time, bit 5 = 1.

(3) Status caused by an error (when n = 3 is specified)

| Bit | Status | Hex. | Decimal |
|-----|----------------------------------|------|---------|
| 0 | Fixed | 00H | 0 |
| 1 | Fixed | 02H | 2 |
| 2 | Fixed | 00H | 0 |
| 3 | Auto cutter error not occurred | 00H | 0 |
| | Auto cutter error occurred | 08H | 8 |
| 4 | Fixed | 10H | 16 |
| 5 | Unrecoverable error not occurred | 00H | 0 |
| | Unrecoverable error occurred | 20H | 32 |
| 6 | Auto recovery error not occurred | 00H | 0 |
| | Auto recovery error occurred | 40H | 64 |
| 7 | Fixed | 00H | 0 |

Bit 3: If this error occurred because of a paper jam, for example, remove the cause of the error, and then DLE ENQ n (1 n 2) can be used to recover from the error. However, it is not possible to recover from any error due to a circuit problem (e.g., broken wire).

Bit 6: If a head overheat error is detected, the printing is stopped until the head temperature falls. At this time, bit 6 = 1.

(4) Continuous paper detector status (When n = 4 is specified)

| Bit | Status | Hex. | Decimal |
|-----|--|------|---------|
| 0 | Fixed | 00H | 0 |
| 1 | Fixed | 02H | 2 |
| 2 | Paper found by Paper Near-end Sensor | 00H | 0 |
| | Paper not found by Paper Near-end Sensor | 04H | 4 |
| 3 | Paper found by Paper Near-end Sensor | 00H | 0 |
| | Paper not found by Paper Near-end Sensor | 08H | 8 |
| 4 | Fixed | 10H | 16 |
| 5 | Paper found by Paper-end Sensor | 00H | 0 |
| | Paper not found by Paper-end Sensor | 60H | 96 |
| 6 | Paper found by Paper-end Sensor | 00H | 0 |
| | Paper not found by Paper-end Sensor | 40H | 64 |
| 7 | Fixed | 00H | 0 |

PMU2XXX/PMU2XXXII

(1) Printer status (When n = 1 is specified)

| Bit | Status | Hex. | Decimal |
|-----|-----------------------------|------|---------|
| 0 | Fixed | 00H | 0 |
| 1 | Fixed | 02H | 2 |
| 2 | Fixed | 04H | 4 |
| 3 | Online status | 00H | 0 |
| | Offline status | 08H | 8 |
| 4 | Fixed | 10H | 16 |
| 5 | Not waiting online recovery | 00H | 0 |
| | Waiting online recovery | 20H | 32 |
| 6 | LF-SW signal is High-Level | 00H | 0 |
| | LF-SW signal is Low-Level | 40H | 64 |
| 7 | Fixed | 00H | 0 |

(2) Status caused by an offline condition (When n = 2 is specified)

| Bit | Status | Hex. | Decimal |
|-----|--|------|---------|
| 0 | Fixed | 00H | 0 |
| 1 | Fixed | 02H | 2 |
| 2 | Head-down | 00H | 0 |
| | Head-up | 04H | 4 |
| 3 | Not in paper feed state triggered by LF-SW signal | 00H | 0 |
| | In paper feed state triggered by LF-SW signal | 08H | 8 |
| 4 | Fixed | 10H | 16 |
| 5 | Printing is not stopped because of "paper out" state | 00H | 0 |
| | Printing is stopped because of "paper out" state | 20H | 32 |
| 6 | Error not occurred | 00H | 0 |
| | Error occurred | 40H | 64 |
| 7 | Fixed | 00H | 0 |

Bit 5: Printing is stopped if the Paper-end detector detects a "paper out" state, or if the printer is out of paper when the Paper Near-end Sensor is enabled by ESC c 4. At this time, bit 5 = 1.

(3) Status caused by an error (when n = 3 is specified)

| Bit | Status | Hex. | Decimal |
|-----|---|------|---------|
| 0 | Fixed | 00H | 0 |
| 1 | Fixed | 02H | 2 |
| 2 | No Mechanism error occurred. No BM/Label detection error occurred.(only when BM/Label paper is selected) | 00H | 0 |
| | A Mechanism error occurred. A BM/Label detection error occurred.(only when BM/Label paper is selected) | 04H | 4 |
| 3 | Auto cutter error not occurred | 00H | 0 |
| | Auto cutter error occurred | 08H | 8 |
| 4 | Fixed | 10H | 16 |
| 5 | Unrecoverable error not occurred | 00H | 0 |
| | Unrecoverable error occurred | 20H | 32 |
| 6 | Auto recovery error not occurred | 00H | 0 |
| | Auto recovery error occurred | 40H | 64 |
| 7 | Fixed | 00H | 0 |

Bit 2: It is generated by cover-open.

At BM/Label model, it is generated by BM/Label-error.

Bit 3: If this error occurred because of a paper jam, for example, remove the cause of the error, and then DLE ENQ n (1 n 2) can be used to recover from the error. However, it is not possible to recover from any error due to a circuit problem (e.g., broken wire).

Bit 6: If a head overheat error is detected, the printing is stopped until the head temperature falls. At this time, bit 6 = 1.

PMU2XXX/PMU2XXXII

(4) Continuous paper detector status (When n = 4 is specified)

| Bit | Status | Hex. | Decimal |
|-----|--|------|---------|
| 0 | Fixed | 00H | 0 |
| 1 | Fixed | 02H | 2 |
| 2 | Paper found by Paper Near-end Sensor | 00H | 0 |
| | Paper not found by Paper Near-end Sensor | 04H | 4 |
| 3 | Paper found by Paper Near-end Sensor | 00H | 0 |
| | Paper not found by Paper Near-end Sensor | 08H | 8 |
| 4 | Fixed | 10H | 16 |
| 5 | Paper found by Paper-end Sensor | 00H | 0 |
| | Paper not found by Paper-end Sensor | 60H | 96 |
| 6 | Paper found by Paper-end Sensor | 00H | 0 |
| | Paper not found by Paper-end Sensor | 40H | 64 |
| 7 | Fixed | 00H | 0 |

CT-P292/293

(1) Printer status (When n = 1 is specified)

| Bit | Status | Hex. | Decimal |
|-----|-----------------------------|------|---------|
| 0 | Fixed | 00H | 0 |
| 1 | Fixed | 02H | 2 |
| 2 | Fixed | 04H | 4 |
| 3 | Online status | 00H | 0 |
| | Offline status | 08H | 8 |
| 4 | Fixed | 10H | 16 |
| 5 | Not waiting online recovery | 00H | 0 |
| | Waiting online recovery | 20H | 32 |
| 6 | FEED switch is not pressed | 00H | 0 |
| | FEED switch is pressed | 40H | 64 |
| 7 | Fixed | 00H | 0 |

(2) Status caused by an offline condition (When n = 2 is specified)

| Bit | Status | Hex. | Decimal |
|-----|--|------|---------|
| 0 | Fixed | 00H | 0 |
| 1 | Fixed | 02H | 2 |
| 2 | Head-down | 00H | 0 |
| | Head-up | 04H | 4 |
| 3 | Not in paper feed state triggered by FEED switch | 00H | 0 |
| | In paper feed state triggered by FEED switch | 08H | 8 |
| 4 | Fixed | 10H | 16 |
| 5 | Printing is not stopped because of "paper out" state | 00H | 0 |
| | Printing is stopped because of "paper out" state | 20H | 32 |
| 6 | Error not occurred | 00H | 0 |
| | Error occurred | 40H | 64 |
| 7 | Fixed | 00H | 0 |

Bit 5: Printing is stopped if the Paper-end detector detects a "paper out" state, or if the printer is out of paper when the Paper Near-end Sensor is enabled by ESC c 4. At this time, bit 5 = 1.

(3) Status caused by an error (when n = 3 is specified)

| Bit | Status | Hex. | Decimal |
|-----|----------------------------------|------|---------|
| 0 | Fixed | 00H | 0 |
| 1 | Fixed | 02H | 2 |
| 2 | No Mechanism error occurred. | 00H | 0 |
| | A Mechanism error occurred. | 04H | 4 |
| 3 | Auto cutter error not occurred | 00H | 0 |
| | Auto cutter error occurred | 08H | 8 |
| 4 | Fixed | 10H | 16 |
| 5 | Unrecoverable error not occurred | 00H | 0 |
| | Unrecoverable error occurred | 20H | 32 |
| 6 | Auto recovery error not occurred | 00H | 0 |
| | Auto recovery error occurred | 40H | 64 |
| 7 | Fixed | 00H | 0 |

Bit 2: It is generated by cover-open.

Bit 3: If this error occurred because of a paper jam, for example, remove the cause of the error, and then DLE ENQ n (1 n 2) can be used to recover from the error. However, it is not possible to recover from any error due to a circuit problem (e.g., broken wire).

Bit 6: If a head overheat error is detected, the printing is stopped until the head temperature falls. At this time, bit 6 = 1.

CT-P292/293

(4) Continuous paper detector status (When n = 4 is specified)

| Bit | Status | Hex. | Decimal |
|-----|-------------------------------------|------|---------|
| 0 | Fixed | 00H | 0 |
| 1 | Fixed | 02H | 2 |
| 2 | Fixed | 04H | 4 |
| 3 | Fixed | 08H | 8 |
| 4 | Fixed | 10H | 16 |
| 5 | Paper found by Paper-end Sensor | 00H | 0 |
| | Paper not found by Paper-end Sensor | 60H | 96 |
| 6 | Paper found by Paper-end Sensor | 00H | 0 |
| | Paper not found by Paper-end Sensor | 40H | 64 |
| 7 | Fixed | 00H | 0 |

ESC un

| | | | | | | |
|---------------|---------|---------|-------------|-------------|-------------|-----------|
| Support model | CT-S280 | CT-S300 | CT-S2000 | CT-S4000 | BD2-2220 | PMU2XXX |
| | CT-S281 | CT-S310 | CT-S801/851 | CT-S601/651 | CT-P292/293 | PMU2XXXII |

[Function] Sending the peripheral device status

[Code] <1B>H<75>H<n>

[Outline] **[The specification which is common to the model]**

- Send the current drawer kick connector pin#3 status.
- n has the type shown in the table below:

| n | Connector Pin |
|---|-----------------------------|
| 0 | Drawer kick connector pin#3 |

[Caution] **[The specification which is common to the model]**

- Status to be sent uses 1 byte that has the value listed in the table below.
- DTR/DSR control sends 1 byte only after checking that host is ready to receive (DSR signal: space status). For XON/XOFF control, 1 byte is sent without checking DSR signal status.
- For DTR/DSR, if host is not ready to receive (DSR signal: mark status), it waits for ready condition to receive.
- Paper-end status causes BUSY status, thus this command may be in the receive-not-ready status.
- This command is valid only when MSW3-7 is set to ON.

| Bit | Function | Value | |
|-----|--------------|----------|-----|
| | | 0 | 1 |
| 0 | Pin #3 level | 'L' | 'H' |
| 1 | Undefined | — | — |
| 2 | Undefined | — | — |
| 3 | Undefined | — | — |
| 4 | Unused | 0: Fixed | — |
| 5 | Undefined | — | — |
| 6 | Undefined | — | — |
| 7 | Undefined | — | — |

[The specification which depend on the model]

CT-P292/293

- Bit 0 is fixed at 0 due to no paper near end function.

[Sample Program]

```
OPEN "COM1:N81NN" AS #1      → OPEN statement depends on types of BASIC.
PRINT #1,CHR$(&H1B);"u";CHR$(0)
A$ = INPUT$(1, #1)
CLOSE #1
```

ESC v

| | | | | | | |
|---------------|---------|---------|-------------|-------------|-------------|-----------|
| Support model | CT-S280 | CT-S300 | CT-S2000 | CT-S4000 | BD2-2220 | PMU2XXX |
| | CT-S281 | CT-S310 | CT-S801/851 | CT-S601/651 | CT-P292/293 | PMU2XXXII |

[Function] Transmission of printer status

[Code] <1B>H<76>H

[Outline] **[The specification which is common to the model]**

- Transmits current printer status.

[Caution] **[The specification which is common to the model]**

- Status is transmitted in 1byte with the content shown in the following table.
- In case of DTR/DSR control, only 1byte is transmitted after making sure the host is ready for reception (DSR signal is in the Space state). In case of XON/XOFF control, only 1byte is transmitted without checking the status of DSR signal.
- In case of DTR/DSR, if the host is not ready for reception (DSR signal in Mark state, wait till reception is available.
- Paper-end status causes BUSY status, thus this command may be in the receive-not-ready status.
- This command is valid only when MSW3-7 is set to ON.

| Bit | Position | Value | |
|-----|----------------|------------|----------|
| | | 0 | 1 |
| 0 | Paper Near-end | With paper | No paper |
| 1 | Undefined | — | — |
| 2 | Paper-end | With paper | No paper |
| 3 | Undefined | — | — |
| 4 | Unused | Fixed | — |
| 5 | Undefined | — | — |
| 6 | Undefined | — | — |
| 7 | Undefined | — | — |

Bit 2: In case of Paper End, as this printer goes offline, this command is not executed. Therefore, status "No Paper (04H)" is never transmitted.

[The specification which depend on the model]

CT-P292/293

- Bit 0 is set to 00H because Paper-Nearend detecto is not supported.

[Sample Program]

```

OPEN "COM1:N81NN" AS #1      →      OPEN statement varies with the type of BASIC.
PRINT #1, CHR$(&H1B);"v";
A$ = INPUT$(1, #1)
CLOSE #1

```

GS a n

| | | | | | | |
|---------------|---------|---------|-------------|-------------|-------------|-----------|
| Support model | CT-S280 | CT-S300 | CT-S2000 | CT-S4000 | BD2-2220 | PMU2XXX |
| | CT-S281 | CT-S310 | CT-S801/851 | CT-S601/651 | CT-P292/293 | PMU2XXXII |

[Function] Enabling/disabling ASB (Automatic Status Back)

[Code] <1D>H<61>H<n>

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

[Outline] **[The specification which is common to the model]**

- This command selects the status item to be addressed by ASB (Automatic Status Back.)

| Bit | Status Item Addressed by ASB | Hex. | Decimal |
|-----|---|------|---------|
| 0 | Status of pin 3 of drawer kick-out connector = Disabled | 00H | 0 |
| | Status of pin 3 of drawer kick-out connector = Enabled | 01H | 1 |
| 1 | Online/offline status = Disabled | 00H | 0 |
| | Online/offline status = Enabled | 02H | 2 |
| 2 | Error status = Disabled | 00H | 0 |
| | Error status = Enabled | 04H | 4 |
| 3 | Continuous Paper Sensor = Disabled | 00H | 0 |
| | Continuous Paper Sensor = Enabled | 08H | 8 |
| 4 | Undefined | — | — |
| 5 | Undefined | — | — |
| 6 | Undefined | — | — |
| 7 | Undefined | — | — |

[Caution] **[The specification which is common to the model]**

- If any status item is enabled, the status is sent to the host when this command is executed. After that time on, the status is sent each time an enabled status item changes. Because each status item represents the current condition, status items disabled for ASB may also have changed.
- The ASB function is disabled if all status items are disabled.
- If the ASB function is enabled by default, the host receives the status the first time the printer gets ready for communication after it is turned on.
- The printer sends 4 bytes of status shown in the tables below, without checking whether the host is ready to receive or busy. The 4 bytes of status is a continuous string except for XOFF code.
- Because this command is executed when data is mapped in the receive buffer, there may be a delay between command receiving and status sending depending on the condition of the receive buffer.
- Even if the printer is excluded from the selection of peripheral equipment ESC =, the 4 bytes of status is sent to the host whenever status changes.
- When DLE EOT, GS I, or GS r is used, the host must discriminate between the status specified by these commands and the status due to ASB.

[The specification which depend on the model]

CT-S280/CT-S281/BD2-2220/PMU2XXX/PMU2XXXII/CT-P292/293

- Bit 2 of the 1st byte (printer information) of the status sent in 4 bytes is set to 00H because drawer is not supported.

CT-S281

- Bit 0, 1 of the 3rd byte (Paper Sensor information) is set to 00H, if the Paper-end detector is uninstalled, or if MSW2-8= 0.
- Bit 2, 3 of the 3rd byte (Paper Sensor information): When covr is open, paper end may be detected as well.

CT-P292/293

- Bit 0, 1 of the 3rd byte (Paper Sensor information): Bit is fixed at 0 due to no paper near end function.

(1) 1st byte (Printer information)

| Bit | Status | Hex. | Decimal |
|-----|--|------|---------|
| 0 | Unused | 00H | 0 |
| 1 | Unused | 00H | 0 |
| 2 | Status of pin 3 of drawer kick-out connector = "L" | 00H | 0 |
| | Status of pin 3 of drawer kick-out connector = "H" | 04H | 4 |
| 3 | Online status | 00H | 0 |
| | Offline status | 08H | 8 |
| 4 | Unused | 10H | 16 |
| 5 | Cover closed | 00H | 0 |
| | Cover open | 20H | 32 |
| 6 | Not in paper feed state triggered by FEED switch | 00H | 0 |
| | In paper feed state triggered by FEED switch | 40H | 64 |
| 7 | Unused | 00H | 0 |

(2) 2nd byte (Error occurrence information)

| Bit | Status | Hex. | Decimal |
|-----|---|------|---------|
| 0 | Undefined | — | — |
| 1 | Undefined | — | — |
| 2 | No Mechanism error occurred. No BM detection error occurred.(only when BM paper is selected) | 00H | 0 |
| | A Mechanism error occurred. A BM detection error occurred.(only when BM paper is selected) | 04H | 4 |
| 3 | Auto cutter error not occurred | 00H | 0 |
| | Auto cutter error occurred | 08H | 8 |
| 4 | Unused | 00H | 0 |
| 5 | Unrecoverable error not occurred | 00H | 0 |
| | Unrecoverable error occurred | 20H | 32 |
| 6 | Auto recovery error not occurred | 00H | 0 |
| | Auto recovery error occurred | 40H | 64 |
| 7 | Unused | 00H | 0 |

*Bit 2: It is generated by cover-open.

At BM/Label model, it is generated by BM/Label-error.

*Bit 3: If this error occurred because of a paper jam, for example, remove the cause of the error, and then DLE ENQ n (1 n 2) can be used to recover from the error. However, it is not possible to recover from any error due to a circuit problem (e.g., broken wire).

*Bit 6: If a head overheat error is detected, the printing is stopped until the head temperature falls. At this time, bit 6 = 1.

(3) 3rd byte (Paper Sensor information)

| Bit | Status | Hex. | Decimal |
|------|--|------|---------|
| 0, 1 | Paper found by Paper Near-end Sensor | 00H | 0 |
| | Paper not found by Paper Near-end Sensor | 03H | 3 |
| 2, 3 | Paper found by Paper-end Sensor | 00H | 0 |
| | Paper not found by Paper-end Sensor | 0CH | 12 |
| 4 | Unused | 00H | 0 |
| 5 | Undefined | — | — |
| 6 | Undefined | — | — |
| 7 | Unused | 00H | 0 |

(4) 4th byte (Paper Sensor information)

In case of MSW3-7 ON

| Bit | Status | Hex. | Decimal |
|-----|-----------|------|---------|
| 0 | Undefined | — | — |
| 1 | Undefined | — | — |
| 2 | Undefined | — | — |
| 3 | Undefined | — | — |
| 4 | Unused | 00H | 0 |
| 5 | Undefined | — | — |
| 6 | Undefined | — | — |
| 7 | Unused | 00H | 0 |

In case of MSW3-7 OFF (CBM1000 non-compatible mode)

| Bit | Status | Hex. | Decimal |
|-----|----------|------|---------|
| 0 | Reserved | 01H | 1 |
| 1 | Reserved | 02H | 2 |
| 2 | Reserved | 04H | 4 |
| 3 | Reserved | 08H | 8 |
| 4 | Fixed | 00H | 0 |
| 5 | Reserved | 00H | 00 |
| 6 | Reserved | 00H | 00 |
| 7 | Fixed | 00H | 0 |

[Default] When MSW 1-3 OFF : n=0
 When MSW 1-3 ON : n=2

[The specification which depend on the model]

CT-S801/CT-S851/CT-S601/CT-S651

MSW1-3 OFF/ MSW6-1 OFF: n=0
MSW1-3 ON / MSW6-1 OFF: n=2
MSW1-3 OFF/ MSW6-1 ON : n=15
MSW1-3 ON / MSW6-1 ON : n=15

[See Also] [DLE EOT](#)、[GS_r](#)

GS r n

| | | | | | | |
|---------------|---------|---------|-------------|-------------|-------------|-----------|
| Support model | CT-S280 | CT-S300 | CT-S2000 | CT-S4000 | BD2-2220 | PMU2XXX |
| | CT-S281 | CT-S310 | CT-S801/851 | CT-S601/651 | CT-P292/293 | PMU2XXXII |

[Function] Sending status

[Code] <1D>H<72>H<n>

[Range] **[The specification which depend on the model]**
 CT-S280/CT-S281/BD2-2220/PMU2XXX/PMU2XXXII/CT-P292/293
 n=1, 49
 CT-S300/CT-S310/CT-S2000/CT-S4000
 CT-S801/CT-S851/CT-S601/CT-S651
 1 ≤ n ≤ 2, 49 ≤ n ≤ 50

[Outline] **[The specification which is common to the model]**
 • Sends the specified status to the host.

| n | Function |
|-------|---|
| 1, 49 | Sends the Paper Sensor status. |
| 2, 50 | Sends the Drawer Kick-out Connector status. |

[Caution] **[The specification which is common to the model]**

- When the serial interface is used:
 - For DTR/DSR control:

The printer sends the status after verifying that the host is ready to receive. If the host is not ready to receive, the printer waits for the host to become ready to receive.
 - For XON/XOFF control:

The printer sends the status without checking whether the host is ready to receive or busy.
- Because this command is executed when data is mapped in the receive buffer, there may be a delay between receiving the command and sending the status depending on the condition of the receive buffer.
- If ASB (Automatic Status Back) is enabled by GS a, the host must discriminate between the status due to this command and the status due to ASB.
- Whenever the Paper-end Sensor detects a "paper out" state, the printer goes offline, and the command is not executed. Therefore, the printer never sends a status "No paper in Paper-end detector (0CH)".

[The specification which depend on the model]
 CT-S280/CT-S281/BD2-2220/PMU2XXX/PMU2XXXII/CT-P292/293

- At the setting of MSW3-7 OFF, paper sensor status is fixed to 00h.

[The specification which depend on the model]
 CT-P292/293

- Status bit 0 is fixed at 0 due to no paper near end function.

- Paper Sensor status (n=1, 49)

| Bit | Status | Hex. | Decimal |
|------|--|-------|---------|
| 0, 1 | Paper found by Paper Near-end Sensor | 00H | 0 |
| | Paper not found by Paper Near-end Sensor | 03H | 3 |
| 2, 3 | Paper found by Paper-end Sensor | 00H | 0 |
| | Paper not found by Paper-end Sensor | (0CH) | (12) |
| 4 | Unused | 00H | 0 |
| 5 | Undefined | — | — |
| 6 | Undefined | — | — |
| 7 | Unused | 00H | 0 |

- Drawer kick-out connector status (n=2, 50)

| Bit | Status | Hex. | Decimal |
|-----|--|------|---------|
| 0 | Status of pin 3 of drawer kick connector = "L" | 00H | 0 |
| | Status of pin 3 of drawer kick connector = "H" | 01H | 1 |
| 1 | Undefined | — | — |
| 2 | Undefined | — | — |
| 3 | Undefined | — | — |
| 4 | Unused | 00H | 0 |
| 5 | Undefined | — | — |
| 6 | Undefined | — | — |
| 7 | Unused | 00H | 0 |

[See Also] [Appendix 5.3 "Identification of Send Status"](#)
[DLE EOT](#)、[GS a](#)

2.2.8 Paper Detecting Commands

ESC c 3 n

| | | | | | | |
|---------------|---------|---------|-------------|-------------|-------------|-----------|
| Support model | CT-S280 | CT-S300 | CT-S2000 | CT-S4000 | BD2-2220 | PMU2XXX |
| | CT-S281 | CT-S310 | CT-S801/851 | CT-S601/651 | CT-P292/293 | PMU2XXXII |

[Function] Selecting the Paper Sensor valid for a Paper-end signal output

[Code] <1B>H<63>H<33>H<n>

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

[Outline] **[The specification which is common to the model]**

- This command selects by which Paper Sensor a Paper-end signal should be output. Each bit for "n" has the following meaning:

| Bit | Position | Value | |
|-----|----------------|----------|---------|
| | | 0 | 1 |
| 0 | Paper Near-end | Disabled | Enabled |
| 1 | Paper Near-end | Disabled | Enabled |
| 2 | Paper-end | Disabled | Enabled |
| 3 | Paper-end | Disabled | Enabled |
| 4 | Undefined | — | — |
| 5 | Undefined | — | — |
| 6 | Undefined | — | — |
| 7 | Undefined | — | — |

[Caution] **[The specification which is common to the model]**

- This command is valid only for the parallel interface.

[Default] **[The specification which depend on the model]**

CT-S280/CT-S281/CT-S300/CT-S310/CT-S2000/CT-S4000/
BD2-2220/PMU2XXX/PMU2XXX II

n=15

CT-P292/293

n=15 (no signal at paper near end due to no paper near end sensor.)

CT-S801/CT-S851/CT-S601/CT-S651

- MSW3-2 OFF: n=15
- MSW3-2 ON : n=12

ESC c 4 n

| | | | | | | |
|---------------|---------|---------|-------------|-------------|-------------|-----------|
| Support model | CT-S280 | CT-S300 | CT-S2000 | CT-S4000 | BD2-2220 | PMU2XXX |
| | CT-S281 | CT-S310 | CT-S801/851 | CT-S601/651 | CT-P292/293 | PMU2XXXII |

[Function] Selecting the Paper Near-end Sensor valid for print stop

[Code] <1B>H<63>H<34>H<n>

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

[Outline] **[The specification which is common to the model]**

- This command selects the Paper Near-end Sensor which helps to stop printing when the paper supply almost runs out.
- Each bit for "n" has the following meaning:

| Bit | Position | Value | |
|-----|----------------|----------|---------|
| | | 0 | 1 |
| 0 | Paper Near-end | Disabled | Enabled |
| 1 | Paper Near-end | Disabled | Enabled |
| 2 | Undefined | — | — |
| 3 | Undefined | — | — |
| 4 | Undefined | — | — |
| 5 | Undefined | — | — |
| 6 | Undefined | — | — |
| 7 | Undefined | — | — |

[The specification which depend on the model]

CT-P292/293

- This command is invalid due to no paper near end sensor.

[Caution] **[The specification which is common to the model]**

- This printer can only select one kind of Paper Sensor, a Paper Near-end Sensor.

[Default] n=0

2.2.9 Panel Switch Commands

ESC c 5 n

| | | | | | | |
|---------------|---------|---------|-------------|-------------|-------------|-----------|
| Support model | CT-S280 | CT-S300 | CT-S2000 | CT-S4000 | BD2-2220 | PMU2XXX |
| | CT-S281 | CT-S310 | CT-S801/851 | CT-S601/651 | CT-P292/293 | PMU2XXXII |

[Function] Enabling/disabling the panel switches

[Code] <1B>H<63>H<35>H<n>

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

[Outline] **[The specification which is common to the model]**

- Enabling/disabling the FEED switch.
- "n" is valid only for the lowest bit (n0).
- Control by the lowest bit (n0) is shown as follows:

| n0 | Condition |
|----|------------------------------------|
| 0 | FEED switch (LF-SW signal) valid |
| 1 | FEED switch (LF-SW signal) invalid |

[Caution] **[The specification which is common to the model]**

- When the FEED switch is disabled with this command, the paper cannot be fed by operating the FEED switch.
- While switch operation is waited at the execution of macro, the FEED switch is always enabled regardless of the setting of this command but no paper feed operation is carried out.

[Default] n=0

CT-S801/CT-S851/CT-S601/CT-S651

- MSW3-2 OFF: n=0
- MSW3-2 ON : n=1

[Sample Program]

LPRINT CHR\$(&H1B);"c5";CHR\$(0); When enabling the FEED switch

LPRINT CHR\$(&H1B);"c5";CHR\$(1); When disabling the FEED switch

2.2.10 Macro Commands

GS :

| | | | | | | |
|---------------|---------|---------|-------------|-------------|-------------|-----------|
| Support model | CT-S280 | CT-S300 | CT-S2000 | CT-S4000 | BD2-2220 | PMU2XXX |
| | CT-S281 | CT-S310 | CT-S801/851 | CT-S601/651 | CT-P292/293 | PMU2XXXII |

[Function] Starting/ending macro definition

[Code] <1D>H<3A>H

[Outline] **[The specification which is common to the model]**

- Specifying starting/ending macro definition.
- Reception of this command during macro definition signifies ending the macro definition.

[Caution] **[The specification which is common to the model]**

- Maximum content available for macro definition is 2048 bytes. A portion exceeding 2048 bytes is not defined.
- When GS ^ is processed in macro definition, the macro definition is stopped and the content of definition is cleared.
- Even with ESC @ (Initialization of the printer) having been executed, defined content is not cleared. Therefore, it is possible to include ESC @ into the content of macro definition.
- Normal printing operation is carried out even during macro definition.

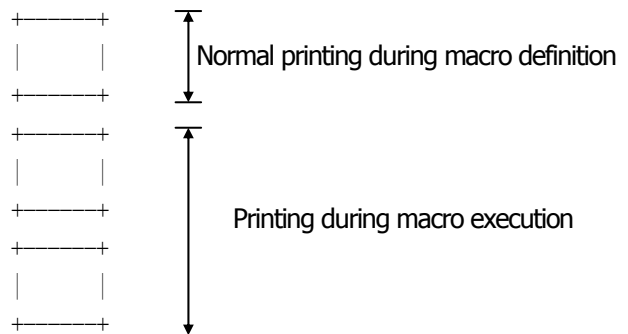
[Default] The initial value is not defined.

[See Also] [GS ^](#)

[Sample Program]

```
LPRINT CHR$(&H1D);":";
LPRINT "+-----+";CHR$(&HA);
LPRINT "|      |"; CHR$(&HA);
LPRINT "+-----+"; CHR$(&HA);
LPRINT CHR$(&H1D);":";
LPRINT CHR$(&H1D);"^";
LPRINT CHR$(2); CHR$(10); CHR$(0);
```

[Print Results]



GS ^ n1 n2 n3

| | | | | | | |
|---------------|---------|---------|-------------|-------------|-------------|-----------|
| Support model | CT-S280 | CT-S300 | CT-S2000 | CT-S4000 | BD2-2220 | PMU2XXX |
| | CT-S281 | CT-S310 | CT-S801/851 | CT-S601/651 | CT-P292/293 | PMU2XXXII |

[Function] Executing the macro

[Code] <1D>H<5E>H<n1><n2><n3>

[Range] $0 \leq n1 \leq 255$
 $0 \leq n2 \leq 255$
 $0 \leq n3 \leq 1$

[Outline] **[The specification which is common to the model]**

- Executing contents defined in macro.
- n1 : The number of times of macro execution
- n2 : Waiting time on macro execution: Waiting time of n2 x 100 msec is given for every execution.
- n3 : Macro execution mode
 - n3 = 0 Continuous execution: The Macro is executed "n1" times continuously at the time interval specified by "n2".
 - n3 = 1 Execution by FEED Switch: After waiting for the time specified by "n2", the ARARM LED flickers and the FEED switch is waiting to be pressed. When it is pressed, the macro is executed once. This action is repeated "n1" times.

[Caution] **[The specification which is common to the model]**

- When this command is received while in macro definition, suspension of macro definition is indicated. At this time, the defined content is cleared.
- No execution takes place when the macro is held undefined.
- While in macro execution with n3 = 1, paper feed with the FEED switch is not available.
- When MSW2-3 ON Spool print valid is specified, n2 is invalid.

[See Also] [GS :](#)

[Sample Program]
[Refer to Sample Program and Print Results for GS:.](#)

2.2.11 Cutter Commands

ESC i

| | | | | | | |
|---------------|---------|---------|-------------|-------------|-------------|-----------|
| Support model | CT-S280 | CT-S300 | CT-S2000 | CT-S4000 | BD2-2220 | PMU2XXX |
| | CT-S281 | CT-S310 | CT-S801/851 | CT-S601/651 | CT-P292/293 | PMU2XXXII |

[Function] Full cutting of paper

[Code] <1B>H<69>H

[Outline] **[The specification which is common to the model]**

- Executes full cutting of paper.

[Caution] **[The specification which is common to the model]**

- This command only works if it is entered at the beginning of a line.
- Before cutting paper, feed the paper more than the cutting position of paper from the print position. Without this paper feeding, the character just after printing remains before the cutter.

MSW4-8=ON: This command works as partial cut command.

[The specification which depend on the model]

CT-P292

- This command does not function.

CT-S300/CT-S310/CT-S2000/CT-S4000/CT-S801/CT-S851

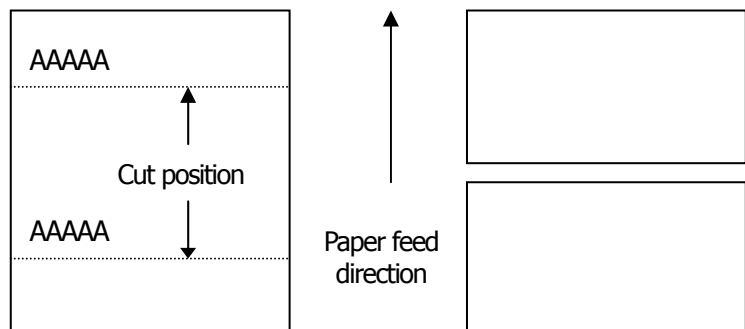
CT-S601/CT-S651/PMU2XXX/PMU2XXXII

- With label- or BM-supported model, this command does not function at the setting of BM paper/label paper setting.

[Sample Program]

```
LPRINT "AAAAA";
LPRINT CHR$(&H1B);"J";
LPRINT CHR$(150);
LPRINT CHR$(&H1B);"i";
```

[Print Results]



ESC m

| | | | | | | |
|---------------|---------|---------|-------------|-------------|-------------|-----------|
| Support model | CT-S280 | CT-S300 | CT-S2000 | CT-S4000 | BD2-2220 | PMU2XXX |
| | CT-S281 | CT-S310 | CT-S801/851 | CT-S601/651 | CT-P292/293 | PMU2XXXII |

[Function] Partial cutting of paper

[Code] <1B>H<6D>H

[Outline] **[The specification which is common to the model]**

- Executes partial cutting of paper.

[Caution] **[The specification which is common to the model]**

- This command only works if it is entered at the beginning of a line.
- Before cutting paper, feed the paper more than the cutting position of paper from the print position. Without this paper feeding, the character just after printing remains before the cutter.

[The specification which depend on the model]

CT-P292

- This command does not function.

CT-S300/CT-S310/CT-S2000/CT-S4000/CT-S801/CT-S851

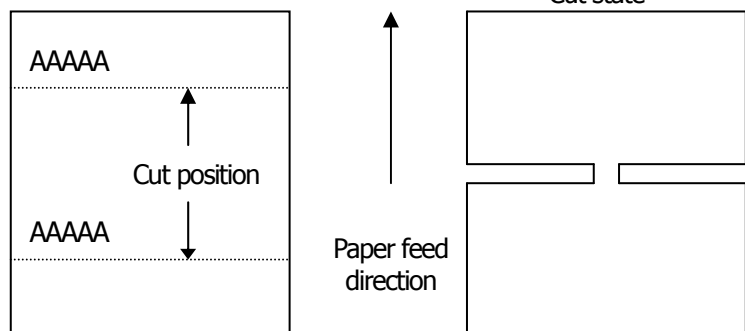
CT-S601/CT-S651/PMU2XXX/PMU2XXXII

- With label- or BM-supported model, this command does not function at the setting of BM paper/label paper setting.

[Sample Program]

```
LPRINT "AAAAA";
LPRINT CHR$(&H1B);"J";
LPRINT CHR$(150);
LPRINT CHR$(&H1B);"m";
```

[Print Results]



GS V m ... (1)

GS V m n ... (2)

| | | | | | | |
|---------------|---------|---------|-------------|-------------|-------------|-----------|
| Support model | CT-S280 | CT-S300 | CT-S2000 | CT-S4000 | BD2-2220 | PMU2XXX |
| | CT-S281 | CT-S310 | CT-S801/851 | CT-S601/651 | CT-P292/293 | PMU2XXXII |

[Function] Cutting the paper

[Code] (1)<1D>H<56>H<m>
(2)<1D>H<56>H<m><n>

[Range] (1) $0 \leq m \leq 1$, $48 \leq m \leq 49$
(2) $m = 65, 66$
 $0 \leq n \leq 255$

[Outline] **[The specification which is common to the model]**

- Performs the specified paper cutting.

| m | Function |
|-------|--|
| 0, 48 | Full cut |
| 1, 49 | Partial cut (Leaving a bridge area uncut) |
| 65 | Paper feed by "cut position + {n×basic calculation pitch}" and full cut |
| 66 | Paper feed by "cut position + {n×basic calculation pitch}" and partial cut |

[Caution] **[The specification which is common to the model]**

- In STANDARD MODE, this command only works when it is entered at the beginning of a line.
- Control to make the length of cut paper less than 10 mm is not executed.

For (1):

- Executes cutting of paper.

For (2):

- If $n = 0$, the paper is fed to the cut position, and then cut. If $n \neq 0$, the paper is fed by "n x basic calculation pitch" inches past the cut position, and then cut.
- The basic calculation pitch is set by GS P. The paper feed amount is calculated with the vertical basic calculation pitch (y). A fraction resulting from the calculation is corrected with the minimum pitch of the mechanism, and the remainder is omitted.

MSW4-8=ON: This command works as partial cut command only.

[The specification which depend on the model]

CT-P292

- This command does not function.

CT-S300/CT-S310/CT-S2000/CT-S4000/CT-S801/CT-S851

CT-S601/CT-S651/PMU2XXX/PMU2XXXII

- With label- or BM-supported model, this command does not function at the setting of BM paper/label paper setting.

2.2.12 Bar Code Commands

GS H n

| | | | | | | |
|---------------|---------|---------|-------------|-------------|-------------|-----------|
| Support model | CT-S280 | CT-S300 | CT-S2000 | CT-S4000 | BD2-2220 | PMU2XXX |
| | CT-S281 | CT-S310 | CT-S801/851 | CT-S601/651 | CT-P292/293 | PMU2XXXII |

[Function] Selecting of printing position of HRI characters

[Code] <1D>H<48>H<n>

[Range] $0 \leq n \leq 3$, $48 \leq n \leq 51$

[Outline] **[The specification which is common to the model!]**

- Selecting printing position of HRI characters in printing bar codes.
- "n" means the followings.

| n | Printing Position |
|-------|-----------------------------------|
| 0, 48 | No printing |
| 1, 49 | Above the bar code |
| 2, 50 | Below the bar code |
| 3, 51 | Both above and below the bar code |

The HRI characters refer to the bar code-turned characters so that you can read them.

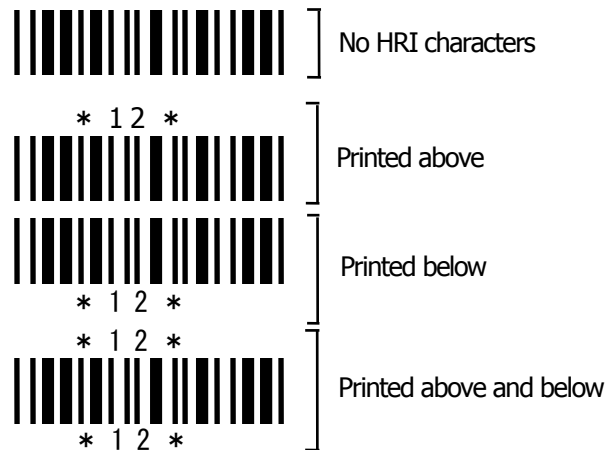
[Default] n=0

[See Also] [GS f](#), [GS k](#)

[Sample Program]

```
LPRINT CHR$(&H1B);"3"; CHR$(5);
LPRINT CHR$(&H1D);"h"; CHR$(50);
LPRINT CHR$(&H1D);"H"; CHR$(0);
GOSUB BC
LPRINT CHR$(&H1D);"H"; CHR$(1);
GOSUB BC
LPRINT CHR$(&H1D);"H"; CHR$(2);
GOSUB BC
LPRINT CHR$(&H1D);"H"; CHR$(3);
GOSUB BC
END
BC:
LPRINT CHR$(&H1D);"k";
LPRINT CHR$(4);
LPRINT "12"; CHR$(0);
LPRINT CHR$(&HA);
RETURN
```

[Print Results]



GS f n

| | | | | | | |
|---------------|---------|---------|-------------|-------------|-------------|-----------|
| Support model | CT-S280 | CT-S300 | CT-S2000 | CT-S4000 | BD2-2220 | PMU2XXX |
| | CT-S281 | CT-S310 | CT-S801/851 | CT-S601/651 | CT-P292/293 | PMU2XXXII |

[Function] Selecting the font of HRI characters

[Code] <1D>H<66>H<n>

[Range] $0 \leq n \leq 2, 48 \leq n \leq 50$

[Outline] **[The specification which is common to the model]**

- Selecting the font of HRI characters in printing bar code.
- The type of font can be selected with "n" as follows: •

[The specification which depend on the model]

CT-S300/CT-S310/CT-S801/CT-S851/CT-S601/CT-S651/CT-P292/293

| n | Font |
|-------|----------------|
| 0, 48 | Font A (12×24) |
| 1, 49 | Font B (9 ×17) |
| 2, 50 | Font C (8 ×16) |

CT-S280/CT-S281/CT-S2000/CT-S4000/BD2-2220/PMU2XXX/PMU2XXXII

| n | Font |
|-------|----------------|
| 0, 48 | Font A (12×24) |
| 1, 49 | Font B (9 ×24) |
| 2, 50 | Font C (8 ×16) |

[Caution] **[The specification which is common to the model]**

- The HRI characters are printed at the position specified with GS H.

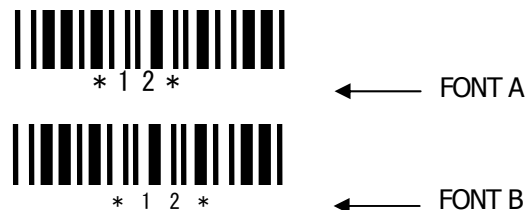
[Default] n=0

[See Also] [GS H](#)

[Sample Program]

```
LPRINT CHR$(&H1D);"h"; CHR$(50);
LPRINT CHR$(&H1D);"H"; CHR$(2);
LPRINT CHR$(&H1D);"f"; CHR$(0);
GOSUB BC
LPRINT CHR$(&H1D);"f"; CHR$(1);
GOSUB BC
END
BC:
LPRINT CHR$(&H1D);"k";
LPRINT CHR$(4);
LPRINT "12"; +CHR$(0);
LPRINT CHR$(&HA);
RETURN
```

[Print Results]



GS h n

| | | | | | | |
|---------------|---------|---------|-------------|-------------|-------------|-----------|
| Support model | CT-S280 | CT-S300 | CT-S2000 | CT-S4000 | BD2-2220 | PMU2XXX |
| | CT-S281 | CT-S310 | CT-S801/851 | CT-S601/651 | CT-P292/293 | PMU2XXXII |

[Function] Specifying the height of the bar code

[Code] <1D>H<68>H<n>

[Range] $1 \leq n \leq 255$

[Outline] **[The specification which is common to the model]**

- Selecting bar code height.
- "n" denotes the number of dots in the vertical direction.

[Sample Program]

[Refer to Sample Program and Print Results for GS w.](#)

(1)GS k m [d1...dk] NUL

(2)GS k m n [d1...dn]

| | | | | | | |
|---------------|---------|---------|-------------|-------------|-------------|-----------|
| Support model | CT-S280 | CT-S300 | CT-S2000 | CT-S4000 | BD2-2220 | PMU2XXX |
| | CT-S281 | CT-S310 | CT-S801/851 | CT-S601/651 | CT-P292/293 | PMU2XXXII |

[Function] Printing the bar code

[Code] (1)<1D>H<6B>H<m>[d1...dk] NULL
(2)<1D>H<6B>H<m><n> [d1...dn]

[Range] (1) $0 \leq m \leq 6$ The definitions of "k" and "d" vary with the bar code system.
(2) $65 \leq m \leq 73$ The definitions of "n" and "d" vary with the bar code system.

[Outline] [The specification which is common to the model]

- Selects a bar code system and prints the bar code.

For (1):

| m | Bar Code System | Range of "k" | Range of "d" |
|---|-----------------|-----------------------------|--|
| 0 | UPC-A | $11 \leq k \leq 12$ | $48 \leq d \leq 57$ |
| 1 | UPC-E | $11 \leq k \leq 12$ | $48 \leq d \leq 57$ |
| 2 | JAN13(EAN) | $12 \leq k \leq 13$ | $48 \leq d \leq 57$ |
| 3 | JAN8(EAN) | $7 \leq k \leq 8$ | $48 \leq d \leq 57$ |
| 4 | CODE39 | $1 \leq k$ | $48 \leq d \leq 57, 65 \leq d \leq 90$ 32, 36, 37, 43, 45, 46, 47 |
| 5 | ITF | $1 \leq k$ (An even number) | $48 \leq d \leq 57$ |
| 6 | CODABAR | $1 \leq k$ | $48 \leq d \leq 57, 65 \leq d \leq 68$ 36, 43, 45, 46, 47, 58 |

For (2):

| m | Bar Code System | Range of "n" | Range of "d" |
|----|-----------------|---|--|
| 65 | UPC-A | $11 \leq n \leq 12$ | $48 \leq d \leq 57$ |
| 66 | UPC-E | $11 \leq n \leq 12$ | $48 \leq d \leq 57$ |
| 67 | JAN13(EAN) | $12 \leq n \leq 13$ | $48 \leq d \leq 57$ |
| 68 | JAN8(EAN) | $7 \leq n \leq 8$ | $48 \leq d \leq 57$ |
| 69 | CODE39 | $1 \leq n \leq 255$ | $48 \leq d \leq 57, 65 \leq d \leq 90$ 32, 36, 42, 43, 45, 46, 47 |
| 70 | ITF | $1 \leq n \leq 255$ (An even number) | $48 \leq d \leq 57$ |
| 71 | CODABAR | $1 \leq n \leq 255$ | $48 \leq d \leq 57, 65 \leq d \leq 68$ 36, 43, 45, 46, 47, 58 |
| 72 | CODE93 | $1 \leq n \leq 255$ | $0 \leq d \leq 127$ |
| 73 | CODE128 | $2 \leq n \leq 255$ | $0 \leq d \leq 127$ |

[Caution]

For (1):

- This command ends with a NULL code.
- For UPC-A or UPC-E, the bar code is printed when 12 bytes of bar code data have been entered, and the subsequent data is handled as normal data.
- For JAN13, the bar code is printed when 13 bytes of bar code data have been entered, and the subsequent data is handled as normal data.
- For JAN8, the bar code is printed when 8 bytes of bar code data have been entered, and the subsequent data is handled as normal data.
- The data of ITF bar code must have an even number of columns. Should the data have an odd number of columns, the last column is ignored.

For (2):

- Numeral "n" indicates the number of data items, and the subsequent "n" bytes of data are handled as bar code data.
- If "n" is out of the range, the processing of the command is aborted, and the subsequent data is handled as normal data.

For STANDARD MODE:

- If "d" is out of the range, only a paper feed is executed, and the subsequent data is handled as normal data.
- If the bar code is wider than the print area for one line, the bar code is not printed, but only a paper feed is executed.
- The amount of paper feed corresponds to the height of the bar code (including the HRI characters if HRI character printing is specified), irrespective of the line feed width set by a command such as ESC 2 or ESC 3.
- This command only works if no data exists in the print buffer. If any data exists in the print buffer, the data subsequent to "m" is handled as normal data.
- After the bar code is printed, the beginning of the line is taken as the start position for the next print.
- This command is not affected by any print modes (emphasis, double strike, underline, and character size), except for the inverted character mode.

For PAGE MODE:

- This command only maps the bar code, without performing a printout. After the bar code is mapped, the dot next to the last data item of the bar code is taken as the start position for the next data mapping.
- If "d" is out of the range, the processing of the command is aborted, and the subsequent data is handled as normal data. In this case, the data mapping start position does not move.
- If the bar code is wider than the print area, the bar code is not printed, but the data mapping start position is moved to the left end of the non-print area.

[Description of Bar Codes]

- UPC-A** This bar code, consisting of numerals only, has a fixed length of 12 columns; a 11- column number entered from the host or application software plus a check digit (12th column) automatically calculated inside the printer. If the 12th-column numeral is sent from the host, the entire bar code will be printed as it is.
- UPC-E** This bar code, consisting of numerals only, has a fixed length of 8 columns. This printer compresses the 11- or 12-digit data (with check digit) entered to 8 digits by using zero suppression of UPC-E standard and then prints the data. Indicates an example of data compression based on zero suppression.
*The printer does not print bar code except the following conditions.
- Ex.) Original code shall be (0-ABCDE-VWXYZ)...11 digits (with no check digit specified).
Printable patterns are as follows:
1. When V - Y are all "0": "0-ABCDE-0000Z"⇒"ABCDEZ".
*Provided only 5 - 9 are applied to Z.
 2. When E and VWXY are all "0": "0-ABCD0-0000Z"⇒"ABCDZ4".
*The last character 4 indicates that maker codes A and D are not "0".
 3. When DE and VWX are "0": "0-ABC00-000YZ"⇒"ABCYZ3".
*The last character 3 indicates that A and C are not "0" and ABC is a number of 3 digits.
 4. When DE and VW are "0" and C is "0", "1", or "2":
(1)When C="0": "0-AB000-00XYZ"⇒"ABXYZ0".
(2)When C="1": "0-AB100-00XYZ"⇒"ABXYZ1".
(3)When C="2": "0-AB200-00XYZ"⇒"ABXYZ2".
 5. The check digit of 12th column is automatically calculated in the printer.
- JAN-13(EAN)** This bar code, consisting of numerals only, has a fixed length of 13 columns; a 12- column number entered from the host or application software plus a check digit (13th column) automatically calculated inside the printer. If the 13th-column numeral is sent from the host, the entire bar code will be printed as it is.
- JAN-8(EAN)** This bar code, consisting of numerals only, has a fixed length of 8 columns; a 7- column number entered from the host or application software plus a check digit (8th column) automatically calculated inside the printer. If the 8th-column numeral is sent from the host, the entire bar code will be printed as it is.
- CODE39** This bar code, consisting of upper-case alphabetic characters and numerals, has a variable length of columns. The start/stop code "*" is automatically added by the printer. The available characters include space and "\$ % + - . / 0 1 2 3 4 5 6 7 8 9" and upper-case alphabetic characters.
- ITF** This bar code, consisting of only numerals, has a variable length of even-number columns. If a code of odd-number columns is sent, the bar code will not be printed.
- CODABAR(NW-7)** This bar code, consisting of alphanumeric, has a variable length of columns. Available characters include "0 1 2 3 4 5 6 7 8 9 A B C D \$ + - . / :". A start/stop code is required; any one of A, B, C, and D is used.

CODE93

This bar code, consisting of alphanumeric and control characters, has a variable length of columns. The HRI character string is preceded and followed by a "■" character. HRI characters for control characters (00H - 1FH, and 7FH) are each printed as a combination of a "■" character and an alphabetic character.

| Control Character | | HRI Character | Control Character | | HRI Character |
|-------------------|------|---------------|-------------------|------|---------------|
| ASCII | Hex. | | ASCII | Hex. | |
| NUL | 00H | ■U | DLE | 10H | ■P |
| SOH | 01H | ■A | DC1 | 11H | ■Q |
| STX | 02H | ■B | DC2 | 12H | ■R |
| ETX | 03H | ■C | DC3 | 13H | ■S |
| EOT | 04H | ■D | DC4 | 14H | ■T |
| ENQ | 05H | ■E | NAK | 15H | ■U |
| ACK | 06H | ■F | SYN | 16H | ■V |
| BEL | 07H | ■G | ETB | 17H | ■W |
| BS | 08H | ■H | CAN | 18H | ■X |
| HT | 09H | ■I | EM | 19H | ■Y |
| LF | 0AH | ■J | SUB | 1AH | ■Z |
| VT | 0BH | ■K | ESC | 1BH | ■A |
| FF | 0CH | ■L | FS | 1CH | ■B |
| CR | 0DH | ■M | GS | 1DH | ■C |
| SO | 0EH | ■N | RS | 1EH | ■D |
| SI | 0FH | ■O | US | 1FH | ■E |
| | | | DEL | 7FH | ■T |

CODE128

This bar code consists of 103 bar code characters and three code sets, enabling 128 ASCII code characters to be printed. It has a variable length of columns.

- Code set A ASCII characters 00H - 5FH can be represented.
- Code set B ASCII characters 20H - 7FH can be represented.
- Code set C Two-digit numbers 00 - 99 can each be represented by one character. In addition to the above characters, special characters are available:
- Shift character (SHIFT)
When used in code set A, one character next to a Shift character is treated as a character of code set B. When used in code set B, one character next to a Shift character is treated as a character of code set A. The Shift character cannot be used in code set C.
- Code set select characters (CODE A, CODE B, CODE C):
The code set following a code set select character is switched to code set A, B, or C.
- Function characters (FNC1, FNC2, FNC3, FNC4):
How the function characters are used depends on each application. In code set C, only FNC1 is available.

When sending print data, note these points:

- (1) Each string of bar code data must begin with a code set select character (CODE A, CODE B, or CODE C), which selects the first code set to use.
- (2) Every special character is specified by a combination of two characters: a brace "{" followed by one character. A brace "{" itself is sent twice consecutively.

Special characters

| Hex. | ASCII | Code Set A | Code Set B | Code Set C |
|-------|-------|------------|------------|------------|
| 7B53H | {S | SHIFT | SHIFT | -N/A |
| 7B41H | {A | -N/A | CODE A | CODE A |
| 7B42H | {B | CODE B | -N/A | CODE B |
| 7B43H | {C | CODE C | CODE C | -N/A |
| 7B31H | {1 | FNC1 | FNC1 | FNC1 |
| 7B32H | {2 | FNC2 | FNC2 | -N/A |
| 7B33H | {3 | FNC3 | FNC3 | -N/A |
| 7B34H | {4 | FNC4 | FNC4 | -N/A |
| 7B7BH | {{ | `{` | `{` | `{` |

<Example>

To print "No." in code set B, followed by "123456" in code set C, send the following data string:

```
GS k <73> <10> <7B>H <42>H "No." <7B>H <43>H <12> <34> <56>
```

- If the printer finds a string of bar code data that does not begin with a code set select character, it immediately aborts the command processing and handles the subsequent data as normal data.
- If the printer received a character that is not available in the currently selected code set, it immediately aborts the command processing and handles the subsequent data as normal data.
- An HRI character corresponding to either a Shift character or a code select character is not printed. An HRI character for either a function character or a control character is treated as a space character.

GS w n

| | | | | | | |
|---------------|---------|---------|-------------|-------------|-------------|-----------|
| Support model | CT-S280 | CT-S300 | CT-S2000 | CT-S4000 | BD2-2220 | PMU2XXX |
| | CT-S281 | CT-S310 | CT-S801/851 | CT-S601/601 | CT-P292/293 | PMU2XXXII |

[Function] Specifying the horizontal size (magnification) of bar code

[Code] <1D>H<77>H<n>

[Range] $2 \leq n \leq 6$

[Outline] **[The specification which is common to the model]**

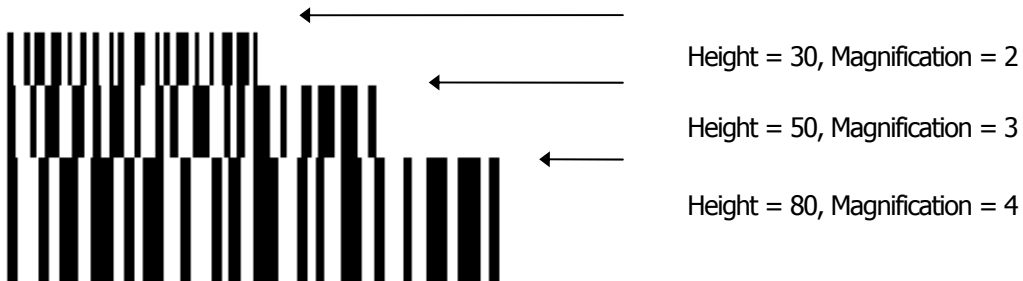
- Selecting bar code width.

[Default] n=3

[Sample Program]

```
LPRINT CHR$(&H1D);"h"; CHR$(30);
LPRINT CHR$(&H1D);"w"; CHR$(2);
GOSUB BC
LPRINT CHR$(&H1D);"h"; CHR$(50);
LPRINT CHR$(&H1D);"w"; CHR$(3);
GOSUB BC
LPRINT CHR$(&H1D);"h"; CHR$(80);
LPRINT CHR$(&H1D);"w"; CHR$(4);
GOSUB BC
END
BC:
LPRINT CHR$(&H1D);"k";
LPRINT CHR$(4);
LPRINT "12"; CHR$(0);
RETURN
```

[Print Results]



2.2.13 Commands for Non-volatile Memory

GS (C pL pH m fn b [c1 c2][d1...dk]

| | | | | | | |
|---------------|---------|---------|-------------|-------------|-------------|-----------|
| Support model | CT-S280 | CT-S300 | CT-S2000 | CT-S4000 | BD2-2220 | PMU2XXX |
| | CT-S281 | CT-S310 | CT-S801/851 | CT-S601/651 | CT-P292/293 | PMU2XXXII |

[Function] Editing user NV memory

[Outline] **[The specification which is common to the model]**

- Erases/stores/sends data of user NV memory area and sends the use amount/remaining capacity.
- Executes edit processing of user NV memory specified by function code (fn).

| fn | Code | Function No. | Function |
|-------|-----------------------------------|---------------------------|---|
| 0, 48 | GS (C pL pH m fn b c1 c2 | Function0 | Erases specified record. |
| 1, 49 | GS (C pL pH m fn b c1 c2 d1...dk | Function1 | Stores data in specified record. |
| 2, 50 | GS (C pL pH m fn b c1 c2 | Function2 | Sends data stored in specified record. |
| 3, 51 | GS (C pL pH m fn b | Function3 | Sends capacity of use (number of bytes). |
| 4, 52 | GS (C pL pH m fn b | Function4 | Sends remaining capacity (number of bytes). |
| 5, 53 | GS (C pL pH m fn b | Function5 | Sends key code list of stored record. |
| 6, 54 | GS (C pL pH m fn b d1 d2 d3 | Function6 | Erases all areas of user NV memory in a lump. |

- pL, PH specifies the number of bytes of "m" and the following to (pL + pH x 256).
- c1, c2 specifies key code (ID code of record).
- Total capacity of user NV memory can be specified as any of [1K, 64K, 128K, 192K]bytes by GS (E. Default value is 192K byte.

[Caution] **[The specification which is common to the model]**

- Frequent use of this command may result in damage of NV memory. Use the Write command to NV memory in consideration of [10 times max./day].
- Following the processing of this command, printer Busy may occur during writing data in NV memory. While the printer is Busy, it stops receiving process. Therefore, data transmission (including real-time command) from host is prohibited.

fn=0、 48: Function 0 Erasing Specified Record

GS (C pL pH m fn b kc1 kc2

| | |
|-----------|---|
| [Code] | <1D>H<28>H<43>H<pL><pH><m><fn>[c1 c2] |
| [Range] | (pL+pH×256)=5(pL=5, pH=0) m=0 fn=0, 48 b=0 32≤c1≤126 32≤c2≤126 |
| [Outline] | [The specification which is common to the model] <ul style="list-style-type: none">• Erases the record specified by c1, c2 stored in user NV memory. |

fn=1、 49: Function 1 Storing Data to Specified Record

GS (C pL pH m fn b c1 c2 d1...dk

| | |
|-----------|---|
| [Code] | <1D>H<28>H<43>H<pL><pH><m><fn>[c1 c2][d1...dk] |
| [Range] | 6≤(pL+pH×256)≤65535(0≤pL≤255, 0≤pH≤255) m=0 fn=1, 49 b=0 32≤c1≤126 32≤c2≤126 32≤d≤254 k=(pL+pH×256)-5 |
| [Outline] | [The specification which is common to the model] <ul style="list-style-type: none">• Stores data to the record specified by c1, c2.• When the data is present in NV memory, it is replaced by new data. |

fn=2、 50: Function 2 Sending Data Stored in Specified Record

GS (C pL pH m fn b c1 c2

[Code] <1D>H<28>H<43>H<pL><pH><m><fn> [c1 c2]

[Range] (pL+pH×256)=5 (pL=5, pH=0)
 m=0
 fn=2, 50
 b=0
 32≤c1≤126, 32≤c2≤126

[Outline] **[The specification which is common to the model]**

- Sends data stored in the record specified by c1, c2 in user NV memory.

| | Hex. | Decimal | Data Size |
|------------|------------|-----------|--------------|
| Header | 37H | 55 | 1byte |
| Identifier | 70H | 112 | 1byte |
| Status | 40H or 41H | 64 or 65 | 0 to 80bytes |
| Data | 20H to FEH | 32 to 254 | 1byte |
| NUL | 00H | 0 | 1byte |

- Transmission data in case specified record cannot be detected is as shown below.

| | Hex. | Decimal | Data Size |
|------------|------|---------|-----------|
| Header | 37H | 55 | 1byte |
| Identifier | 70H | 112 | 1byte |
| Status | 40H | 64 | 1byte |
| NUL | 00H | 0 | 1byte |

- When 40 or more key codes exist, they are divided in units of 40 maximum and the rest to be sent.
 Status with a group of consecutive transmit data groups is 41H.
 Status without a group of consecutive transmit data is 40H.
- After sending [Header - NUL], a response is received from host and next processing corresponding to the response is executed.

In case of "Status (with continuous block): hexadecimal number = 41H / decimal number = 65"

| Response | | Content of Processing |
|----------|---------|------------------------------|
| ASCII | Decimal | |
| ACK | 6 | Sends next data group. |
| NAK | 21 | Resends previous data group. |
| CAN | 24 | Cancels processing. |

In case of "Status (last block): hexadecimal number = 40H / decimal number = 64"

| Response | | Content of Processing |
|----------|---------|------------------------------|
| ASCII | Decimal | |
| ACK | 6 | Terminates processing. |
| NAK | 21 | Resends previous data group. |
| CAN | 24 | Cancels processing. |

fn=3、 51: Function 3 Sending Use Amount

GS (C pL pH m fn b

[Code] <1D>H<28>H<43>H<pL><pH><m><fn>

[Range] (pL+pH×256)=3 (pL=3, pH=0)
 m=0
 fn=3, 51
 b=0

[Outline] **[The specification which is common to the model]**
 • Sends the use amount of user NV memory (number of bytes of used area).

[Caution] **[The specification which is common to the model]**
 • This command uses 20 bytes for user NV management information beforehand and sends the use amount of user NV memory by 20 bytes more than actual size.

| | Hex. | Decimal | Data Size |
|-----------------|------------|----------|--------------|
| Header | 37H | 55 | 1byte |
| Identifier | 28H | 40 | 1byte |
| Capacity of use | 30H to 39H | 48 to 57 | 1 to 6 bytes |
| NUL | 00H | 0 | 1byte |

fn=4、 52: Function 4 Sending Remaining Capacity

GS (C pL pH m fn b

[Code] <1D>H<28>H<43>H<pL><pH><m><fn>

[Range] (pL+pH×256)=3 (pL=3, pH=0)
 m=0
 fn=4, 52
 b=0

[Outline] **[The specification which is common to the model]**
 • Sends the remaining capacity of user NV memory (number of bytes of unused area).

[Caution] **[The specification which is common to the model]**
 • This command uses 20 bytes for user NV management information beforehand and sends the remaining capacity user NV memory by 20 bytes less than actual size.

| | Hex. | Decimal | Data Size |
|-----------------|------------|----------|-------------|
| Header | 37H | 55 | 1byte |
| Identifier | 29H | 41 | 1byte |
| Capacity of use | 30H to 39H | 48 to 57 | 1 to 6bytes |
| NUL | 00H | 0 | 1byte |

fn=5、 53: Function 5 Sending Key Code List of Stored Record

GS (C pL pH m fn b

[Code] <1D>H<28>H<43>H<pL><pH><m><fn>

[Range] (pL+pH×256)=3 (pL=3, pH=0)
 m=0
 fn=5, 53
 b=0

[Outline] **[The specification which is common to the model]**
 • Sends key code list of record existing in user NV memory.

| | Hex. | Decimal | Data size |
|------------|------------|-----------|---------------|
| Header | 37H | 55 | 1byte |
| Identifier | 71H | 113 | 1byte |
| Status | 40H or 41H | 64or65 | 1byte |
| Data | 20H to FEH | 32 to 254 | 2 to 80 bytes |
| NUL | 00H | 0 | 1byte |

- Data is a data group with a list of key codes.
 Transmission data group when record is not detected is as shown below.

| | Hex. | Decimal | Data Size |
|------------|------|---------|-----------|
| Header | 37H | 55 | 1byte |
| Identifier | 71H | 113 | 1byte |
| Status | 40H | 64 | 1byte |
| NUL | 00H | 0 | 1byte |

- After sending [Header - NUL], receives a response from the host and executes the next processing corresponding to the response.

In case of "Status (with continuous block): hexadecimal number = 41H / decimal number = 65"

| Response | | Content of Processing |
|----------|---------|------------------------------|
| ASCII | Decimal | |
| ACK | 6 | Sends next data group. |
| NAK | 21 | Resends previous data group. |
| CAN | 24 | Cancels processing. |

In case of "Status (last block): hexadecimal number = 40H / decimal number = 64"

| Response | | Content of Processing |
|----------|---------|------------------------------|
| ASCII | Decimal | |
| ACK | 6 | Terminates processing. |
| NAK | 21 | Resends previous data group. |
| CAN | 24 | Cancels processing. |

fn=6、 54: Function 6 Erasing All User NV Memory Area in a Lump

GS (C pL pH m fn b [d1 d2 d3]

| | |
|------------------|--|
| [Code] | <1D>H<28>H<43>H<pL><pH><m><fn>[d1 d2 d3] |
| [Range] | (pL+pH×256)=6(pL=6, pH=0) m=0 fn=6, 54 b=0 d1=67("C") d2=76("L") d3=82("R") |
| [Outline] | [The specification which is common to the model] Erases all areas of user NV memory in a lump. |

GS (L pL pH m fn [parameter]

GS 8 L p1 p2 p3 p4 m fn [parameter]

| | | | | | | |
|---------------|---------|---------|-------------|-------------|-------------|-----------|
| Support model | CT-S280 | CT-S300 | CT-S2000 | CT-S4000 | BD2-2220 | PMU2XXX |
| | CT-S281 | CT-S310 | CT-S801/851 | CT-S601/651 | CT-P292/293 | PMU2XXXII |

[Function] Specifying graphics data

[Code] <1D>H<28>H<4C>H<pL><pH><m><fn>
<1D>H<38>H<4C>H<p1><p2><p3><p4><m><fn>

- * In the explanation of function, the code of GS (L is used.
 - GS (L and GS 8 L) are the same function.
 - When [parameter] exceeds 65533 bytes in each function, GS 8 L is used.

[Outline] **[The specification which is common to the model]**

- Executes the processing related to the graphics data specified by the function code (fn).

| fn | Code | Function No. | Function |
|-------|---|------------------------------|---|
| 0, 48 | GS (L pL pH m fn | Function48 | Sends NV graphics memory capacity. |
| 2, 50 | GS (L pL pH m fn | Function50 | Prints graphics data stored in print buffer. |
| 3, 51 | GS (L pL pH m fn | Function51 | Sends the remaining amount of NV graphics memory. |
| 64 | GS (L pL pH m fn d1 d2 | Function64 | Sends key code list of defined NV graphics. |
| 65 | GS (L pL pH m fn d1 d2 d3 | Function65 | Erases all data of NV graphics in a lump. |
| 66 | GS (L pL pH m fn kc1 kc2 | Function66 | Erases the specified NV graphics data. |
| 67 | GS (L pL pH m fn a kc1 kc2 b xL xH yL yH [c d1...dk]1...[c d1...dk]b | Function67 | Defines raster graphics data to NV memory. |
| 69 | GS (L pL pH m fn kc1 kc2 x y | Function69 | Prints the specified NV graphics. |
| 112 | GS (L pL pH m fn a bx by c xL xH yL yH d1...dk | Function 112 | Stores raster graphics data to print buffer. |

- pL, pH specifies the number of bytes or "m" and later to (pL+pH×256).

[Caution] **[The specification which is common to the model]**

- Frequent use of this command may result in damage of NV memory. Use the Write command to NV memory in consideration of [10 times max./day].
- Following the processing of this command, printer Busy may occur during writing data in NV memory. While the printer is Busy, it stops receiving process. Therefore, data transmission (including real-time command) from host is prohibited.

fn=0、 48: Function 48 Sending NV Graphics Memory Capacity

GS (L pL pH m fn

[Code] <1D>H<28>H<4C>H<pL><pH><m><fn>

[Range] (pL+pH×256)=2 (pL=2, pH=0)
m=48
fn=0, 48

[Outline] **[The specification which is common to the model]**
• Sends all capacity of NV graphics area in the number of bytes.

| | Hex. | Decimal | Data Size |
|------------|------------|----------|--------------|
| Header | 37H | 55 | 1 byte |
| Identifier | 30H | 48 | 1 byte |
| Data | 30H to 39H | 48 to 57 | 1 to 6 bytes |
| NUL | 00H | 0 | 1 byte |

- Converts all capacity to character code expressed in decimal notation and sends it from higher digit.
- Data size is variable.
- All definition area can be specified by GS (E out of [0, 64K, 128K, 192K, 256K, 320K, 384K]. Default value is 384k bytes

fn=2、 50: Function 50 Printing Graphics Data Stored in Print Buffer

GS (L pL pH m fn

[Code] <1D>H<28>H<4C>H<pL><pH><m><fn>

[Range] (pL+pH×256)=2 (pL=2, pH=0)
m=48
fn=2, 50

[Outline] **[The specification which is common to the model]**
• Prints the graphics data stored in the print buffer in the processing of Function 112.
• Executes paper feeding corresponding to the number of dots in Y direction of graphics stored in the print buffer.

fn=3、 51: Function 51 Sending the Remaining Amount of NV Graphics Memory

GS (L pL pH m fn

[Code] <1D>H<28>H<4C>H<pL><pH><m><fn>

[Range] (pL+pH×256)=2 (pL=2, pH=0)
m=48
fn=3, 51

[Outline] [The specification which is common to the model]

- Sends the remaining amount of NV graphics area (number of bytes of unused area).

| | Hex. | Decimal | Data Size |
|------------|------------|----------|--------------|
| Header | 37H | 55 | 1 byte |
| Identifier | 31H | 49 | 1 byte |
| Data | 30H to 39H | 48 to 57 | 1 to 6 bytes |
| NUL | 00H | 0 | 1 byte |

- Converts the remaining amount to character code expressed in decimal notation and sends it from higher digit.
- Data size is variable.

fn=64: Function 64 Sending Key Code List of Defined NV Graphics

GS (L pL pH m fn d1 d2

[Code] <1D>H<28>H<4C>H<pL><pH><m><fn><d1><d2>

[Range] (pL+pH×256)=4 (pL=4, pH=0)
 m=48
 fn=64
 d1=75("K")
 d2=67("C")

[Outline] **[The specification which is common to the model]**

- Sends the key code list of defined NV graphics.

When key code list is present

| | Hex. | Decimal | Data Size |
|------------|------------|----------|---------------|
| Header | 37H | 55 | 1 byte |
| Identifier | 72H | 114 | 1 byte |
| Status | 40H or 41H | 64or65 | 1 byte |
| Data | 30H to 39H | 48 to 57 | 2 to 80 bytes |
| NUL | 00H | 0 | 1 byte |

When key code is not present

| | Hex. | Decimal | Data Size |
|------------|------|---------|-----------|
| Header | 37H | 55 | 1 byte |
| Identifier | 72H | 114 | 1 byte |
| Data | 40H | 64 | 1 byte |
| NUL | 00H | 0 | 1 byte |

- When 40 or more key codes are present, they are sent by being divided in unit of 40max.
 Status with continuous transmission data group is 41H.
 Status without continuous transmission data group is 40H.
- After sending [Header - NUL], receives a response from the host and executes the next processing corresponding to the response.
- In case of "Status (with continuous block): hexadecimal number = 41H / decimal number = 65"

| Response | | Content of Processing |
|----------|---------|------------------------------|
| ASCII | Decimal | |
| ACK | 6 | Sends next data group. |
| NAK | 21 | Resends previous data group. |
| CAN | 24 | Cancels processing. |

- In case of "Status (last block): hexadecimal number = 40H / decimal number = 64"

| Response | | Content of Processing |
|----------|---------|------------------------------|
| ASCII | Decimal | |
| ACK | 6 | Terminates processing. |
| NAK | 21 | Resends previous data group. |
| CAN | 24 | Cancels processing. |

fn=65: Function 65 Erasing All Data of NV Graphics in a Lump

GS (L pL pH m fn d1 d2 d3

| | |
|-----------|---|
| [Code] | <1D>H<28>H<4C>H<pL><pH><m><fn><d1><d2><d3> |
| [Range] | (pL+pH×256)=5(pL=5, pH=0) m=48 fn=65 d1=67("C") d2=76("L") d3=82("R") |
| [Outline] | [The specification which is common to the model] Erases all defined data of NV graphics in a lump. |

fn=66: Function 66 Erasing Specified NV Graphics Data

GS (L pL pH m fn kc1 kc2

| | |
|-----------|---|
| [Code] | <1D>H<28>H<4C>H<pL><pH><m><fn><kc1><kc2> |
| [Range] | (pL+pH×256)=4(pL=4, pH=0) m=48 fn=66 32≤kc1≤126 32≤kc2≤126 |
| [Outline] | [The specification which is common to the model] Erases the NV graphics data defined by key code (kc1, kc2). |

fn=67: Function 67 Defining Raster Type Graphics Data to NV Memory

GS (L pL pH m fn a kc1 kc2 b xL xH yL yH

[c d1...dk]1...[c d1...dk]b

[Code] <1D>H<28>H<4C>H<pL><pH><m><fn><a><kc1><kc2><xL><xH><yL><yH>
[c d1...d2]1...[c d1...dk]b

[Range] Parameter of GS (L
 $12 \leq (pL+pH \times 256) \leq 65535 (0 \leq pL \leq 255, 0 \leq pH \leq 255)$
 Parameter of GS 8 L
 $12 \leq (p1+p2 \times 256+p3 \times 65536+p4 \times 16777216) \leq 4294967295$
 $(0 \leq p1 \leq 255, 0 \leq p2 \leq 255, 0 \leq p3 \leq 255, 0 \leq p4 \leq 255)$
 Common parameter of GS (L, GS 8 L
 m=48
 fn=67
 a=48
 $32 \leq kc1 \leq 126, 32 \leq kc2 \leq 126$
 b=1, 2
 $1 \leq (xL+xH \times 256) \leq 8192$
 $1 \leq (yL+yH \times 256) \leq 2304$
 c=49(When monochrome color paper is specified), c=49, 50(When 2-color paper is specified)
 $0 \leq d \leq 255$
 $k = (\text{int}((xL+xH \times 256) + 7/8) \times (yL+yH \times 256))$

All defined areas can be specified by GS (E from [0, 64K, 128K, 192K, 256K, 320K, 384K] bytes.
 Default value is 384K bytes.

[Outline] **[The specification which is common to the model]**
 Defines raster type graphics data to NV memory.

- "b" specifies the number of data colors.
- xL, xH specifies the horizontal direction of defined data to (xL+xH×256).
- yL, yH specifies the vertical direction of defined data to (yL+yH×256).
- "c" specifies the color of defined data.

| c | Color of Defined Data |
|----|-----------------------|
| 49 | 1st color |
| 50 | 2nd color |

- 1st color denotes black (high energy) in the specified 2-color thermal paper.
- 2nd color denotes red (low energy) in the specified 2-color thermal paper.

[Caution] **[The specification which is common to the model]**

- When multiple colors is specified by "b" and the same color is selected by "c", the command processing is terminated at that point, validating the defined data processed so far and the remaining data is read and discarded.

fn=69: Function 69 Printing Specified Graphics

GS (L pL pH m fn kc1 kc2 x y

[Code] <1D>H<28>H<4C>H<pL><pH><m><fn><kc1><kc2><x><y>

[Range] (pL+pH×256)=6 (pL=6, pH=0)
m=48
fn=69
32≤kc1≤126
32≤kc2≤126
x=1, 2
y=1, 2

[Outline] **[The specification which is common to the model]**
• Prints the NV graphics data defined by key code (kc1, kc2) as large as x times horizontally/y times vertically.

fn=112: Function 112 Storing Raster Type Graphics Data to Print Buffer

GS (L pL pH m fn a bx by c xL xH yL yH d1...dk

[Code] <1D>H<28>H<4C>H<pL><pH><m><fn><a><bx><by><c><xL><xH><yL><yH>[d1...dk]

[Range] Parameter of GS (L
 $11 \leq (pL+pH \times 256) \leq 65536 (0 \leq pL \leq 255, 0 \leq pH \leq 255)$
 Parameter of GS 8 L
 $11 \leq (p1+p2 \times 256) + p3 \times 65536 + p4 \times 16777216 \leq 4294967295$
 $(0 \leq p1 \leq 255, 0 \leq p2 \leq 255, 0 \leq p3 \leq 255, 0 \leq p4 \leq 255)$
 Common parameter of GS (L, GS 8 L
 m=48
 fn=112
 a=48
 bx=1, 2
 by=1, 2
 c=49(When monochrome color paper is specified), c=49, 50 (When 2-color paper is specified)
 $1 \leq (xL+xH \times 256) \leq 1024$

When monochrome color paper is specified
 $1 \leq (yL+yH \times 256) \leq 1662$ (with by=1)
 $1 \leq (yL+yH \times 256) \leq 831$ (with by=2)

When 2-color paper is specified
 $1 \leq (yL+yH \times 256) \leq 831$ (with by=1)
 $1 \leq (yL+yH \times 256) \leq 415$ (with by=2)

$0 \leq d \leq 255$
 $k = (\text{int}((xL+xH \times 256) + 7/8) \times (yL+yH \times 256))$

- [Outline]** **[The specification which is common to the model]**
- Stores raster type graphics data to print buffer as large as x times horizontally/y times vertically.
 - xL, xH specifies the horizontal direction of raster graphics data to (xL + xH x 256).
 - yL, yH specifies the vertical direction of raster graphics data to (yL + yH x 256).
 - "c" specifies the color of print data.

| c | Color of Print Data |
|----|---------------------|
| 49 | 1st color |
| 50 | 2nd color |

- 1st color denotes black (high energy) in the specified 2-color thermal paper.
- 2nd color denotes red (low energy) in the specified 2-color thermal paper.

[Caution] **[The specification which is common to the model]**

- In STANDARD MODE, each color can be defined only once.

GS g 0 m nL nH

| | | | | | | |
|---------------|---------|---------|-------------|-------------|-------------|-----------|
| Support model | CT-S280 | CT-S300 | CT-S2000 | CT-S4000 | BD2-2220 | PMU2XXX |
| | CT-S281 | CT-S310 | CT-S801/851 | CT-S601/651 | CT-P292/293 | PMU2XXXII |

[Function] Initializing maintenance counter

[Code] <1D>H<67>H<30>H<m><nL><nH>

[Range] m=0
 $20 \leq (nL+nH \times 256) \leq 70$ (nL=20, 21, 50, 70, nH=0)

[Outline] **[The specification which is common to the model]**

- Set the value of resettable maintenance counter specified to 0.
- nL, nH are used to set the maintenance counter number to (nL+nH×256).

| Counter Number | | Counter [Unit] |
|----------------|---------|---------------------------------|
| Hex. | Decimal | |
| 14H | 20 | Paper-feed line[line] |
| 15H | 21 | Head powering count [times] |
| 32H | 50 | Auto-cutter drive count [times] |
| 46H | 70 | Product operation time[hours] |

[Caution] **[The specification which is common to the model]**

- This command, if used frequently, may destroy NV memory, thus write command to NV memory shall be used less than [10 times/day] as a guideline.
- Along with processing this command, during data-writing to NV memory, printer BUSY may occur. During the printer BUSY, to stop receive processing, this printer prohibits the data sending (including real-time command) from host.

GS g 2 m nL nH

| | | | | | | |
|---------------|---------|---------|-------------|-------------|-------------|-----------|
| Support model | CT-S280 | CT-S300 | CT-S2000 | CT-S4000 | BD2-2220 | PMU2XXX |
| | CT-S281 | CT-S310 | CT-S801/851 | CT-S601/651 | CT-P292/293 | PMU2XXXII |

[Function] Sending maintenance counter

[Code] <1D>H<67>H<32>H<m><nL><nH>

[Range] m=0
 $20 \leq (nL + nH \times 256) \leq 198$
nL=20, 21, 50, 70, 148, 149, 178, 198
nH=0

[Outline] **[The specification which is common to the model]**

- Send the maintenance counter value specified.
- nL, nH are used to set the maintenance counter number to (nL+nH×256).

| Counter Number | | Counter [Unit] | Counter Type |
|----------------|---------|---------------------------------|--------------|
| Hex. | Decimal | | |
| 14H | 20 | Paper-feed line[line] | Resettable |
| 15H | 21 | Head powering count [times] | Resettable |
| 32H | 50 | Auto-cutter drive count [times] | Resettable |
| 46H | 70 | Product operation time[hours] | Resettable |
| 94H | 148 | Paper-feed line[line] | Accumulated |
| 95H | 149 | Head powering count [times] | Accumulated |
| B2H | 178 | Auto-cutter drive count [times] | Accumulated |
| C6H | 198 | Product operation time[hours] | Accumulated |

- Configuration of data to be sent is shown below for the maintenance counter.

| | Hex. | Decimal | Data Count |
|--------|------------|----------|---------------|
| Header | 5FH | 95 | 1 byte |
| Data | 30H to 39H | 48 to 57 | 1 to 10 bytes |
| NUL | 00H | 0 | 1 byte |

[Caution] **[The specification which is common to the model]**

- During sending block data (maintenance counter value), real-time status and ASB status shall not be sent. Thus, during sending the data, printer status can not be notified.
- Counter value sent by this command is only a guideline value. Due to an error occurrence and power off timing, figure data may have an error.
- To update the flash memory, write the flash memory if any change occurs in the maintenance counter when the period where the printer is not in operation (printing, paper feeding, drawer, or cutting) lasts about 10 seconds, 2 minutes, and 1 hour.
- If change occurs in each counter, data on RAM is updated correspondingly.

FS p n m

| | | | | | | |
|---------------|---------|---------|-------------|-------------|-------------|-----------|
| Support model | CT-S280 | CT-S300 | CT-S2000 | CT-S4000 | BD2-2220 | PMU2XXX |
| | CT-S281 | CT-S310 | CT-S801/851 | CT-S601/651 | CT-P292/293 | PMU2XXXII |

[Function] Printing the download NV bit images

[Code] <1C>H<70>H<n><m>

[Range] $1 \leq n \leq 255$, $0 \leq m \leq 3$, $48 \leq m \leq 51$

[Outline] **[The specification which is common to the model]**

- This command prints the download NV bit images (n) using a specified mode (m).

| m | Mode Name | Dot Density in Vertical Direction | Dot Density in Horizontal Direction |
|-------|---------------------|-----------------------------------|-------------------------------------|
| 0, 48 | NORMAL MODE | 203dpi | 203dpi |
| 1, 49 | DOUBLE WIDTH MODE | 203dpi | 101dpi |
| 2, 50 | DOUBLE HEIGHT MODE | 101dpi | 203dpi |
| 3, 51 | QUADRUPLE SIZE MODE | 101dpi | 101dpi |

- "n" denotes the number of the download bit image.
- "m" denotes the bit image mode.

[Caution] **[The specification which is common to the model]**

- When the specified NV bit image "n" is undefined, this command is invalid.
- When the STANDARD MODE is selected, this command is valid only when there is no data in the print buffer.
- This command is invalid when PAGE MODE is selected.
- Any printing modes except the upside-down printing mode (i.e. emphasis, double strike, underlining, character size, inverted character printing, 90°-right-turned) are not affected.
- When the printing area set by the functions GS L and GS W is not enough for one vertical line of the download NV bit image, the line alone is dealt with as follows.
One vertical line of the bit image is 1 dot in NORMAL MODE (m = 0, 48) and DOUBLE HEIGHT MODE (m = 2, 50), and it is 2 dots in double WIDTH MODE (m = 1, 49) and QUADRUPLE SIZE MODE (m = 3, 51).
(1) The printing area is extended to the right side within the limits of the printing area so that one vertical line of the download NV bit image can be printed.
(2) When a sufficient printing area cannot be maintained even after executing (1), the printing area is extended to the left side. (The left margin is reduced.)
- When the size of a bit image exceeds the limits of the printing area, the data within the limits of the printing area will be printed but the parts exceeding the limit will not be printed.
- Regardless of the amount of line feed set with ESC 2 and ESC 3, NORMAL MODE and DOUBLE WIDTH MODE execute a paper feed of (height "n" of NV bit image) dots while DOUBLE HEIGHT MODE and QUADRUPLE SIZE MODE execute a paper feed of (height "n" of NV bit image x2) dots.
- At the completion of the bit image printing, the head of the line will be used for the next printing position and normal data processing will take place.

[See Also] [ESC *](#), [FS q](#), [GS /](#), [GS v 0](#)

FS q n [xL xH yL yH d1...dk]1...[xL xH yL yH d1...dk]n

| | | | | | | |
|---------------|---------|---------|-------------|-------------|-------------|-----------|
| Support model | CT-S280 | CT-S300 | CT-S2000 | CT-S4000 | BD2-2220 | PMU2XXX |
| | CT-S281 | CT-S310 | CT-S801/851 | CT-S601/651 | CT-P292/293 | PMU2XXXII |

[Function] Defining the download NV bit image

[Code] <1C>H<71>H<n>[<xL><xH><yL><yH><d1...dk>]1...[<xL><xH><yL><yH><d1...dk>]n

[Range] $1 \leq n \leq 255$, $0 \leq xL \leq 255$
 $0 \leq xH \leq 3$ but, $1 \leq (xL + xH \times 256) \leq 1023$
 $0 \leq yL \leq 255$
 $0 \leq yH \leq 1$ but, $1 \leq (yL + yH \times 256) \leq 288$
 $0 \leq d \leq 255$
 $k = (xL + xH \times 256) \times (yL + yH \times 256) \times 8$
CT-S280/CT-S281/CT-S300/CT-S310/BD2-2220/PMU2XXX/PMU2XXXII
CT-P292/293
 Total definition area=256K bytes
CT-S2000/CT-4000/CT-S801/CT-S851/CT-S601/CT-S651
 Total definition area=384K bytes

[Outline] **[The specification which is common to the model]**

- This command defines the specified NV bit image.
- "n" denotes the number of bit images to be defined.
- xL and xH denote the horizontal size of one NV bit image as $(xL + xH \times 256) \times 8$ dots.
- yL and yH denote the vertical size of one NV bit image as $(yL + yH \times 256) \times 8$ dots

[Caution] **[The specification which is common to the model]**

- Because all the NV bit images previously defined by this command are deleted, it is not possible to redefine any one of the previously defined multiple data. All the data must be resent.
- Any mechanical operation such as opening the cover, initializing the printer head position, or using the paper-feed switch etc can't execute from the execution of this command until the completion of the hardware reset,
- When the STANDARD MODE is selected, this command is only valid when it is written at the head of a line.
- This command is invalid when PAGE MODE is selected.
- This command becomes valid after the 7 bytes of <FS q n xL xH yL yH> are processed as normal values.
- When data which exceeds the remaining capacity of the defined area is specified by xL, xH, yL, yH, outside-defined-area arguments will be processed.
- When outside-defined-area arguments are processed for the first bit image data group, this command becomes invalid.
- If outside-defined-area arguments are processed for the second or subsequent NV bit image data groups, the processing of this command is suspended, and a writing process into the non-volatile memory starts. At this time, the NV bit image being defined becomes invalid (Undefined), but the preceding NV bit images are valid.
- "d" denotes the definition data. Bits which correspond to dots to be printed are represented as "1", and those not to be printed as "0".

- The definition will start from NV bit image number 01H and n-number bit images will be defined in ascending order. Therefore, the first data group [xL xH yL yH d1... dk] becomes NV bit image number 01H, and the last data group [xL xH yL yH d1... dk] becomes NV bit image number 0nH. These numbers of NV bit images coincide with those specified with FS p.
- The definition data of one NV bit image consists of [xL xH yL yH d1... dk]. Therefore, when only one NV bit image is defined, n = 1; the data group [xL xH yL yH d1... dk] is manipulated once, and ([Data: (xL + xH x256) x(yL + yH x256) x8] + [Header: 4]) bytes of non-volatile memory is used to store it
- The maximum definition area of printer depends on model. Multiple NV bit images can be defined, but bit images of which total size (Bit image data + Header) exceeds capacity of definition area can not be defined.
- The printer state will change to BUSY just before the writing operation into the non-volatile memory begins. Also, the printer state will change to BUSY just before the writing operation begins regardless of the state of the MSW even at a printer that have a MSW 1-3[Busy condition]
- While this command is being executed, it is not possible to send ASB status or to detect the printer status even when the ASB function is selected.
- If this command is sent while a macro is still being defined, the definition process will be stopped and the execution of this command will start.
- NV bit images that are defined already are not initialized by using ESC @ command, or by resetting the printer or turning the power off.
- The command only executes definition of NV bit image, but not start printing. The printing of NV bit image will be executed by FS p.
- Because frequent writing in the non-volatile memory can destroy the memory, the writing command should be used less than 10 times a day.
- It may happen that the printer becomes BUSY during the process of writing data into the non-volatile memory in the execution of this command. When the printer becomes BUSY, it will stop receiving data. Therefore, sending data from the host (including real time command) is prohibited.

[See Also] [FS p](#), [GS *](#)

2.2.14 Kanji Control Commands

FS ! n

| | | | | | | |
|---------------|---------|---------|-------------|-------------|-------------|-----------|
| Support model | CT-S280 | CT-S300 | CT-S2000 | CT-S4000 | BD2-2220 | PMU2XXX |
| | CT-S281 | CT-S310 | CT-S801/851 | CT-S601/651 | CT-P292/293 | PMU2XXXII |

[Function] Collectively setting Kanji print mode

[Code] <1C>H<21>H<n>

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

[Outline] **[The specification which is common to the model]**

- Collectively sets Kanji print mode.
- Each bit of "n" has the following meaning:

| Bit | Function | Value | |
|-----|---------------------------|----------|-----------|
| | | 0 | 1 |
| 0 | Undefined | — | — |
| 1 | Undefined | — | — |
| 2 | Double-width enlargement | Canceled | Specified |
| 3 | Double-height enlargement | Canceled | Specified |
| 4 | Undefined | — | — |
| 5 | Undefined | — | — |
| 6 | Undefined | — | — |
| 7 | Underline | Canceled | Specified |

[Caution] **[The specification which is common to the model]**

- Setting both double-height and double-width enlargement causes four times enlargement.
- Underline is applied to all width of printed characters but not to the part skipped by HT. Underline is not applied to the character rotated by 90° clockwise.
- Thickness of underline is the value set by FS – (defaulted to 1 dot width).

[Default] n=0

[See Also] [FS -](#), [FS W](#), [GS !](#)

FS &

| | | | | | | |
|---------------|---------|---------|-------------|-------------|-------------|-----------|
| Support model | CT-S280 | CT-S300 | CT-S2000 | CT-S4000 | BD2-2220 | PMU2XXX |
| | CT-S281 | CT-S310 | CT-S801/851 | CT-S601/651 | CT-P292/293 | PMU2XXXII |

[Function] Setting Kanji mode

[Code] <1C>H<26>H

[Outline] **[The specification which is common to the model]**

- Sets Kanji mode.

Japanese Kanji specifications:

This command is invalid when Kanji code system is Shift JIS.

Kanji codes are processed in the order of the first byte and second byte.

This code is defaulted to the state of canceling Kanji mode.

[The specification which depend on the model]

CT-S280/CT-S300/CT-S310/CT-S2000/CT-S4000/CT-S801/CT-S851

CT-S601/CT-S651

Multilingual specifications (Hangul, Chinese):

Kanji codes are processed in the order of the first byte and second byte.

This code is defaulted to the state of setting Kanji mode.

[See also] [FS.](#), [FSC](#)

[Sample Program]

```
LPRINT CHR$(&H1C);"&";
LPRINT CHR$(&H34); CHR$(&H41);
LPRINT CHR$(&H3B); CHR$(&H7A);
LPRINT CHR$(&HA);
LPRINT CHR$(&H1C);".";
LPRINT CHR$(&H34); CHR$(&H41);
LPRINT CHR$(&H3B); CHR$(&H7A);
LPRINT CHR$(&HA);
```

[Print Results]

漢字 ← When setting Kanjimode
4A;z ← When canceling Kanji mode

FS - n

| | | | | | | |
|---------------|---------|---------|-------------|-------------|-------------|-----------|
| Support model | CT-S280 | CT-S300 | CT-S2000 | CT-S4000 | BD2-2220 | PMU2XXX |
| | CT-S281 | CT-S310 | CT-S801/851 | CT-S601/651 | CT-P292/293 | PMU2XXXII |

[Function] Setting/canceling Kanji underline

[Code] <1C>H<2D>H<n>

[Range] $0 \leq n \leq 2$, $48 \leq n \leq 50$

[Outline] **[The specification which is common to the model]**

- Sets or cancels Kanji underline.

| n | Function |
|-------|----------------------------------|
| 0, 48 | Cancels Kanji underline |
| 1, 49 | Sets 1-dot width Kanji underline |
| 2, 50 | Sets 2-dot width Kanji underline |

[Caution] **[The specification which is common to the model]**

- Underline is applied to all width of printed characters but not applied to the part skipped by HT.
- Underline is not applied to the character rotated 90° clockwise.

[See Also] [FS !](#)

[Sample Program]

```
LPRINT CHR$(&H1C);"&";
LPRINT CHR$(&H1C);"-"; CHR$(0);
LPRINT CHR$(&H34); CHR$(&H41);
LPRINT CHR$(&H3B); CHR$(&H7A);
LPRINT CHR$(&H1C);"-"; CHR$(1);
LPRINT CHR$(&H34); CHR$(&H41);
LPRINT CHR$(&H3B); CHR$(&H7A);
LPRINT CHR$(&HA);
LPRINT CHR$(&H1C);".";
```

[Print Results]

Canceling Kanji underline

↔
漢字漢字

↔
Setting Kanji underline

FS .

| | | | | | | |
|---------------|---------|---------|-------------|-------------|-------------|-----------|
| Support model | CT-S280 | CT-S300 | CT-S2000 | CT-S4000 | BD2-2220 | PMU2XXX |
| | CT-S281 | CT-S310 | CT-S801/851 | CT-S601/651 | CT-P292/293 | PMU2XXXII |

[Function] Canceling Kanji mode

[Code] <1C>H<2E>H

[Outline] **[The specification which is common to the model]**

- Cancels Kanji mode.

Japanese Kanji specifications:

This command is invalid when Kanji code system is Shift JIS.

This code is defaulted to the state of canceling Kanji mode.

[The specification which depend on the model]

CT-S280/CT-S300/CT-S310/CT-S2000/CT-S4000/CT-S801/CT-S851

CT-S601/CT-S651

Multilingual specifications (Hangul, Chinese):

Kanji codes are processed in the order of the first byte and second byte.

This code is defaulted to the state of setting Kanji mode.

[See Also] [FS &](#), [FS C](#)

[Sample Program]

[Refer to the Sample Program and Printing Results for FS &](#).

FS 2 a1 a2 [d]k

| | | | | | | |
|---------------|---------|---------|-------------|-------------|-------------|-----------|
| Support model | CT-S280 | CT-S300 | CT-S2000 | CT-S4000 | BD2-2220 | PMU2XXX |
| | CT-S281 | CT-S310 | CT-S801/851 | CT-S601/651 | CT-P292/293 | PMU2XXXII |

[Function] Defining external character

[Code] <1C>H<32>H<a1>H<a2>H[<d>]k

[Range] Japanese Kanji specifications:

- In case of JIS code system
a1=<77>H, <21>H≤a2≤<7E>H
- In case of Shift JIS code system
a1=<EC>H, <40>H≤a2≤<7E>H, <80>H≤a2≤<9E>H

Multilingual specifications (Hangul, Chinese):
a1=<FE>H, <A1>H≤a2≤<FE>H

Common
0≤d≤255
k=72(FONTA: 24×24)
k=32(FONTC: 16×16)
CT-S2000/CT-S4000
k=60(FONTB: 20×24)

[Outline] **[The specification which is common to the model]**

- Defines external Kanji character.
- a1, a2 show Kanji code to define external character and definition of 94 characters are available.
- "d" is data to be defined and the number of data to be defined is 72 bytes of vertical 3 bytes × 24 dots.
- Each data is created by "1" for printed dot and "0" for unprinted dot.

[The specification which depend on the model]
CT-S280/CT-S300/CT-S310/CT-S2000/CT-S4000/CT-S801/CT-S851
CT-S601/CT-S651

- In multilingual specifications (Chinese, Hangul), font B, font C cannot define.

[Default] All are space.

[Sample Program]

```
LPRINT CHR$(&H1C);"&";          DATA &H00, &H00, &H00, &H00, &H00, &H00
GOSUB SETCHR                    DATA &H00, &H00, &H60, &H00, &H00, &HF0
LPRINT CHR$(&H77); CHR$(&H21);  DATA &H00, &H01, &HF8, &H00, &H03, &HFC
LPRINT CHR$(&HA);              DATA &H00, &H07, &HFE, &H00, &H0F, &HFF
LPRINT CHR$(&H1C);".";         DATA &H00, &H00, &HF0, &H00, &H00, &HF0
END                               DATA &H00, &H00, &HF0, &H00, &H00, &HF0
                                DATA &H00, &H00, &HF0, &H00, &H00, &HF0
                                DATA &H00, &H00, &HF0, &H00, &H00, &HF0
SETCHR:                          DATA &H00, &H01, &HF0, &H1F, &HFF, &HF0
LPRINT CHR$(&H1C);"2";         DATA &H00, &H01, &HF0, &H1F, &HFF, &HF0
LPRINT CHR$(&H77); CHR$(&H21); DATA &H1F, &HFF, &HF0, &H1F, &HFF, &HE0
FOR I=1 TO 72                   DATA &H1F, &HFF, &HC0, &H00, &H00, &H00
READ D                          DATA &H00, &H00, &H00, &H00, &H00, &H00
LPRINT CHR$(D);
NEXT I
RETURN
```

[Print Results]

└ Registered character
←

FS C n

| | | | | | | |
|---------------|---------|---------|-------------|-------------|-------------|-----------|
| Support model | CT-S280 | CT-S300 | CT-S2000 | CT-S4000 | BD2-2220 | PMU2XXX |
| | CT-S281 | CT-S310 | CT-S801/851 | CT-S601/651 | CT-P292/293 | PMU2XXXII |

[Function] Selecting Kanji code system

[Code] <1C>H<43>H<n>

[Range] $0 \leq n \leq 1$, $48 \leq n \leq 49$

[Outline] **[The specification which is common to the model]**

- Selects Kanji code system.

Japanese Kanji specifications:

| n | Function |
|-------|--------------------------------|
| 0, 48 | Selects JIS code system. |
| 1, 49 | Selects Shift JIS code system. |

[The specification which depend on the model]

CT-S280/CT-S300/CT-S310/CT-S2000/CT-S4000/CT-S801/CT-S851
CT-S601/CT-S651

Multilingual specifications (Hangul,):

| n | Function |
|-------|--------------------------------|
| 0, 48 | Selects KS code system. |
| 1, 49 | Selects Extend KS code system. |

Multilingual specifications (Chinese):

This command is invalid

[Caution] **[The specification which is common to the model]**

- Kanji code valid in JIS code system is 21H to 7EH for both 1st and 2nd bytes.
- Kanji code valid in Shift JIS code system is as follows:
 - 1st byte is 81H to 9FH and E0H to EFH.
 - 2nd byte is 40H to 7EH and 80H to FCH.

[The specification which depend on the model]

CT-S280/CT-S300/CT-S310/CT-S2000/CT-S4000/CT-S801/CT-S851
CT-S601/CT-S651

- Codes valid for KS code system are as follows:
 - Special symbol: 2121H to 2C71H
 - Hangeul: 3021H to 487EH
 - Area other than the above is SPACE.
- With Extend KS code
 - Special symbol: A1A1H to ACF1H
 - Hangeul: B0A1H to C8FEH
 - Area other than the above is SPACE.

[Default] n=0

[Sample Program]

```
LPRINT CHR$(&H1C);"&";  
LPRINT CHR$(&H1C);"C"; CHR$(0);  
LPRINT CHR$(&H34); CHR$(&H41);  
LPRINT CHR$(&H3B); CHR$(&H7A);  
LPRINT CHR$(&HA);  
LPRINT CHR$(&H1C);"C"; CHR$(1);  
LPRINT CHR$(&H8A); CHR$(&HBF);  
LPRINT CHR$(&H8E); CHR$(&H9A);  
LPRINT CHR$(&HA);  
LPRINT CHR$(&H1C);".";
```

[Print Results]

漢字 ← JIS code system printing
漢字 ← Shift JIS code system printing

FS S n1 n2

| | | | | | | |
|---------------|---------|---------|-------------|-------------|-------------|-----------|
| Support model | CT-S280 | CT-S300 | CT-S2000 | CT-S4000 | BD2-2220 | PMU2XXX |
| | CT-S281 | CT-S310 | CT-S801/851 | CT-S601/651 | CT-P292/293 | PMU2XXXII |

[Function] Setting Kanji space amount

[Code] <1>H<53>H<n1><n2>

[Range] $0 \leq n1 \leq 255$
 $0 \leq n2 \leq 255$

[Outline] **[The specification which is common to the model]**

- Sets both right and left space amount of Kanji in units of dot.
- Sets left space amount by $[n1 \times (\text{Basic calculation pitch})]$.
- Sets right space amount by $[n2 \times (\text{Basic calculation pitch})]$.

[Caution] **[The specification which is common to the model]**

- The right and left space amount in double-width mode are twice the setting.
- Setting independent line feed amount is possible in STANDARD MODE and PAGE MODE.
- Basic calculation pitch is set by GS P. Even if basic calculation pitch is changed by GS P after setting space amount, there is no change in the amount of line feed.
 When fractional number is caused by the calculation, it is corrected by the minimum pitch of mechanism and the rest is discarded.
- In STANDARD MODE, basic calculation pitch (x) in horizontal direction is used.
- In PAGE MODE, the following operation occurs depending on the start point.
 - (1) When the start point is set at "upper left" or "lower right" by ESC T, basic calculation pitch (y) of vertical direction (paper feed direction) is used.
 - (2) When the start point is set at "upper right" or "lower left" by ESC T, basic calculation pitch (x) of horizontal direction (at right angle to paper feed direction) is used.
- The maximum right spacing is capable of approximately 31.906 mm (255/203 inches). A setting greater than this maximum is trimmed to the maximum.

[Default] n1=0, n2=0

FS W n

| | | | | | | |
|---------------|---------|---------|-------------|-------------|-------------|-----------|
| Support model | CT-S280 | CT-S300 | CT-S2000 | CT-S4000 | BD2-2220 | PMU2XXX |
| | CT-S281 | CT-S310 | CT-S801/851 | CT-S601/651 | CT-P292/293 | PMU2XXXII |

[Function] Setting/canceling four times enlargement of Kanji

[Code] <1C>H<57>H<n>

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

[Outline] **[The specification which is common to the model]**

- Sets or cancels four times enlargement of Kanji.
- "n" is valid only for the lowest bit (n0).
- Control by the lowest bit (n0) is shown as follows:

| n0 | Function |
|----|-----------------------------|
| 0 | Cancels 4 times enlargement |
| 1 | Sets 4 times enlargement |

Setting or canceling 4 times enlargement means setting or canceling both doubleheight and double-width enlargements simultaneously.

[See Also] [FS !](#)

[Sample Program]

```
LPRINT CHR$(&H1C);"&";
LPRINT CHR$(&H1C);"W"; CHR$(0);
LPRINT CHR$(&H34); CHR$(&H41);
LPRINT CHR$(&H3B); CHR$(&H7A);
LPRINT CHR$(&H1C);"W"; CHR$(1);
LPRINT CHR$(&H34); CHR$(&H41);
LPRINT CHR$(&H3B); CHR$(&H7A);
LPRINT CHR$(&HA);
LPRINT CHR$(&H1C);".";
```

[Print Results]

Canceling 4 times enlargement
 ↓
 漢字漢字
 ↑
 Setting 4 times enlargement

FS (A pL pH fn [...]

| | | | | | | |
|---------------|---------|---------|-------------|-------------|-------------|-----------|
| Support model | CT-S280 | CT-S300 | CT-S2000 | CT-S4000 | BD2-2220 | PMU2XXX |
| | CT-S281 | CT-S310 | CT-S801/851 | CT-S601/651 | CT-P292/293 | PMU2XXXII |

[Function] Setting font attribute of Kanji

[Outline] Setting Kanji font attribute means execution of processing for Kanji font attribute by the value of "fn" specified.

| fn | Function |
|----|-----------------|
| 48 | Sets Kanji font |

[Outline] **[The specification which is common to the model]**
This command is effective only for the Japanese Japanese Kanji specifications.

fn=48: Function 48 Set Kanji fonts

FS (A pL pH fn m

[Code] <1C>H<28>H<4E>H <pL>< pH>< fn>< m>

[Range] (pL+pH×256)=2 (pL=2, pH=0)
fn=48
0≤m≤2, 48≤n≤50

[Default] m=0

[Outline] **[The specification which is common to the model]**
Prints the succeeding characters with energy set for "m".
This command is effective only for the Japanese Japanese Kanji specifications.

[The specification which depend on the model]
CT-S280/CT-S281/CT-S300/CT-S310/CT-S801/CT-S851/CT-S601/CT-S651
BD2-2220/PMU2XXX/PMU2XXXII/CT-P292/293

| m | Function |
|-------|---------------------|
| 0, 48 | Kanji font A(24×24) |
| 1, 49 | invalid |
| 2, 50 | Kanji font C(16×16) |

CT-S2000/CT-S4000

| m | Function |
|-------|---------------------|
| 0, 48 | Kanji font A(24×24) |
| 1, 49 | Kanji font B(20×24) |
| 2, 50 | Kanji font C(16×16) |

2.2.15 Black Mark Control Commands

GS FF

| | | | | | | |
|---------------|---------|---------|-------------|-------------|-------------|-----------|
| Support model | CT-S280 | CT-S300 | CT-S2000 | CT-S4000 | BD2-2220 | PMU2XXX |
| | CT-S281 | CT-S310 | CT-S801/851 | CT-S601/651 | CT-P292/293 | PMU2XXXII |

[Function] Printing and ejecting Black mark paper/ label paper

[Code] <1D>H<0C>H

[Outline] **[The specification which is common to the model]**

- This command prints the data in the printer buffer and ejects Black mark paper/ label paper.

[The specification which depend on the model]

- When auto cutter disabled is selected

CT-S2000/CT-S4000/CT-S801/CT-S851/CT-S601/CT-S651

- (1) Feeds the printed black mark/label paper to the position to be cut by the manual cutter or to be peeled off.
- (2) Keeps waiting till cutting is made and FEED SW is pressed while blinking LED.
- (3) If FEED SW is pressed, setting the first position of BM paper/label paper is carried out.
 - The printer is in the BUSY state till the processing of (3) is executed. If, however, FEED SW is not pressed in 3 seconds, the same operation as that with FEED SW is executed.

CT-S281

- (1) Feeds the printed black mark/label paper to manual cut position or manual peel off position.
 - (2) Keeps waiting till cutting is made and FEED SW is pressed while blinking LED
 - MSW3-7(CBM-270 compatible mode) = ON: Keep waiting for FEED SW being pressed.
 - MSW3-7(CBM-270 compatible mode) = OFF: If FEED SW is not pressed in 3 seconds (default), the same operation as that with FEED SW is executed.

The time to wait for manual cut can be changed by <GS (E > command.
 - (3) When FEED SW is pressed, feed the paper to detect next black mark/top of label
 - Printer is in BUSY state until (3) transaction is done.
 - When MSW4-5=OFF(Black mark), printer feed the paper backward by about 5mm.
 - When MSW4-5=ON(Label paper) if the distance between black mark or label length is less than 30mm, next or second next black mark/label will be ejected and then feed paper until detecting the black mark or top of label.
- When auto cutter enabled is selected
- CT-S2000/CT-S4000/CT-S801/CT-S851/CT-S601/CT-S651/CT-S281**
- (1) The printed black mark/label paper is fed to the auto cutter position and full cutting is carried out.
 - (2) Setting the first position of next BM paper/label paper is carried out.

[Caution] **[The specification which is common to the model]**

- Valid only if Black mark paper/ label paper is selected.

[See Also] [FF](#), [GS <](#)

GS <

| | | | | | | |
|---------------|---------|---------|-------------|-------------|-------------|-----------|
| Support model | CT-S280 | CT-S300 | CT-S2000 | CT-S4000 | BD2-2220 | PMU2XXX |
| | CT-S281 | CT-S310 | CT-S801/851 | CT-S601/651 | CT-P292/293 | PMU2XXXII |

[Function] Initializing the printer mechanism

[Code] <1D>H<3C>H

[Outline] **[The specification which is common to the model]**

- Performs initializing operation at Black mark/ label similar to the initialization at power on.

[Caution] **[The specification which is common to the model]**

- This command is valid only when B.M paper/ label is chosen.
- Parameters configured by commands are not reset.

GS A m n

| | | | | | | |
|---------------|---------|---------|-------------|-------------|-------------|-----------|
| Support model | CT-S280 | CT-S300 | CT-S2000 | CT-S4000 | BD2-2220 | PMU2XXX |
| | CT-S281 | CT-S310 | CT-S801/851 | CT-S601/651 | CT-P292/293 | PMU2XXXII |

[Function] Correcting the leader position of Black mark paper/ label paper

[Code] <1D>H<41>H<m><n>

[Range] $0 \leq m \leq 255$
 $0 \leq n \leq 255$

[Outline] **[The specification which is common to the model]**

- This command sets the leader position of Black mark paper/ label paper in terms of correction value set for the default position.
- "m" denotes the correcting direction.
- "m" is valid only for the lowest bit (m0).
- Control by the lowest bit (m0) is shown as follows:

| m0 | Correcting Direction |
|----|---|
| 0 | Corrects the leader position in the forward direction |
| 1 | Corrects the leader position in the reverse direction |

- "n" denotes the correction value in units of n/203 inch.

[Caution] **[The specification which is common to the model]**

- This command is valid only when Black mark paper/ label paper is chosen.
- This command is ignored except immediately after the execution of a Black mark/ label positioning command (FF, GS FF, GS A, GS <) or immediately after leader positioning performed on a paper feed action with the FEED switch, power on, or cover closure.
- The maximum reverse correction span is 0.5 mm. Correction settings exceeding this value are truncated into the maximum value. The leader position may be deviated due to paper flexure. For reverse correction, exercise care so the leader position does not step out of the Black mark/ label.
- For forward correction, set the correction span by taking into account the Black mark/ label length as the printable area changes before and after correction setting.
- In calculating a correction span, use the basic calculation pitch (y) for the vertical direction. The fractional part contained in the calculation result should be corrected in units of the mechanism's minimum pitch, with the remaining fractional part truncated.

GS C 0 m n

| | | | | | | |
|---------------|---------|---------|-------------|-------------|-------------|-----------|
| Support model | CT-S280 | CT-S300 | CT-S2000 | CT-S4000 | BD2-2220 | PMU2XXX |
| | CT-S281 | CT-S310 | CT-S801/851 | CT-S601/651 | CT-P292/293 | PMU2XXXII |

[Function] Setting the numbering print mode

[Code] <1D>H<43>H<30>H<m><n>

[Range] $0 \leq m \leq 5$
 $0 \leq n \leq 2$

[Outline] **[The specification which is common to the model]**

- This command sets the numbering (serial number counter) print mode.
- "m" denotes the number of print columns.
 - m=0 Prints the columns indicated by numeral. In this case, "n" has no meaning.
 - m=1 to 5 Indicates the maximum number of columns to be printed.
 Prints the counter in "m" columns.
 "n" specifies a printing position within the printing columns.
 - n=0 Prints the data right justified. The blank columns are spaced.
 - n=1 Prints the data right justified. The blank columns are filled with "0".
 - n=2 Prints the data left justified. The right blank will become invalid.

[Caution] **[The specification which is common to the model]**

- If either "m" or "n" has a value beyond their ranges, that setting will become invalid.

[Default] m=0, n=0

[See Also] [GS C 1](#), [GS C 2](#), [GS C :](#), [GS c](#)

[Sample Program]

```

LPRINT CHR$(&H1D);"C0";          *CNT
LPRINT CHR$(0); CHR$(0);         FOR I=1 TO 5
GOUSAB *CNT                       LPRINT CHR$(&H1D);"c";
LPRINT CHR$(&H1D);"C0";          NEXT I
LPRINT CHR$(1); CHR$(0);         LPRINT CHR$(&HA);
GOUSAB *CNT                       RETURN
LPRINT CHR$(&H1D);"C0";
LPRINT CHR$(3);CHR$(0);
GOUSAB *CNT
LPRINT CHR$(&H1D);"C0";
LPRINT CHR$(3);CHR$(1);
GOUSAB *CNT
LPRINT CHR$(&H1D);"C0";
LPRINT CHR$(3); CHR$(2);
GOUSAB *CNT
END

```

[Print Results]

```

12345 ←———— Counts from 1 to 5 at m = 0 and n = 0.
67890 ←———— Counts from 6 to 10 at m = 1 and n = 0.
 11 12 13 14 15 ←—— Counts from 11 to 15 at m = 3 and n = 0.
016017018019020 ←—— Counts from 16 to 20 at m = 3 and n = 1.
21 22 23 24 25 ←—— Counts from 21 to 25 at m = 3 and n = 2.

```

GS C 1 n1 n2 n3 n4 n5 n6

| | | | | | | |
|---------------|---------|---------|-------------|-------------|-------------|-----------|
| Support model | CT-S280 | CT-S300 | CT-S2000 | CT-S4000 | BD2-2220 | PMU2XXX |
| | CT-S281 | CT-S310 | CT-S801/851 | CT-S601/651 | CT-P292/293 | PMU2XXXII |

[Function] Setting the numbering counter mode (A)

[Code] <1D>H<43>H<31>H<n1><n2><n3><n4><n5><n6>

[Range] $0 \leq n1, n2, n3, n4, n5, n6 \leq 255$

[Outline] **[The specification which is common to the model]**

- This command sets the numbering (serial number counter) mode.
 - $n1+n2 \times 256$ ($n1$ =remainder, $n2$ =quotient): Counter default
 - $n3+n4 \times 256$ ($n3$ =remainder, $n4$ =quotient): Counter final value
 - $n5$: Counter step value
 - $n6$: Identical counter print counter
 - $(n1+n2 \times 256) < (n3+n4 \times 256)$: Count-up system
 - $(n1+n2 \times 256) > (n3+n4 \times 256)$: Count-down system
 - $(n1+n2 \times 256) = (n3+n4 \times 256)$ or $n5=0$ or $n6=0$: Counter stop

[Default] **[The specification which is common to the model]**

$n1+n2 \times 256=1$
 $n3+n4 \times 256=65535$
 $n5=1$
 $n6=1$

[See Also] [GSC 0](#), [GSC 2](#), [GSC](#), [GSc](#)

[Sample Program]

```

LPRINT CHR$(&H1D);"C0";          *CNT
LPRINT CHR$(3); CHR$(0);         FOR I=1 TO 5
LPRINT CHR$(&H1D);"C1";          LPRINT CHR$(&H1D);"c";
LPRINT CHR$(50); CHR$(0);        ¥      NEXT I
LPRINT CHR$(0); CHR$(0);         ¥      LPRINT CHR$(&HA);
LPRINT CHR$(5); CHR$(2);         RETURN
GOUSAB *CNT
LPRINT CHR$(&H1D);"C2";
LPRINT CHR$(5); CHR$(0); CHR$(10);
GOUSAB *CNT
END
    
```

[Print Results]

50 50 45 45 40 ← to 50, step value = 5, repeat count = 2, and starting value = 50.

5 0 50 45 40 ← When printing the counter value by setting a count-down range to 0 to 50, step value = 5, repeat count = 1, and starting value = 5, step cleared.

GS C 2 n1 n2

| | | | | | | |
|---------------|---------|---------|-------------|-------------|-------------|-----------|
| Support model | CT-S280 | CT-S300 | CT-S2000 | CT-S4000 | BD2-2220 | PMU2XXX |
| | CT-S281 | CT-S310 | CT-S801/851 | CT-S601/651 | CT-P292/293 | PMU2XXXII |

[Function] Setting the numbering counter

[Code] <1D>H<43>H<32>H<n1><n2>

[Range] $0 \leq n1 \leq 255$
 $0 \leq n2 \leq 255$

[Outline] **[The specification which is common to the model]**

- This command sets the numbering (serial number counter) value.
- $n1+n2 \times 256$ ($n1$ =remainder, $n2$ =quotient) becomes a counter value.

[Caution] • If the counter is set with this command, a repeat count of the identical count will be cleared.
• If the counter value is beyond the range specified with the GS C1 or GS C; command, the counter will be initialized.

[Default] Not defined.

[See Also] [GS C 0](#), [GS C 1](#), [GS C ;](#), [GS c](#)

[Sample Program]

[Print Results]

[See the Sample Program and Print Results for the GS C1 command.](#)

GS C ; n1 ; n2 ; n3 ; n4 ; n5 ;

| | | | | | | |
|---------------|---------|---------|-------------|-------------|-------------|-----------|
| Support model | CT-S280 | CT-S300 | CT-S2000 | CT-S4000 | BD2-2220 | PMU2XXX |
| | CT-S281 | CT-S310 | CT-S801/851 | CT-S601/651 | CT-P292/293 | PMU2XXXII |

- [Function]** Setting the numbering counter mode (B)
- [Code]** <1D>H<43>H<3B>H<n1><3B>H<n2><3B>H<n3><3B>H<n4><3B>H<n5><3B>H
 <n1>, <n2>, <n3>, <n4>, <n5> are character codes.
- [Range]** $0 \leq n1, n2, n5 \leq 65535$
 $0 \leq n3, n4 \leq 255$
- [Outline]** **[The specification which is common to the model]**
- This command sets the numbering (serial number counter) mode and a counter value.
 - n1: Counter default
 - n2: Counter final value
 - n3: Counter step value
 - n4: Identical counter print count
 - n5: Counter start value
 - n1<n2: Count-up system
 - n1>n2: Count-down system
 - n1=n2 or n3= 0 or n4=0 : Counter stop
- [Caution]** **[The specification which is common to the model]**
- If the n5 counter start value is beyond the counter range specified with n1 and n2, it is assumed to be n1=n5.
 - If each value of n1 through n5 contains the character code other than "0" through "9", the printer will invalidate the data up to that parameter and handle the subsequent data as normal data.
- [Default]** n1=1, n2=65535, n3=1, n4=1, n5=1
- [See Also]** [GSC 0](#), [GSC 1](#), [GSC 2](#), [GSc](#)

GS c

| | | | | | | |
|---------------|---------|---------|-------------|-------------|-------------|-----------|
| Support model | CT-S280 | CT-S300 | CT-S2000 | CT-S4000 | BD2-2220 | PMU2XXX |
| | CT-S281 | CT-S310 | CT-S801/851 | CT-S601/651 | CT-P292/293 | PMU2XXXII |

[Function] Print the counter

[Code] <1D>H<63>H

[Outline] **[The specification which is common to the model]**

- This command prints the serial number counter data.
- After setting the current counter value in the print buffer as the print data (character string), it increments or decrements the counter according to the set count mode.

[Caution] **[The specification which is common to the model]**

- The format used in setting the value to the print buffer depends on the GS C0 command.
- The count mode is set by the GS C1 or GS C; command. When execution of GS c command results in excess of the counter final value, the counting returns to the final value of the counter.

[See Also] [GS C 0](#), [GS C 1](#), [GS C 2](#), [GS C ;](#)

[Sample Program]

[Print Results]

[See the Sample Program and Print Results for the GS C0 command.](#)

[See the Sample Program and Print Results for the GS C1 command.](#)

GS I n1L n1H n2L n2H

| | | | | | | |
|---------------|---------|---------|-------------|-------------|-------------|-----------|
| Support model | CT-S280 | CT-S300 | CT-S2000 | CT-S4000 | BD2-2220 | PMU2XXX |
| | CT-S281 | CT-S310 | CT-S801/851 | CT-S601/651 | CT-P292/293 | PMU2XXXII |

[Function] Setting the Black mark/ label length

[Code] <1D>H<6C>H<n1L><n1H><n2L><n2H>

[Range] $0 \leq n1L \leq 255$ ($24 \leq n1L + n1H \times 256 \leq 360$)
 $0 \leq n1H \leq 1$
 $8 \leq n2L \leq 30$
 $n2H = 0$

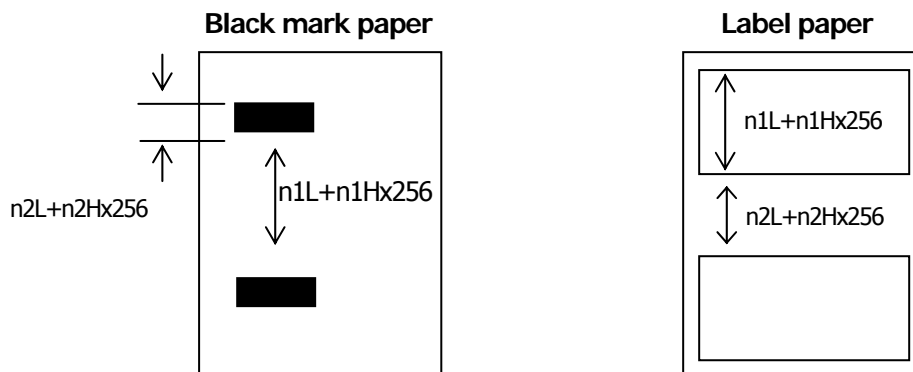
[Outline] **[The specification which is common to the model]**

- Define the specifications (length) of the Black mark/ label used.
- n1: Sets the Black mark pitch/ label length
- n2: Sets the Black mark length/ label gap length
- n1 and n2 are specified units of millimeters.
- Divide the maximum Black mark pitch/ label length by 256 with the quotient designated as n1L and the remainder as n2H. Accordingly, the Black mark pitch/ label length available for setting will be $n1L + n2H \times 256$.

[Caution] **[The specification which is common to the model]**

- This command is valid if MSW4-1 is set to OFF.
- If the specified length is outside of Black mark/ label specifications, the default length is set.
- 300 mm is the maximum Black mark pitch/ label length allowed to define and 25 mm is the minimum.
- 30 mm is the maximum allowable Black mark length/ label gap length to define and 4 mm is the minimum.

[Default] The length at the last auto length detection is the default.



GS p n

| | | | | | | |
|---------------|---------|---------|-------------|-------------|-------------|-----------|
| Support model | CT-S280 | CT-S300 | CT-S2000 | CT-S4000 | BD2-2220 | PMU2XXX |
| | CT-S281 | CT-S310 | CT-S801/851 | CT-S601/651 | CT-P292/293 | PMU2XXXII |

[Function] Changing paper type

[Code] <1D>H <70>H <n>

[Range] $0 \leq n \leq 255$
 n=0 specify receipt paper
 n=1 specify label paper
 n=2 specify black mark paper

[Outline] **[The specification which is common to the model]**

- Switches paper.
- n = 0: Switches to receipt paper (mode).
Ignores this command when receipt mode is set.
- n = 1: Switches to label paper mode.
Measures paper length or sets first position of paper in accordance with the MSW setting.
Ignores this command when label paper mode is set.
- n = 2: Switches to BM paper mode.
Measures paper length or sets first position of paper in accordance with the MSW setting.
Ignores this command when BM paper mode is set.

[Caution] **[The specification which is common to the model]**

- Processed after buffering.
- This command is not initialized by the initialization command.
- This command is initialized by power OFF and paper type set by MSW is valid from the next power ON.
- When BM paper/Label paper mode is changed to receipt mode
Change the paper to receipt paper after sending this command (n=0) with BM paper/label paper set. If the paper is changed to receipt paper beforehand, sensing the first position is not available when closing the cover, resulting in BM/label detection error.
- When receipt mode is changed to label mode
Send this command (n=1) after changing the paper from receipt paper to label paper. If this command is sent beforehand, label detection error is caused.

2.2.16 Printer Function Setting Commands

GS (D pL pH m [a1 b1]...[ak bk]

| | | | | | | |
|---------------|---------|---------|-------------|-------------|-------------|-----------|
| Support model | CT-S280 | CT-S300 | CT-S2000 | CT-S4000 | BD2-2220 | PMU2XXX |
| | CT-S281 | CT-S310 | CT-S801/851 | CT-S601/651 | CT-P292/293 | PMU2XXXII |

[Function] Enabling or disabling real-time command

[Code] <1D>H<28>H<44>H<pL>< pH>< m> [<a1>< b1>]... [<ak>< bk>]

[Range] $3 \leq (pL + pH \times 256) \leq 65535$
M=20
a=1
b=0, 1, 48, 49

[Outline] **[The specification which is common to the model]**
• Enables/disables the following real-time command processing.

| a | b | Function |
|---|-------|---|
| 1 | 0, 48 | Does not process DLE DC4 fn m t (fn=1). (Invalid) |
| | 1, 49 | Processes DLE DC4 fn m t (fn=1). (Valid) |

- pL and pH sets the number of bytes on and after m in (pL + pH×256).
- "a" sets the kind of real-time command.
- "b" sets Valid or Invalid.
- When data raw that meets the code configuring real-time command in the image data, it is recommended that the real-time command be set to invalid by this command.

[Default]

| a | Type of Real-time Command | Initial Value |
|---|--|---------------|
| 1 | DLE DC4 fn m t (fn=1): Real-time output of pulse specified | Valid |

GS (E pL pH fn [...]

| | | | | | | |
|---------------|---------|---------|-------------|-------------|-------------|-----------|
| Support model | CT-S280 | CT-S300 | CT-S2000 | CT-S4000 | BD2-2220 | PMU2XXX |
| | CT-S281 | CT-S310 | CT-S801/851 | CT-S601/651 | CT-P292/293 | PMU2XXXII |

[Function] Printer function setting command

[Outline] **[The specification which is common to the model]**

- Printer function setting command is a command to change the function of the printer stored on the non-volatile memory and executes the function set by the value of "fn".

| Function No. (fn) | Function |
|------------------------------|--|
| Function 1 | Transfers to printer function setting mode. |
| Function 2 | Terminates printer function setting mode. |
| Function 3 | Sets memory switch value. |
| Function 4 | Sends memory switch value set. |
| Function 5 | Sets customize value. |
| Function 6 | Sends customized value set. |
| Function 7 | Copies user-defined page. |
| Function 8 | Defines the data in column format to the character code page of work area. |
| Function 9 | Defines the data in raster format to the character code page of work area. |
| Function 10 | Erases the data of character code page of work area. |
| Function 11 | Sets the communication condition of serial interface. (Note) |
| Function 12 | Sends the communication condition of serial interface set. |
| Function 255 | Sets all contents set in printer function setting mode to the state at the time of shipment. |

- pL, pH set the number of bytes following "fn" to (pL + pH×256).
- At the end of printer function setting mode (Function 2), resetting is executed. Then the input buffer is cleared to return various kinds of setting to the state at the time of power on.
- The set value can be confirmed without transferring to printer function setting mode by functions 4, 6, and 12.
- Other functions do not operate without transferring to printer function setting mode.

[Caution] **[The specification which is common to the model]**

- This command allows writing to non-volatile memory. Therefore, using this command frequently may result in breakage of memory. Use this command appropriately [10 times max./day].
- During execution of this command, the printer is in Busy state and stops receiving operation. Therefore, data transmission from the host is prohibited.

fn=1: Function 1 Transferring to Printer Function Setting Mode

GS (E pL pH fn d1 d2

[Code] <1D>H<28>H<45>H <pL><pH><fn><d1><d2>

[Range] (pL+pH×256)=3 (pL=3, pH=0)
fn=1
d1=73 ("I")
d2=78 ("N")

[Outline] [The specification which is common to the model]
• Transfers to printer function setting mode and sends the report of mode transfer.

| | Hex. | No. of Data |
|--------|------|-------------|
| Header | 37H | 1 |
| ID | 20H | 1 |
| NULL | 00H | 1 |

fn=2: Function 2 End of Printer Function Setting Mode

GS (E pL pH fn d1 d2 d3

[Code] <1D>H<28>H<45>H <pL><pH><fn><d1><d2><d3>

[Range] (pL+pH×256)=4 (pL=4, pH=0)
fn=2
d1=79 ("O")
d2=85 ("U")
d3=84 ("T")

[Outline] [The specification which is common to the model]
• Terminates printer function setting mode and executes resetting.
• Clears input buffer and print buffer and restores various kinds of setting to the state at power on.
• Operates only in printer function setting mode.

fn=3: Function 3 Setting Memory Switch Value

GS (E pL pH fn [a1 b18...b11]...[ak bk8...bk1]

[Code] <1D>H<28>H<45>H<pL><pH><fn>[<a1><b18>...<b11>]...[<ak><bk8>...<bk1>]

[Range] $10 \leq (pL+pH \times 256) \leq 65535$
 fn=3
 b=48, 49, 50
 CT-S280/BD2-2220
 a=1, 2, 3
 CT-S300
 a=1, 2, 3, 4
 CT-S281/CT-S310/CT-S2000/CT-S4000/PMU2XXX/PMU2XXXII/CT-P292/293
 a = 1, 2, 3, 4, 5
 CT-S801/CT-S851/CT-S601/CT-S651
 a=1, 2, 3, 4, 5, 6

[Outline] [The specification which is common to the model]
 • Changes the MSW set in a to the value set in "b".

| B | Function |
|----|------------------------------------|
| 48 | Sets corresponding bit to OFF. |
| 49 | Sets corresponding bit to ON. |
| 50 | Does not change corresponding bit. |

[Caution] [The specification which depend on the model]
 CT-S281/CT-S310/CT-S2000/CT-S4000/CT-S801/CT-S851
 CT-S601/CT-S651
 • MSW7 to MSW10 cannot be changed by this command. They can be changed by the setting of customize value.

CT-S280

• Setting MSW 1 (a=1)

| n | b (Set Value) | Function |
|---|---------------|---|
| 1 | 48 (Default) | Reports the power on. |
| | 49 | Does not report power on. |
| 2 | 48 (Default) | Sets input buffer capacity to 4K bytes. |
| | 49 | Sets input buffer capacity to 45 bytes. |
| 3 | 48 (Default) | Sets input buffer full and offline to be Busy. |
| | 49 | Sets to be busy with input buffer full. |
| 4 | 48 (Default) | At the occurrence of receiving error, replaces the data with "?". |
| | 49 | At the occurrence of receiving error, ignores the data. |
| 5 | 48 (Default) | Disables CR (ODH). |
| | 49 | Enables CR (ODH). |
| 6 | 48 (Default) | Reserved |
| 7 | 48 (Default) | Does not reset at serial I/F pin 6. |
| | 49 | Resets at serial I/F pin 6. |
| 8 | 48 (Default) | Reserved |

• Setting MSW 2 (a=2)

| n | b (Set Value) | Function |
|---|---------------|---|
| 1 | 49(Default) | Reserved |
| 2 | 48(Default) | Reserved |
| 3 | 48 (Default) | Enables stored printing. |
| | 49 | Disables stored printing. |
| 4 | 48 (Default) | Immediately after digit reaches full, line-feed is taken. |
| | 49 | Immediately after digit reaches full, data wait is taken. |
| 5 | 48 (Default) | After cover close and PE recovery, prints as it is. |
| | 49 | After cover close and PE recovery, prints from the beginning using PAGE MODE, barcode, image, double-height printing, etc. as a unit. |
| 6 | 49 (Default) | Reserved |
| 7 | 48 (Default) | Reserved |
| 8 | 48 (Default) | Enables PNE. |
| | 49 | Disables PNE. |

• Setting MSW 3 (a=3)

| n | b (Set Value) | Function |
|---|---------------|--|
| 1 | 48 (Default) | Reserved |
| 2 | 48 (Default) | Reserved |
| 3 | 48 (Default) | Resets with parallel pin 31. |
| | 49 | Does not reset with parallel pin 31. |
| 4 | 48 (Default) | Reserved |
| 5 | 48 (Default) | Reserved |
| 6 | 48 (Default) | Reserved |
| 7 | 48 | Sets CBM270-noncompatible mode. |
| | 49 (Default) | Sets CBM270-compatible mode. |
| 8 | 48 (Default) | Sets cover open error during printing to be auto recovery error. |
| | 49 | Sets cover open error during printing to be recoverable error. |

CT-S281

• Setting MSW 1 (a=1)

| n | b (Set Value) | Function |
|---|---------------|---|
| 1 | 48 (Default) | Reports the power on. |
| | 49 | Does not report power on. |
| 2 | 48 (Default) | Sets input buffer capacity to 4K bytes. |
| | 49 | Sets input buffer capacity to 45 bytes. |
| 3 | 48 (Default) | Sets input buffer full and offline to be Busy. |
| | 49 | Sets to be busy with input buffer full. |
| 4 | 48 (Default) | At the occurrence of receiving error, replaces the data with "?". |
| | 49 | At the occurrence of receiving error, ignores the data. |
| 5 | 48 (Default) | Disables CR (ODH). |
| | 49 | Enables CR (ODH). |
| 6 | 48 (Default) | Reserved |
| 7 | 48 (Default) | Does not reset at serial I/F pin 6. |
| | 49 | Resets at serial I/F pin 6. |
| 8 | 48 (Default) | Reserved |

• Setting MSW 2 (a=2)

| n | b (Set Value) | Function |
|---|---------------|---|
| 1 | 49(Default) | Reserve |
| 2 | 48 | Disables auto cutter. |
| | 49 (Default) | Enables auto cutter. |
| 3 | 48 (Default) | Enables stored printing. |
| | 49 | Disables stored printing. |
| 4 | 48 (Default) | Immediately after digit reaches full, line-feed is taken. |
| | 49 | Immediately after digit reaches full, data wait is taken. |
| 5 | 48 (Default) | After cover close and PE recovery, prints as it is. |
| | 49 | After cover close and PE recovery, prints from the beginning using PAGE MODE, barcode, image, double-height printing, etc. as a unit. |
| 6 | 49 (Default) | Reserved |
| 7 | 48 (Default) | Reserved |
| 8 | 48 | Enables PNE. |
| | 49 (Default) | Disables PNE. |

• Setting MSW 3 (a=3)

| n | b (Set Value) | Function |
|---|---------------|--|
| 1 | 48 (Default) | After clearing cutter error, can be restored by Feed SW. |
| | 49 | After clearing cutter error, cannot be restored by Feed SW. |
| 2 | 48 (Default) | Reserved |
| 3 | 49 (Default) | Reserved |
| 4 | 48 (Default) | Reserved |
| 5 | 48 (Default) | Reserved |
| 6 | 48 (Default) | Reserved |
| 7 | 48 | Sets EPSON compatible mode. |
| | 49 (Default) | Sets CBM270-compatible mode. |
| 8 | 48 (Default) | Sets cover open error during printing to be auto recovery error. |
| | 49 | Sets cover open error during printing to be recoverable error. |

CT-S281

• Setting MSW 4 (a=4)

| n | b (Set Value) | Function |
|---|---------------|---|
| 1 | 48 (Default) | At the selection of Black mark/Label paper, enables auto end-measurement. |
| | 49 | At the selection of Black mark/Label paper, disables auto end-measurement. |
| 2 | 48 (Default) | Finding top of form at power ON disabled. |
| | 49 | Finding top of form at power ON enabled. |
| 3 | 48 (Default) | Feed & Cut at TOF disabled. |
| | 49 | Feed & Cut at TOF enabled. |
| 4 | 48 (Default) | Uses thermal roll paper. |
| | 49 | Uses Black mark paper/ label paper. |
| 5 | 48 (Default) | Detects paper position and black mark. |
| | 49 | Detects paper position and inter-label distance. |
| 6 | 48 (Default) | Paper type selection disabled |
| | 49 | Paper type selection enabled |
| 7 | 48 (Default) | Label mode 1 - Auto paper type selection disabled |
| | 49 | Label mode 2 - Auto paper type selection enabled |
| 8 | 48 | Cut method is determined according to the cut command. |
| | 49 (Default) | Partial cut is performed regardless of cut command. (full cut by command: enabled). |

*** Default setting of MSW4-4 depends on the model. Thermal paper is the default of the standard model.

*** MSW 4-5 is valid only when black mark/label is set. If MSW4-4 is set for thermal paper, it is invalid

*** MSW4-8 is invalid when black mark/label is selected. Cut type for black mark/label paper is only full cut.

• Setting MSW 5 (a=5)

| n | b (Set Value) | Function |
|---|---------------|--|
| 1 | 49 (Default) | Reserved |
| 2 | 48 (Default) | Reserved |
| 3 | 48 | USB mode virtual serial. |
| | 49 (Default) | USB mode printer class. |
| 4 | 48 (Default) | Reserved |
| 5 | 48 (Default) | Reserved |
| 6 | 48 (Default) | Reserved |
| 7 | 48 (Default) | If PNE is released, Error LED is automatically turned off. |
| | 49 | Error LED is not turned off until the paper is exchanged (printerCover is opened) even if PNE is released. |
| 8 | 48 (Default) | Reserved |

CT-S300

• Setting MSW 1 (a=1)

| n | b (Set Value) | Function |
|---|---------------|---|
| 1 | 48 (Default) | Reports the power on. |
| | 49 | Does not report power on. |
| 2 | 48 (Default) | Sets input buffer capacity to 4K bytes. |
| | 49 | Sets input buffer capacity to 45 bytes. |
| 3 | 48 (Default) | Sets input buffer full and offline to be Busy. |
| | 49 | Sets to be busy with input buffer full. |
| 4 | 48 (Default) | At the occurrence of receiving error, replaces the data with "?". |
| | 49 | At the occurrence of receiving error, ignores the data. |
| 5 | 48 (Default) | Disables CR (ODH). |
| | 49 | Enables CR (ODH). |
| 6 | 48 (Default) | Reserved |
| 7 | 48 (Default) | Does not reset at serial I/F pin 6. |
| | 49 | Resets at serial I/F pin 6. |
| 8 | 48 (Default) | Does not reset at serial I/F pin 25. |
| | 49 | Resets sat serial I/F pin 25. |

• Setting MSW 2 (a=2)

| n | b (Set Value) | Function |
|---|---------------|---|
| 1 | 49 (Default) | Reserved |
| 2 | 48 | Disables auto cutter. |
| | 49 (Default) | Enables auto cutter. |
| 3 | 48 (Default) | Enables stored printing. |
| | 49 | Disables stored printing. |
| 4 | 48 (Default) | Immediately after digit reaches full, line-feed is taken. |
| | 49 | Immediately after digit reaches full, data wait is taken. |
| 5 | 48 (Default) | After cover close and PE recovery, prints as it is. |
| | 49 | After cover close and PE recovery, prints from the beginning using PAGE MODE, barcode, image, double-height printing, etc. as a unit. |
| 6 | 48(Default) | Sets paper width to 80 mm. |
| | 49 | Sets paper width to 58 mm. |
| 7 | 48(Default) | Reserved |
| 8 | 48(Default) | Enables PNE. |
| | 49 | Disables PNE. |

• Setting MSW 3 (a=3)

| n | b (Set Value) | Function |
|---|---------------|---|
| 1 | 48 (Default) | After clearing cutter error, can be restored by Feed SW. |
| | 49 | After clearing cutter error, cannot be restored by Feed SW. |
| 2 | 48(Default) | When selecting cover open error as recoverable error, recovered by cover close. |
| | 49 | When selecting cover open error as recoverable error, recovered by command. |
| 3 | 48 (Default) | Resets with parallel pin 31. |
| | 49 | Does not reset with parallel pin 31. |
| 4 | 48(Default) | Uses thermal paper. |
| | 49 | Uses Black mark paper. |
| 5 | 48(Default) | Used with 48/32 print columns. |
| | 49 | Used with 42/30 print columns. |
| 6 | 48 (Default) | Reserved |
| 7 | 48 (Default) | Sets EPSON compatible mode. |
| | 49 | Sets CBM1000-compatible mode. |
| 8 | 48 (Default) | Sets cover open error during printing to be auto recovery error. |
| | 49 | Sets cover open error during printing to be recoverable error. |

CT-S300

- Setting MSW 4 (a=4)

| n | b (Set Value) | Function |
|---|---------------|--|
| 1 | 48 (Default) | At the selection of Black mark paper, disables auto end-measurement. |
| | 49 | At the selection of Black mark paper, enables auto end-measurement. |
| 2 | 48(Default) | At the selection of Black mark paper, sets sensor position to be on the printing side. |
| | 49 | At the selection of Black mark paper, sets sensor position to be on the back of the printing side. |
| 3 | 48 (Default) | Reserved |
| 4 | 48 (Default) | Reserved |
| 5 | 48 (Default) | Reserved |
| 6 | 48 (Default) | Reserved |
| 7 | 48 (Default) | Reserved |
| 8 | 48 (Default) | Forcible partial cut disabled. |
| | 49 | Forcible partial cut enabled (full cut by command: enabled). |

* MSW 4-1, -2 are valid when MSW 3-4 is ON.

CT-S310

• Setting MSW 1 (a=1)

| n | b (Set Value) | Function |
|---|---------------|---|
| 1 | 48 (Default) | Reports the power on. |
| | 49 | Does not report power on. |
| 2 | 48 (Default) | Sets input buffer capacity to 4K bytes. |
| | 49 | Sets input buffer capacity to 45 bytes. |
| 3 | 48 (Default) | Sets input buffer full and offline to be Busy. |
| | 49 | Sets to be busy with input buffer full. |
| 4 | 48 (Default) | At the occurrence of receiving error, replaces the data with "?". |
| | 49 | At the occurrence of receiving error, ignores the data. |
| 5 | 48 (Default) | Disables CR (ODH). |
| | 49 | Enables CR (ODH). |
| 6 | 48 (Default) | Reserved |
| 7 | 48 (Default) | Does not reset at serial I/F pin 6. |
| | 49 | Resets at serial I/F pin 6. |
| 8 | 48 (Default) | Does not reset at serial I/F pin 25. |
| | 49 | Resets sat serial I/F pin 25. |

• Setting MSW 2 (a=2)

| n | b (Set Value) | Function |
|---|---------------|---|
| 1 | 49 (Default) | Reserved |
| 2 | 48 | Disables auto cutter. |
| | 49 (Default) | Enables auto cutter. |
| 3 | 48 (Default) | Enables stored printing. |
| | 49 | Disables stored printing. |
| 4 | 48 (Default) | Immediately after digit reaches full, line-feed is taken. |
| | 49 | Immediately after digit reaches full, data wait is taken. |
| 5 | 48 (Default) | After cover close and PE recovery, prints as it is. |
| | 49 | After cover close and PE recovery, prints from the beginning using PAGE MODE, barcode, image, double-height printing, etc. as a unit. |
| 6 | 48 (Default) | Sets paper width to 80 mm. |
| | 49 | Sets paper width to 58 mm. |
| 7 | 48 (Default) | Reserved |
| 8 | 48 (Default) | Enables PNE. |
| | 49 | Disables PNE. |

• Setting MSW 3 (a=3)

| n | b (Set Value) | Function |
|---|---------------|--|
| 1 | 48 (Default) | After clearing cutter error, can be restored by Feed SW. |
| | 49 | After clearing cutter error, cannot be restored by Feed SW. |
| 2 | 48 (Default) | Reserved |
| 3 | 48 (Default) | Resets with parallel pin 31. |
| | 49 | Does not reset with parallel pin 31. |
| 4 | 48 (Default) | Uses thermal paper. |
| | 49 | Uses Black mark paper. |
| 5 | 48 (Default) | Used with 48/32 print columns. |
| | 49 | Used with 42/30 print columns. |
| 6 | 48 (Default) | Reserved |
| 7 | 48 (Default) | Sets EPSON compatible mode. |
| | 49 | Sets CBM1000-compatible mode. |
| 8 | 48 (Default) | Sets cover open error during printing to be auto recovery error. |
| | 49 | Sets cover open error during printing to be recoverable error. |

• Setting MSW 4 (a=4)

| n | b (Set Value) | Function |
|---|---------------|--|
| 1 | 48 (Default) | At the selection of Black mark paper, disables auto end-measurement. |
| | 49 | At the selection of Black mark paper, enables auto end-measurement. |
| 2 | 48 | At the selection of Black mark paper, sets sensor position to be on the printing side. |
| | 49 (Default) | At the selection of Black mark paper, sets sensor position to be on the back of the printing side. |
| 3 | 48 | Paper heading cut disabled. |
| | 49 (Default) | Paper heading cut enabled. |
| 4 | 48 (Default) | Reserved |
| 5 | 48 (Default) | Reserved |
| 6 | 48 (Default) | Reserved |
| 7 | 48 (Default) | Reserved |
| 8 | 48 | Forcible partial cut disabled. |
| | 49 (Default) | Forcible partial cut enabled (full but by command: enabled). |

* MSW 4-1, -2 are valid when MSW 3-4 is ON.

CT-S310

- Setting MSW 5 (a=5)

| n | b (Set Value) | Function |
|---|---------------|--|
| 1 | 48 (Default) | Buzzer sound enabled. |
| | 49 | Buzzer sound disabled. |
| 2 | 48 (Default) | Reserved |
| 3 | 48 | USB mode virtual serial. |
| | 49 (Default) | USB mode printer class. |
| 4 | 48 (Default) | Reserved |
| 5 | 48 (Default) | Reserved |
| 6 | 48 (Default) | Reserved |
| 7 | 48 (Default) | If PNE is released, Error LED is automatically turned off. |
| | 49 | Error LED is not turned off until the paper is exchanged (printerCover is opened) even if PNE is released. |
| 8 | 48 (Default) | Reserved |

CT-S2000

• Setting MSW 1 (a=1)

| n | b (Set Value) | Function |
|---|---------------|---|
| 1 | 48 (Default) | Reports the power on. |
| | 49 | Does not report power on. |
| 2 | 48 (Default) | Sets input buffer capacity to 4K bytes. |
| | 49 | Sets input buffer capacity to 45 bytes. |
| 3 | 48 (Default) | Sets input buffer full and offline to be Busy. |
| | 49 | Sets to be busy with input buffer full. |
| 4 | 48 (Default) | At the occurrence of receiving error, replaces the data with "?". |
| | 49 | At the occurrence of receiving error, ignores the data. |
| 5 | 48 (Default) | Disables CR (ODH). |
| | 49 | Enables CR (ODH). |
| 6 | 48 (Default) | Reserved |
| 7 | 48 (Default) | Does not reset at serial I/F pin 6. |
| | 49 | Resets at serial I/F pin 6. |
| 8 | 48 (Default) | Does not reset at serial I/F pin 25. |
| | 49 | Resets sat serial I/F pin 25. |

*With MSW1-2, parallel I/F (4K fixed) and USB I/F (16K fixed) are disabled. With serial I/F, 45 bytes are enabled only when DMA control (MSW7-6) is disabled.

• Setting MSW 2 (a=2)

| n | b (Set Value) | Function |
|---|---------------|---|
| 1 | 49 (Default) | Reserved |
| 2 | 48 | Disables auto cutter. |
| | 49 (Default) | Enables auto cutter. |
| 3 | 48 (Default) | Enables stored printing. |
| | 49 | Disables stored printing. |
| 4 | 48 (Default) | Immediately after digit reaches full, line-feed is taken. |
| | 49 | Immediately after digit reaches full, data wait is taken. |
| 5 | 48 (Default) | After cover close and PE recovery, prints as it is. |
| | 49 | After cover close and PE recovery, prints from the beginning using PAGE MODE, barcode, image, double-height printing, etc. as a unit. |
| 6 | 48 (Default) | Reserved |
| 7 | 48 (Default) | Reserved |
| 8 | 48 (Default) | Enables PNE. |
| | 49 | Disables PNE. |

• Setting MSW 3 (a=3)

| n | b (Set Value) | Function |
|---|---------------|--|
| 1 | 48 (Default) | After clearing cutter error, can be restored by Feed SW. |
| | 49 | After clearing cutter error, cannot be restored by Feed SW. |
| 2 | 48 (Default) | Reserved |
| 3 | 48 (Default) | Resets with parallel pin 31. |
| | 49 | Does not reset with parallel pin 31. |
| 4 | 48 (Default) | Reserved |
| 5 | 48 (Default) | Reserved |
| 6 | 48 (Default) | Reserved |
| 7 | 48 (Default) | Sets EPSON compatible mode. |
| | 49 | Sets CBM1000-compatible mode. |
| 8 | 48 (Default) | Sets cover open error during printing to be auto recovery error. |
| | 49 | Sets cover open error during printing to be recoverable error. |

• Setting MSW 4 (a=4) (Standard model)

| n | b (Set Value) | Function |
|---|---------------|---|
| 1 | 48 (Default) | At the selection of Black mark/Label paper, disables auto end-measurement. |
| | 49 | At the selection of Black mark/Label paper, enables auto end-measurement. |
| 2 | 48 (Default) | Finding top of form at power ON disabled. |
| | 49 | Finding top of form at power ON enabled. |
| 3 | 48 | Feed & Cut at TOF disabled. |
| | 49 (Default) | Feed & Cut at TOF enabled. |
| 4 | 48 (Default) | Reserved |
| 5 | 48 (Default) | Reserved |
| 6 | 48 (Default) | Reserved |
| 7 | 48 (Default) | Reserved |
| 8 | 48 | Cut method is determined according to the cut command. |
| | 49 (Default) | Partial cut is performed regardless of cut command. (full but by command: enabled). |

CT-S2000

• Setting MSW 4 (a=4) (Black mark/Label model)

| n | b (Set Value) | Function |
|---|---------------|---|
| 1 | 48 (Default) | At the selection of Black mark/Label paper, enables auto end-measurement. |
| | 49 | At the selection of Black mark/Label paper, disables auto end-measurement. |
| 2 | 48 (Default) | Finding top of form at power ON disabled. |
| | 49 | Finding top of form at power ON enabled. |
| 3 | 48 | Feed & Cut at TOF disabled. |
| | 49 (Default) | Feed & Cut at TOF enabled. |
| 4 | 48 (Default) | Uses thermal roll paper. |
| | 49 | Uses Black mark paper/ label paper. |
| 5 | 48 (Default) | Detects paper position and black mark. |
| | 49 | Detects paper position and inter-label distance. |
| 6 | 48 (Default) | Paper type selection disabled |
| | 49 | Paper type selection enabled |
| 7 | 48 (Default) | Reserved |
| 8 | 48 | Cut method is determined according to the cut command. |
| | 49 (Default) | Partial cut is performed regardless of cut command. (full but by command: enabled). |

*** MSW 4-5 is valid only if black mark/label is set. If MSW4-4 is set for thermal paper, it is invalid

*** MSW4-8 is invalid when black mark/label is selected. Cut type for black mark/label paper is only full cut.

• Setting MSW 5 (a=5)

| n | b (Set Value) | Function |
|---|---------------|--|
| 1 | 48 (Default) | Buzzer sound enabled. |
| | 49 | Buzzer sound disabled. |
| 2 | 48 (Default) | Basic calculation pitch (180 dpi / 360 dpi). |
| | 49 | Basic calculation pitch (203 dpi / 406 dpi). |
| 3 | 48 | USB mode virtual serial. |
| | 49 (Default) | USB mode printer class. |
| 4 | 48 (Default) | Reserved |
| 5 | 48 (Default) | High quality printing mode disabled |
| | 49 | High quality printing mode enabled |
| 6 | 48 (Default) | Reserved |
| 7 | 48 (Default) | Reserved |
| 8 | 48 (Default) | Reserved |

CT-S4000

• Setting MSW 1 (a=1)

| n | b (Set Value) | Function |
|---|---------------|---|
| 1 | 48 (Default) | Reports the power on. |
| | 49 | Does not report power on. |
| 2 | 48 (Default) | Sets input buffer capacity to 4K bytes. |
| | 49 | Sets input buffer capacity to 45 bytes. (Note) |
| 3 | 48 (Default) | Sets input buffer full and offline to be Busy. |
| | 49 | Sets to be busy with input buffer full. |
| 4 | 48 (Default) | At the occurrence of receiving error, replaces the data with "?". |
| | 49 | At the occurrence of receiving error, ignores the data. |
| 5 | 48 (Default) | Disables CR (ODH). |
| | 49 | Enables CR (ODH). |
| 6 | 48 (Default) | Reserved |
| 7 | 48 (Default) | Does not reset at serial I/F pin 6. |
| | 49 | Resets at serial I/F pin 6. |
| 8 | 48 (Default) | Does not reset at serial I/F pin 25. |
| | 49 | Resets sat serial I/F pin 25. |

• Setting MSW 2 (a=2)

| n | b (Set Value) | Function |
|---|---------------|---|
| 1 | 49 (Default) | Reserved |
| 2 | 48 | Disables auto cutter. |
| | 49 (Default) | Enables auto cutter. |
| 3 | 48 (Default) | Enables stored printing. |
| | 49 | Disables stored printing. |
| 4 | 48 (Default) | Immediately after digit reaches full, line-feed is taken. |
| | 49 | Immediately after digit reaches full, data wait is taken. |
| 5 | 48 (Default) | After cover close and PE recovery, prints as it is. |
| | 49 | After cover close and PE recovery, prints from the beginning using PAGE MODE, barcode, image, double-height printing, etc. as a unit. |
| 6 | 48 (Default) | Reserved |
| 7 | 48 (Default) | Reserved |
| 8 | 48 (Default) | Enables PNE. |
| | 49 | Disables PNE. |

• Setting MSW 3 (a=3)

| n | b (Set Value) | Function |
|---|---------------|--|
| 1 | 48 (Default) | After clearing cutter error, can be restored by Feed SW. |
| | 49 | After clearing cutter error, cannot be restored by Feed SW. |
| 2 | 48 (Default) | Reserved |
| 3 | 48 (Default) | Resets with parallel pin 31. |
| | 49 | Does not reset with parallel pin 31. |
| 4 | 48 (Default) | Reserved |
| 5 | 48 (Default) | Reserved |
| 6 | 48 (Default) | Reserved |
| 7 | 48 (Default) | Sets EPSON compatible mode. |
| | 49 | Sets CBM1000-compatible mode. |
| 8 | 48 (Default) | Sets cover open error during printing to be auto recovery error. |
| | 49 | Sets cover open error during printing to be recoverable error. |

CT-S4000

• Setting MSW 4 (a=4)

| n | b (Set Value) | Function |
|---|---------------|---|
| 1 | 48 (Default) | At the selection of Black mark paper/ label paper, enables auto end-measurement. |
| | 49 | At the selection of Black mark paper/ label paper, disables auto end-measurement. |
| 2 | 48 (Default) | Setting the first position at power ON disabled. |
| | 49 | Setting the first position at power ON enabled. |
| 3 | 48 | Paper heading cut disabled. |
| | 49 (Default) | Paper heading cut enabled. |
| 4 | 48 (Default) | Uses thermal roll paper. |
| | 49 | Uses Black mark paper/ label paper. |
| 5 | 48 (Default) | Detects paper position and black mark. |
| | 49 | Detects paper position and inter-label distance. |
| 6 | 48 (Default) | Reserved |
| 7 | 48 (Default) | Reserved |
| 8 | 48 | Forcible partial cut disabled. |
| | 49 (Default) | Forcible partial cut enabled (full but by command: enabled). |

*** Default setting of MSW4-4 depends on the model. Thermal paper is the default of the standard model.

*** MSW 4-5 is valid only for black mark/label model. If MSW4-4 is set for thermal paper, it is invalid

*** MSW4-8 is invalid when black mark/label is selected. Cut type for black mark/label paper is only full cut.

• Setting MSW 5 (a=5)

| n | b (Set Value) | Function |
|---|---------------|--|
| 1 | 48 (Default) | Buzzer sound enabled. |
| | 49 | Buzzer sound disabled. |
| 2 | 48 (Default) | Basic calculation pitch (180 dpi / 360 dpi). |
| | 49 | Basic calculation pitch (203 dpi / 406 dpi). |
| 3 | 48 | USB mode virtual serial. |
| | 49 (Default) | USB mode printer class. |
| 4 | 48 (Default) | Reserved |
| 5 | 48 (Default) | Reports the power off. |
| | 49 | Does not report power off. |
| 6 | 48 (Default) | Reserved |
| 7 | 48 (Default) | Reserved |
| 8 | 48 (Default) | Reserved |

CT-S801/CT-S851/CT-S601/CT-S601

• Setting MSW 1 (a=1)

| n | b (Set Value) | Function |
|---|---------------|---|
| 1 | 48 (Default) | Reports the power on. |
| | 49 | Does not report power on. |
| 2 | 48 (Default) | Sets input buffer capacity to 4K bytes. |
| | 49 | Sets input buffer capacity to 45 bytes. |
| 3 | 48 (Default) | Sets input buffer full and offline to be Busy. |
| | 49 | Sets to be busy with input buffer full. |
| 4 | 48 (Default) | At the occurrence of receiving error, replaces the data with "?". |
| | 49 | At the occurrence of receiving error, ignores the data. |
| 5 | 48 (Default) | Disables CR (ODH). |
| | 49 | Enables CR (ODH). |
| 6 | 48 (Default) | Reserved |
| 7 | 48 (Default) | Does not reset at serial I/F pin 6. |
| | 49 | Resets at serial I/F pin 6. |
| 8 | 48 (Default) | Does not reset at serial I/F pin 25. |
| | 49 | Resets sat serial I/F pin 25. |

*With MSW1-2, parallel I/F (4K fixed) and USB I/F (16K fixed) are disabled. With serial I/F, 45 bytes are enabled only when DMA control (MSW7-6) is disabled.

• Setting MSW 2 (a=2)

| n | b (Set Value) | Function |
|---|---------------|---|
| 1 | 49 (Default) | Reserved |
| 2 | 48 | Disables auto cutter. |
| | 49 (Default) | Enables auto cutter. |
| 3 | 48 (Default) | Enables stored printing. |
| | 49 | Disables stored printing. |
| 4 | 48 (Default) | Immediately after digit reaches full, line-feed is taken. |
| | 49 | Immediately after digit reaches full, data wait is taken. |
| 5 | 48 (Default) | After cover close and PE recovery, prints as it is. |
| | 49 | After cover close and PE recovery, prints from the beginning using PAGE MODE, barcode, image, double-height printing, etc. as a unit. |
| 6 | 48 (Default) | Reserved |
| 7 | 48 (Default) | Reserved |
| 8 | 48 (Default) | Enables PNE. |
| | 49 | Disables PNE. |

• Setting MSW 3 (a=3)

| n | b (Set Value) | Function |
|---|---------------|--|
| 1 | 48 (Default) | After clearing cutter error, can be restored by Feed SW. |
| | 49 | After clearing cutter error, cannot be restored by Feed SW. |
| 2 | 48 (Default) | Reserved |
| 3 | 48 (Default) | Resets with parallel pin 31. |
| | 49 | Does not reset with parallel pin 31. |
| 4 | 48 (Default) | Reserved |
| 5 | 48 (Default) | Reserved |
| 6 | 48 (Default) | Reserved |
| 7 | 48 (Default) | Sets EPSON compatible mode. |
| | 49 | Sets CBM1000-compatible mode. |
| 8 | 48 (Default) | Sets cover open error during printing to be auto recovery error. |
| | 49 | Sets cover open error during printing to be recoverable error. |

CT-S801/CT-S851/CT-S601/CT-S601

• Setting MSW 4 (a=4)

| n | b (Set Value) | Function |
|---|---------------|---|
| 1 | 48 (Default) | At the selection of Black mark/Label paper, disables auto end-measurement. |
| | 49 | At the selection of Black mark/Label paper, enables auto end-measurement. |
| 2 | 48 (Default) | Finding top of form at power ON disabled. |
| | 49 | Finding top of form at power ON enabled. |
| 3 | 48 | Feed & Cut at TOF disabled. |
| | 49 (Default) | Feed & Cut at TOF enabled. |
| 4 | 48 (Default) | Uses Black mark paper/ label paper. |
| | 49 | Uses thermal roll paper. |
| 5 | 48 (Default) | Detects paper position and black mark. |
| | 49 | Detects paper position and inter-label distance. |
| 6 | 48 (Default) | Paper type selection disabled |
| | 49 | Paper type selection enabled |
| 7 | 48 (Default) | Reserved |
| 8 | 48 | Cut method is determined according to the cut command. |
| | 49 (Default) | Partial cut is performed regardless of cut command. (full but by command: enabled). |

*** Default setting of MSW4-4 depends on the model. Thermal paper is the default of the standard model.

*** MSW 4-5 is valid only for black mark/label model. If MSW4-4 is set for thermal paper, it is invalid

*** MSW4-8 is invalid when black mark/label is selected. Cut type for black mark/label paper is only full cut.

• Setting MSW 5 (a=5)

| n | b (Set Value) | Function |
|---|---------------|--|
| 1 | 48 (Default) | Buzzer sound enabled. |
| | 49 | Buzzer sound disabled. |
| 2 | 48 (Default) | Basic calculation pitch (180 dpi / 360 dpi). |
| | 49 | Basic calculation pitch (203 dpi / 406 dpi). |
| 3 | 48 | USB mode virtual serial. |
| | 49 (Default) | USB mode printer class. |
| 4 | 48 (Default) | Reserved |
| 5 | 48 (Default) | Reserved |
| 6 | 48 (Default) | Reserved |
| 7 | 48 (Default) | Reserved |
| 8 | 48 (Default) | Reserved |

• Setting MSW 6 (a=6)

| n | b (Set Value) | Function |
|---|---------------|-------------------------------|
| 1 | 48 (Default) | Act for driver is enabled. |
| | 49 | Act for driver is disabled. |
| 2 | 48 (Default) | Character space is set for 0. |
| | 49 | Character space is set for 1 |
| 3 | 48 (Default) | Reserved |
| 4 | 48 (Default) | Reserved |
| 5 | 48 (Default) | Reserved |
| 6 | 48 (Default) | Reserved |
| 7 | 48 (Default) | Reserved |
| 8 | 48 (Default) | Reserved |

BD2-2220

• Setting MSW 1 (a=1)

| n | b (Set Value) | Function |
|---|---------------|---|
| 1 | 48 (Default) | Reports the power on. |
| | 49 | Does not report power on. |
| 2 | 48 (Default) | Sets input buffer capacity to 4K bytes. |
| | 49 | Sets input buffer capacity to 45 bytes. (Note) |
| 3 | 48 (Default) | Sets input buffer full and offline to be Busy. |
| | 49 | Sets to be busy with input buffer full. |
| 4 | 48 (Default) | At the occurrence of receiving error, replaces the data with "?". |
| | 49 | At the occurrence of receiving error, ignores the data. |
| 5 | 48 (Default) | Disables CR (ODH). |
| | 49 | Enables CR (ODH). |
| 6 | 48 (Default) | Reserved |
| 7 | 48 (Default) | Does not reset at serial I/F pin 6. |
| | 49 | Resets at serial I/F pin 6. |
| 8 | 48 (Default) | Reserved |

• Setting MSW 2 (a=2)

| n | b (Set Value) | Function |
|---|---------------|--|
| 1 | 49 (Default) | Reserved |
| 2 | 48 (Default) | Reserved |
| 3 | 48 (Default) | Enables stored printing. |
| | 49 | Disables stored printing. |
| 4 | 48 (Default) | Immediately after digit reaches full, line-feed is taken. |
| | 49 | Immediately after digit reaches full, data wait is taken. |
| 5 | 48 (Default) | After head-down* and PE recovery, prints as it is. |
| | 49 | After head-down* and PE recovery, prints from the beginning using PAGE MODE, barcode, image, double-height printing, etc. as a unit. |
| 6 | 49 (Default) | Reserved |
| 7 | 48 (Default) | Reserved |
| 8 | 48 (Default) | Reserved |

• Setting MSW 3 (a=3)

| n | b (Set Value) | Function |
|---|---------------|--|
| 1 | 48 (Default) | After clearing cutter error, can be restored by Feed SW. |
| | 49 | After clearing cutter error, cannot be restored by Feed SW. |
| 2 | 48 (Default) | Reserved |
| 3 | 48 (Default) | Resets with parallel pin 31. |
| | 49 | Does not reset with parallel pin 31. |
| 4 | 48 (Default) | Reserved |
| 5 | 48 (Default) | Reserved |
| 6 | 48 (Default) | Reserved |
| 7 | 48 (Default) | Reserved |
| 8 | 48 (Default) | Sets head-up* error during printing to be auto recovery error. |
| | 49 | Sets head-up* error during printing to be recoverable error. |

- * Name depends on a mechanism to use.
 LT2X20 series: Head-down/Head-up
 LT2X21 series: platen-close/platen-open

PMU2XXX

• Setting MSW 1 (a=1)

| n | b (Set Value) | Function |
|---|---------------|---|
| 1 | 48 (Default) | Reports the power on. |
| | 49 | Does not report power on. |
| 2 | 48 (Default) | Sets input buffer capacity to 4K bytes. |
| | 49 | Sets input buffer capacity to 45 bytes. (Note) |
| 3 | 48 (Default) | Sets input buffer full and offline to be Busy. |
| | 49 | Sets to be busy with input buffer full. |
| 4 | 48 (Default) | At the occurrence of receiving error, replaces the data with "?". |
| | 49 | At the occurrence of receiving error, ignores the data. |
| 5 | 48 (Default) | Disables CR (ODH). |
| | 49 | Enables CR (ODH). |
| 6 | 48 (Default) | Reserved |
| 7 | 48 (Default) | Does not reset at serial I/F pin 6. |
| | 49 | Resets at serial I/F pin 6. |
| 8 | 48 (Default) | Reserved |

• Setting MSW 2 (a=2)

| n | b (Set Value) | Function |
|---|---------------|--|
| 1 | 49 (Default) | Reserved |
| 2 | 48 | Disables auto cutter. |
| | 49(Default) | Enables auto cutter. |
| 3 | 48 (Default) | Enables stored printing. |
| | 49 | Disables stored printing. |
| 4 | 48 (Default) | Immediately after digit reaches full, line-feed is taken. |
| | 49 | Immediately after digit reaches full, data wait is taken. |
| 5 | 48 (Default) | After head-down* and PE recovery, prints as it is. |
| | 49 | After head-down* and PE recovery, prints from the beginning using PAGE MODE, barcode, image, double-height printing, etc. as a unit. |
| 6 | 48 | Sets paper width to 80 mm |
| | 49 | Sets paper width to 58(60) mm |
| 7 | 48 (Default) | Reserved |
| 8 | 48 | Enables PNE. |
| | 49 (Default) | Disables PNE. |

• Setting MSW 3 (a=3)

| n | b (Set Value) | Function |
|---|---------------|---|
| 1 | 48 (Default) | After clearing cutter error, can be restored by Feed SW. |
| | 49 | After clearing cutter error, cannot be restored by Feed SW. |
| 2 | 48 (Default) | Reserved |
| 3 | 48 (Default) | Resets with parallel pin 31. |
| | 49 | Does not reset with parallel pin 31. |
| 4 | 48 (Default) | Uses thermal paper |
| | 49 | Uses Black mark paper |
| 5 | 48 (Default) | Reserved |
| 6 | 48 (Default) | Reserved |
| 7 | 48 (Default) | Reserved |
| 8 | 48 (Default) | Sets platen-open error during printing to be auto recovery error. |
| | 49 | Sets platen-open error during printing to be recoverable error. |

• Setting MSW 4 (a=4)

| n | b (Set Value) | Function |
|---|---------------|---|
| 1 | 48 | At the selection of Black mark paper, disables auto end-measurement. |
| | 49 (Default) | At the selection of Black mark paper, enables auto end-measurement. |
| 2 | 48 | At the selection of Black mark paper, sets sensor position to be on the printing side |
| | 49 (Default) | At the selection of Black mark paper, sets sensor position to be on the back of the printing side |
| 3 | 48 | Paper heading cut disabled. |
| | 49 (Default) | Paper heading cut enabled. |
| 4 | 48 | Base style is PMU2XX0/PMU2XX2. |
| | 49 | Base style is PMU2XX1. |
| 5 | 48 | Mechanism name is LT-23XX. |
| | 49 | Mechanism name is LT-22XX. |
| 6 | 48 (Default) | Reserved |
| 7 | 48 (Default) | Reserved |
| 8 | 48(Default) | Forcible partial cut disabled. |
| | 49 | Forcible partial cut enabled (full cut by command: enabled). |

* MSW 4-1, -2 are valid when MSW 3-4 is ON.

PMU2XXX

Setting MSW 5 (a=5)

| n | b (Set Value) | Function |
|---|---------------|--------------------------------------|
| 1 | 48 (Default) | Reserved |
| 2 | 48 (Default) | Reserved |
| 3 | 48 (Default) | Reserved |
| 4 | 48 (Default) | Reserved |
| 5 | 48 (Default) | Reserved |
| 6 | 48 | It is priority of the print quqlity. |
| | 49 (Default) | Priority of the print speed. |
| 7 | 48 (Default) | Reserved |
| 8 | 48 (Default) | Reserved |

PMU2XXXII

• Setting MSW 1 (a=1)

| n | b (Set Value) | Function |
|---|---------------|---|
| 1 | 48 (Default) | Reports the power on. |
| | 49 | Does not report power on. |
| 2 | 48 (Default) | Sets input buffer capacity to 4K bytes. |
| | 49 | Sets input buffer capacity to 45 bytes. (Note) |
| 3 | 48 (Default) | Sets input buffer full and offline to be Busy. |
| | 49 | Sets to be busy with input buffer full. |
| 4 | 48 (Default) | At the occurrence of receiving error, replaces the data with "?". |
| | 49 | At the occurrence of receiving error, ignores the data. |
| 5 | 48 (Default) | Disables CR (ODH). |
| | 49 | Enables CR (ODH). |
| 6 | 48 (Default) | Reserved |
| 7 | 48 (Default) | Does not reset at serial I/F pin 6. |
| | 49 | Resets at serial I/F pin 6. |
| 8 | 48 (Default) | Reserved |

• Setting MSW 2 (a=2)

| n | b (Set Value) | Function |
|---|---------------|--|
| 1 | 49 (Default) | Reserved |
| 2 | 48 | Disables auto cutter. |
| | 49 (Default) | Enables auto cutter. |
| 3 | 48 (Default) | Enables stored printing. |
| | 49 | Disables stored printing. |
| 4 | 48 (Default) | Immediately after digit reaches full, line-feed is taken. |
| | 49 | Immediately after digit reaches full, data wait is taken. |
| 5 | 48 (Default) | After head-down* and PE recovery, prints as it is. |
| | 49 | After head-down* and PE recovery, prints from the beginning using PAGE MODE, barcode, image, double-height printing, etc. as a unit. |
| 6 | 48 | Sets paper width to 80 mm. |
| | 49 | Sets paper width to 58(60) mm. |
| 7 | 48 (Default) | Reserved |
| 8 | 48 | Enables PNE. |
| | 49 (Default) | Disables PNE. |

• Setting MSW 3 (a=3)

| n | b (Set Value) | Function |
|---|---------------|---|
| 1 | 48 (Default) | After clearing cutter error, can be restored by Feed SW. |
| | 49 | After clearing cutter error, cannot be restored by Feed SW. |
| 2 | 48 (Default) | Reserved |
| 3 | 48 (Default) | Resets with parallel pin 31. |
| | 49 | Does not reset with parallel pin 31. |
| 4 | 48 (Default) | Uses thermal paper. |
| | 49 | Uses Black mark paper. |
| 5 | 48 (Default) | Used with 48/32 print columns. |
| | 49 | Used with 42/30 print columns. |
| 6 | 48 (Default) | Reserved |
| 7 | 48 (Default) | Sets EPSON compatible mode. |
| | 49 | Sets CBM1000-compatible mode. |
| 8 | 48 (Default) | Sets platen-open error during printing to be auto recovery error. |
| | 49 | Sets platen-open error during printing to be recoverable error. |

PMU2XXXI

• Setting MSW 4 (a=4)

| n | b (Set Value) | Function |
|---|---------------|--|
| 1 | 48 | At the selection of Black mark paper, disables auto end-measurement. |
| | 49 (Default) | At the selection of Black mark paper, enables auto end-measurement. |
| 2 | 48 | At the selection of Black mark paper, sets sensor position to be on the printing side. |
| | 49 (Default) | At the selection of Black mark paper, sets sensor position to be on the back of the printing side. |
| 3 | 48 | Paper heading cut disabled. |
| | 49 (Default) | Paper heading cut enabled. |
| 4 | 48 | Base style is PMU2XX0/PMU2XX2. |
| | 49 | Base style is PMU2XX1. |
| 5 | 48 | Mechanism name is LT-23XX. |
| | 49 | Mechanism name is LT-22XX. |
| 6 | 48 (Default) | Reserved |
| 7 | 48 (Default) | Reserved |
| 8 | 48(Default) | Forcible partial cut disabled. |
| | 49 | Forcible partial cut enabled (full cut by command: enabled). |

* MSW 4-1, -2 are valid when MSW 3-4 is ON.

Setting MSW 5 (a=5)

| n | b (Set Value) | Function |
|---|---------------|--------------------------------------|
| 1 | 48 (Default) | Reserved |
| 2 | 48 (Default) | Reserved |
| 3 | 48 | USB mode virtual serial. |
| | 49 (Default) | USB mode printer class. |
| 4 | 48 (Default) | Reserved |
| 5 | 48 (Default) | Reserved |
| 6 | 48 (Default) | It is priority of the print quqlity. |
| | 49 | Priority of the print speed. |
| 7 | 48 (Default) | Reserved |
| 8 | 48 (Default) | Reserved |

CT-P292/293

• Setting MSW 1 (a=1)

| n | b (Set Value) | Function |
|---|---------------|---|
| 1 | 48 (Default) | Reports the power on. |
| | 49 | Does not report power on. |
| 2 | 48 (Default) | Sets input buffer capacity to 4K bytes. |
| | 49 | Sets input buffer capacity to 45 bytes. (Note) |
| 3 | 48 (Default) | Sets input buffer full and offline to be Busy. |
| | 49 | Sets to be busy with input buffer full. |
| 4 | 48 (Default) | At the occurrence of receiving error, replaces the data with "?". |
| | 49 | At the occurrence of receiving error, ignores the data. |
| 5 | 48 (Default) | Disables CR (ODH). |
| | 49 | Enables CR (ODH). |
| 6 | 48 (Default) | Reserved |
| 7 | 48 (Default) | Does not reset at serial I/F pin 6. |
| | 49 | Resets at serial I/F pin 6. |
| 8 | 48 (Default) | Reserved |

• Setting MSW 2 (a=2)

| n | b (Set Value) | Function |
|---|---------------|--|
| 1 | 49 (Default) | Reserved |
| 2 | 48 | Disables auto cutter. |
| | 49(Default) | Enables auto cutter. |
| 3 | 48 (Default) | Enables stored printing. |
| | 49 | Disables stored printing. |
| 4 | 48 (Default) | Immediately after digit reaches full, line-feed is taken. |
| | 49 | Immediately after digit reaches full, data wait is taken. |
| 5 | 48 (Default) | After head-down* and PE recovery, prints as it is. |
| | 49 | After head-down* and PE recovery, prints from the beginning using PAGE MODE, barcode, image, double-height printing, etc. as a unit. |
| 6 | 48 | Sets paper width to 80 mm. |
| | 49 | Sets paper width to 58(60) mm. |
| 7 | 48 (Default) | Reserved |
| 8 | 48 | Enables PNE. |
| | 49 (Default) | Disables PNE. |

• Setting MSW 3 (a=3)

| n | b (Set Value) | Function |
|---|---------------|---|
| 1 | 48 (Default) | After clearing cutter error, can be restored by Feed SW. |
| | 49 | After clearing cutter error, cannot be restored by Feed SW. |
| 2 | 48 (Default) | Reserved |
| 3 | 48 (Default) | Resets with parallel pin 31. |
| | 49 | Does not reset with parallel pin 31. |
| 4 | 48 (Default) | Uses thermal paper. |
| | 49 | Uses Black mark paper. |
| 5 | 48(Default) | Used with 48 print columns |
| | 49 | Used with 32 print columns. |
| 6 | 48 (Default) | Reserved |
| 7 | 48 (Default) | Sets EPSON compatible mode. |
| | 49 | Sets CBM1000-compatible mode. |
| 8 | 48 (Default) | Sets platen-open error during printing to be auto recovery error. |
| | 49 | Sets platen-open error during printing to be recoverable error. |

CT-P292/293

• Setting MSW 4 (a=4)

| n | b (Set Value) | Function |
|---|---------------|--|
| 1 | 48 | Reserved |
| | 49 | Reserved |
| 2 | 48 | Reserved |
| | 49 (Default) | Reserved |
| 3 | 48 | Paper heading cut disabled. |
| | 49 (Default) | Paper heading cut enabled. |
| 4 | 48 | Reserved |
| | 49 | Reserved |
| 5 | 48 | Reserved |
| | 49 | Reserved |
| 6 | 48 | Reserved |
| 7 | 48 | Reserved |
| 8 | 48(Default) | Forcible partial cut disabled. |
| | 49 | Forcible partial cut enabled (full cut by command: enabled). |

* MSW 4-1, -2 are valid when MSW 3-4 is ON.

Setting MSW 5 (a=5)

| n | b (Set Value) | Function |
|---|---------------|--------------------------------------|
| 1 | 48 (Default) | Reserved |
| 2 | 48 (Default) | Reserved |
| 3 | 48 | Reserved |
| | 49 | Reserved |
| 4 | 48 (Default) | Reserved |
| 5 | 48 (Default) | Reserved |
| 6 | 48 (Default) | It is priority of the print quqlity. |
| | 49 | Priority of the print speed. |
| 7 | 48 (Default) | Reserved |
| 8 | 48 (Default) | Reserved |

fn=4: Function 4 Sending the Set Memory Switch Value

GS (E pL pH fn a

[Code] <1D>H<28>H<45>H<pL><pH><fn><a>

[Range] (pL+pH×256)=2
 fn=4
 CT-S280/BD2-2220
 a=1, 2, 3
 CT-S300/PMU2XXX
 a=1, 2, 3, 4
 CT-S281/CT-S310/CT-S2000/CT-S4000/PMU2XXX/PMU2XXXII/CT-P292/293
 a=1, 2, 3, 4, 5
 CT-S801/CT-S851/CT-S601/CT-S601
 a=1, 2, 3, 4, 5, 6

[Outline] [The specification which is common to the model]

- Sends the content of MSW set in "a".

| | Hex. | No. of Data |
|--------|------------|-------------|
| Header | 37H | 1 |
| ID | 21H | 1 |
| Data | 30H or 31H | 8 |
| NULL | 00H | 1 |

- Sends the set value of data in 8-byte data raw in order of bits 8, 7, 6
 OFF: 30H (^0")
 ON : 31H (^1")

[Caution] [The specification which depend on the model]

- CT-S310/CT-S2000/CT-S4000/ CT-S801/CT-S601
- MSW7 to MSW10 cannot be sent by this command.
 - Transmission is available by <Sending preset customize value>.

fn=5: Function 5 Setting Customized Value

GS (E pL pH fn [a1 n1L n1H]...[ak nkL nkH]

[Code] <1D>H<28>H<45>H<pL><pH><fn>[<a1><n1L><n1H>]...[<ak><nkL><nkH>]

[Range] $4 \leq (pL+pH \times 256) \leq 65535$
 fn=5
 $1 \leq (nL+nH \times 256) \leq 65535$
CT-S280
 a=5, 6, 116, 201, 202, 214, 216, 217, 218
CT-S281
 a=5, 6, 116, 202, 213, 214, 216, 217, 218, 226
CT-S300/CT-S310
 a=3, 5, 97, 116, 201, 202, 220, 221, 222, 223, 224, 225
CT-S2000
 a=1, 2, 3, 5, 6, 116, 201, 202, 212, 213, 214, 220, 221, 222, 223, 224, 225
CT-S4000
 a=1, 2, 3, 5, 6, 116, 201, 202, 212, 213, 214
CT-S801
 a=1, 2, 3, 5, 6, 116, 201, 202, 212, 213, 214, 216, 217, 218, 220, 221, 222, 223, 224, 225, 230, 231, 232, 233, 234, 240, 240, 241, 242, 243
CT-S851
 a=1, 2, 3, 5, 6, 116, 201, 202, 212, 213, 214, 216, 217, 218, 220, 221, 222, 223, 224, 225, 230, 231, 232, 233, 240, 240, 241, 242, 243
CT-S601/CT-S651
 a=1, 2, 3, 5, 6, 116, 201, 202, 212, 213, 214, 216, 217, 218, 220, 221, 222, 223, 224, 225, 240, 240, 241, 242, 243
BD2-2220
 a=5, 6, 201, 202
PMU2XXX/PMU2XXXII
 a=5, 6, 201, 202, 220, 221, 222, 223, 224, 225
 *a=220, 221, 222, 223, 224, and 225 are supported with only label/BM model.
CT-P292/293
 a=5, 6, 213, 214, 216, 217, 218

[Outline] **[The specification which is common to the model]**

- Sets the customized value set in "a" to (nL+nH×256).

| a | Function |
|-----|--|
| 1 | Specifies user NV memory capacity. |
| 2 | Specifies the memory capacity of NV graphics. |
| 3 | Selects paper width. |
| 5 | Selects printing density. |
| 6 | Selects printing speed. |
| 97 | Sets the number of divisions for conducting head |
| 116 | Selects printing color. |
| 201 | Sets ACK output position (only parallel I/F). |
| 202 | Selects input buffer full Busy output/cancel timing (idle capacity). |
| 212 | Selects DMA (Direct Memory Access) control of serial communication. |
| 213 | Selects the flow control when virtual COM is set. |

| | |
|-----|--|
| 214 | Select the enable/disable of Kanji. |
| 216 | Selects JIS / Shift JIS |
| 217 | Selects the international character set |
| 218 | Selects the codepage |
| 220 | Sets the maximum BM width. |
| 221 | Sets the maximum BM page length. |
| 222 | Adjusts the distance of BM header. |
| 223 | Adjusts the distance of BM footer. |
| 224 | Adjusts the length of BM cut distance. |
| 225 | Adjusts the length of BM head distance. |
| 226 | Sets the wait time for manual cut |
| 230 | Selects the language of LCD message |
| 231 | Selects the enable/disable of LCD download message |
| 232 | Selects the LCD auto Off time |
| 233 | Selects the enable/disable of key lock |
| 234 | Selects the direction of LCD message |
| 240 | Sets the buzzer volume |
| 241 | Sets the max dot number for one head division |
| 242 | Sets the max dot number for PoweredUSB |
| 243 | Select the mechanism type |

[Caution]

[The specification which is common to the model]

- This function operates only in printer function setting mode.
- The value changed by this command is enabled by execution of function 2 (fn = 2: End of printer function setting mode) (Recommended)

CT-S280

- a=5: Sets printing density to the level specified by (nL+nH×256).

| (nL+nH×256) | Printing Density |
|-------------|------------------|
| 65530 | 70% |
| 65531 | 75% |
| 65532 | 80% |
| 65533 | 85% |
| 65534 | 90% |
| 65535 | 95% |
| 0(Default) | 100% |
| 1 | 105% |
| 2 | 110% |
| 3 | 115% |
| 4 | 120% |
| 5 | 125% |
| 6 | 130% |
| 7 | 135% |
| 8 | 140% |

- a=6: Sets printing speed to the value specified by (nL+nH×256).

| (nL+nH×256) | Printing Speed |
|-------------|-------------------------------|
| 1 | Printing speed level 1 (84%) |
| 2 | Printing speed level 2 (86%) |
| 3 | Printing speed level 3 (88%) |
| 4 | Printing speed level 4 (90%) |
| 5 | Printing speed level 5 (92%) |
| 6 | Printing speed level 6 (94%) |
| 7 | Printing speed level 7 (96%) |
| 8 | Printing speed level 8 (98%) |
| 9 (Default) | Printing speed level 9 (100%) |

- a=116: Sets the paper specified by (nL+nH×256).

| (nL+nH×256) | Paper |
|-------------|-------------------------------|
| 1 (Default) | Specified single color paper. |
| 257 | Recommended 2-color paper5 |

- a=201: Outputs ACK to the position specified by (nL+nH×256).

| (nL+nH×256) | ACK Output Position |
|-------------|---------------------|
| 1 (Default) | ACK-in-Busy |
| 2 | ACK-while-Busy |
| 3 | ACK-after-Busy |

- a=202: Controls input buffer full Busy with the value selected by (nL+nH×256) and controls Busy with output/cancel timing (remaining capacity).

| (nL+nH×256) | When Input Buffer Capacity "Small" is Set | | When Input Buffer Capacity 4K Bytes (Large) is Set | |
|-------------|---|--------|--|--------|
| | Output | Cancel | Output | Cancel |
| 1 | 16 | 26 | 128 | 256 |
| 2 | 16 | 40 | 128 | 512 |
| 3 | 30 | 50 | 72 | 256 |
| 4 | 30 | 60 | 72 | 512 |

- XON/XOFF is also output by the establishment of conditions.
- Ignores the data received when input buffer idle capacity is 0.

CT-S280

- a=214: Select the enable/disable of Kanji specified by (nL+nH×256)

| (nL+nH×256) | Kanji |
|-------------|--------------|
| 1 | Invalid(OFF) |
| 2(Default) | Valid(ON) |

- a=216: Select the JIS/Shift JIS specified by (nL+nH×256)

| (nL+nH×256) | JIS/Shift JIS |
|-------------|----------------|
| 1(Default) | JIS (ON) |
| 2 | Shift JIS(OFF) |

- a=217: Select the international character set specified by (nL+nH×256)

| (nL+nH×256) | Int'l Char set | (nL+nH×256) | Int'l Char set |
|-------------|----------------|-------------|----------------|
| 1(Default) | U.S.A. | 9 | Japan |
| 2 | France | 10 | Norway |
| 3 | Germany | 11 | Denmark II |
| 4 | U.K. | 12 | Spain II |
| 5 | Denmark I | 13 | Latin America |
| 6 | Sweden | 14 | Korea |
| 7 | Italy | | |
| 8 | Spain I | | |

- a=218: Select the codepage specified by (nL+nH×256)

| (nL+nH×256) | Codepage | (nL+nH×256) | Codepage |
|-------------|----------------|-------------|----------------|
| 1 | Codepage PC437 | 8 | Codepage PC866 |
| 2 | Katakana | 9 | Codepage PC857 |
| 3 | Codepage PC850 | 10 | WPC1252 |
| 4 | Codepage PC860 | 11 | Space page |
| 5 | Codepage PC863 | 12 | Codepage PC864 |
| 6 | Codepage PC865 | 13 | Thai code18 |
| 7 | Codepage PC852 | | |

CT-S281

- a=5: Sets printing density to the level specified by (nL+nH×256).

| (nL+nH×256) | Printing Density |
|-------------|------------------|
| 65530 | 70% |
| 65531 | 75% |
| 65532 | 80% |
| 65533 | 85% |
| 65534 | 90% |
| 65535 | 95% |
| 0(Default) | 100% |
| 1 | 105% |
| 2 | 110% |
| 3 | 115% |
| 4 | 120% |
| 5 | 125% |
| 6 | 130% |
| 7 | 135% |
| 8 | 140% |

- a=6: Sets printing speed to the value specified by (nL+nH×256).

| (nL+nH×256) | Printing Speed |
|-------------|-------------------------------|
| 1 | Printing speed level 1 (84%) |
| 2 | Printing speed level 2 (86%) |
| 3 | Printing speed level 3 (88%) |
| 4 | Printing speed level 4 (90%) |
| 5 | Printing speed level 5 (92%) |
| 6 | Printing speed level 6 (94%) |
| 7 | Printing speed level 7 (96%) |
| 8 | Printing speed level 8 (98%) |
| 9 (Default) | Printing speed level 9 (100%) |

- a=116: Sets the paper specified by (nL+nH×256).

| (nL+nH×256) | Paper |
|-------------|-------------------------------|
| 1 (Default) | Specified single color paper. |
| 257 | Recommended 2-color paper5 |

- a=202: Controls input buffer full Busy with the value selected by (nL+nH×256) and controls Busy with output/cancel timing (remaining capacity).

| (nL+nH×256) | When Input Buffer Capacity "Small" is Set | | When Input Buffer Capacity 4K Bytes (Large) is Set | |
|-------------|---|--------|--|--------|
| | Output | Cancel | Output | Cancel |
| 1 | 16 | 26 | 128 | 256 |
| 2 | 16 | 40 | 128 | 512 |
| 3 | 30 | 50 | 72 | 256 |
| 4 | 30 | 60 | 72 | 512 |

- XON/XOFF is also output by the establishment of conditions.
- Ignores the data received when input buffer idle capacity is 0.

- a=213: Selects the flow control specified by (nL+nH×256) when virtual COM is set.

| (nL+nH×256) | Flow control |
|-------------|--------------|
| 1(Default) | PC setting |
| 2 | DTR/DSR |
| 3 | XON/XOFF |

CT-S281

- a=214: Select the enable/disable of Kanji specified by (nL+nH×256)

| (nL+nH×256) | Kanji |
|-------------|--------------|
| 1 | Invalid(OFF) |
| 2(Default) | Valid(ON) |

- a=216: Select the JIS/Shift JIS specified by (nL+nH×256)

| (nL+nH×256) | JIS/Shift JIS |
|-------------|----------------|
| 1(Default) | JIS (ON) |
| 2 | Shift JIS(OFF) |

- a=217: Select the international character set specified by (nL+nH×256)

| (nL+nH×256) | Int'l Char set | (nL+nH×256) | Int'l Char set |
|-------------|----------------|-------------|----------------|
| 1(Default) | U.S.A. | 9 | Japan |
| 2 | France | 10 | Norway |
| 3 | Germany | 11 | Denmark II |
| 4 | U.K. | 12 | Spain II |
| 5 | Denmark I | 13 | Latin America |
| 6 | Sweden | 14 | Korea |
| 7 | Italy | 15 | Croatia |
| 8 | Spain I | 16 | P.R. China |

- a=218: Select the codepage specified by (nL+nH×256)

| (nL+nH×256) | Codepage | (nL+nH×256) | Codepage |
|-------------|----------------|-------------|----------------|
| 1 | Codepage PC437 | 8 | Codepage PC866 |
| 2 | Katakana | 9 | Codepage PC857 |
| 3 | Codepage PC850 | 10 | WPC1252 |
| 4 | Codepage PC860 | 11 | Space page |
| 5 | Codepage PC863 | 12 | Codepage PC864 |
| 6 | Codepage PC865 | 13 | Thai code18 |
| 7 | Codepage PC852 | | |

- a=226: Sets the wait time for manual cut by (nL+nH×256)
if “0” is specified, printer wait until FEED is pressed.

$$0 \leq (nL+nH \times 256) \leq 1200$$

Unit: 1 second.

Default: 3 seconds.

CT-S300

- a=3: Sets paper width to the size specified by (nL+nH×256).

| (nL+nH×256) | Paper Width |
|-------------|-------------|
| 2 | 58mm |
| 6 (Default) | 80mm |

- a=5: Sets printing density to the level specified by (nL+nH×256).

| (nL+nH×256) | Printing Density |
|-------------|------------------|
| 65530 | 70% |
| 65531 | 75% |
| 65532 | 80% |
| 65533 | 85% |
| 65534 | 90% |
| 65535 | 95% |
| 0(Default) | 100% |
| 1 | 105% |
| 2 | 110% |
| 3 | 115% |
| 4 | 120% |
| 5 | 125% |
| 6 | 130% |
| 7 | 135% |
| 8 | 140% |

- a=6: Sets printing speed to the value specified by (nL+nH×256).

| (nL+nH×256) | Printing Speed |
|-------------|-------------------------------|
| 1 | Printing speed level 1 (84%) |
| 2 | Printing speed level 2 (86%) |
| 3 | Printing speed level 3 (88%) |
| 4 | Printing speed level 4 (90%) |
| 5 | Printing speed level 5 (92%) |
| 6 | Printing speed level 6 (94%) |
| 7 | Printing speed level 7 (96%) |
| 8 | Printing speed level 8 (98%) |
| 9(Default) | Printing speed level 9 (100%) |

- a=97: Sets the number of divisions for conducting head specified by (nL+nH×256).

| (nL+nH×256) | No. of Divisions for Conducting Head |
|-------------|--------------------------------------|
| 2(Default) | 2-division conducting |
| 4 | 4-division conducting |

- a=116: Sets the paper specified by (nL+nH×256).

| (nL+nH×256) | Paper |
|-------------|-------------------------------|
| 1 (Default) | Specified single color paper. |
| 257 | Recommended 2-color paper5 |

- a=201: Outputs ACK to the position specified by (nL+nH×256).

| (nL+nH×256) | ACK Output Position |
|-------------|---------------------|
| 1 (Default) | ACK-in-Busy |
| 2 | ACK-while-Busy |
| 3 | ACK-after-Busy |

CT-S300

- a=202: Controls input buffer full Busy with the value selected by (nL+nH×256) and controls Busy with output/cancel timing (remaining capacity).

| (nL+nH×256) | When Input Buffer Capacity "Small" is Set | | When Input Buffer Capacity 4K Bytes (Large) is Set | |
|-------------|---|--------|--|--------|
| | Output | Cancel | Output | Cancel |
| 1 | 16 | 26 | 128 | 256 |
| 2 | 16 | 40 | 128 | 512 |
| 3 | 30 | 50 | 72 | 256 |
| 4 | 30 | 60 | 72 | 512 |

- XON/XOFF is also output by the establishment of conditions.
- Ignores the data received when input buffer idle capacity is 0.

- a=220: Sets the maximum width of black mark by the amount selected by (nL+nH×256)

$1 \leq (nL+nH \times 256) \leq 32767$
 Unit: 1 dot
 Initial value: 40 dots

- a=221: Sets the maximum length of black mark page with the value selected by (nL+nH×256).

$1 \leq (nL+nH \times 256) \leq 32767$
 Unit: 1 dot
 Initial value: 2360 dots

- a=222: Head margin set by the value selected by (nL+nH×256).

$1 \leq (nL+nH \times 256) \leq 32767$
 Unit: 168dot
 Initial value: 0dot

- a=223: Sets black mark bottom margin with the amount selected by (nL+nH×256).

$1 \leq (nL+nH \times 256) \leq 255$
 Unit: 1 dot
 Initial value: 34 dots

- a=224: Sets cut distance with the value selected by (nL+nH×256).

$1 \leq (nL+nH \times 256) \leq 255$
 Unit: 1 dot
 Initial value: 232 dots

- a=225: Sets head distance with the value selected by (nL+nH×256).

$1 \leq (nL+nH \times 256) \leq 255$
 Unit: 1 dot
 Initial value: 56 dots

CT-S310

- a=3: Sets paper width to the size specified by (nL+nH×256).

| (nL+nH×256) | Paper Width |
|-------------|-------------|
| 2 | 58mm |
| 6 (Default) | 80mm |

- a=5: Sets printing density to the level specified by (nL+nH×256).

| (nL+nH×256) | Printing Density |
|-------------|------------------|
| 65530 | 70% |
| 65531 | 75% |
| 65532 | 80% |
| 65533 | 85% |
| 65534 | 90% |
| 65535 | 95% |
| 0(Default) | 100% |
| 1 | 105% |
| 2 | 110% |
| 3 | 115% |
| 4 | 120% |
| 5 | 125% |
| 6 | 130% |
| 7 | 135% |
| 8 | 140% |

- a=6: Sets printing speed to the value specified by (nL+nH×256).

| (nL+nH×256) | Printing Speed |
|-------------|-------------------------------|
| 1 | Printing speed level 1 (84%) |
| 2 | Printing speed level 2 (86%) |
| 3 | Printing speed level 3 (88%) |
| 4 | Printing speed level 4 (90%) |
| 5 | Printing speed level 5 (92%) |
| 6 | Printing speed level 6 (94%) |
| 7 | Printing speed level 7 (96%) |
| 8 | Printing speed level 8 (98%) |
| 9(Default) | Printing speed level 9 (100%) |

- a=97: Sets the number of divisions for conducting head specified by (nL+nH×256).

| (nL+nH×256) | No. of Divisions for Conducting Head |
|-------------|--------------------------------------|
| 2(Default) | 2-division conducting |
| 4 | 4-division conducting |

- a=116: Sets the paper specified by (nL+nH×256).

| (nL+nH×256) | Paper |
|-------------|-------------------------------|
| 1 (Default) | Specified single color paper. |
| 257 | Recommended 2-color paper5 |

- a=201: Outputs ACK to the position specified by (nL+nH×256).

| (nL+nH×256) | ACK Output Position |
|-------------|---------------------|
| 1 (Default) | ACK-in-Busy |
| 2 | ACK-while-Busy |
| 3 | ACK-after-Busy |

CT-S310

- a=202: Controls input buffer full Busy with the value selected by (nL+nH×256) and controls Busy with output/cancel timing (remaining capacity).

| (nL+nH×256) | When Input Buffer Capacity "Small" is Set | | When Input Buffer Capacity 4K Bytes (Large) is Set | |
|-------------|---|--------|--|--------|
| | Output | Cancel | Output | Cancel |
| 1 | 16 | 26 | 384 | 512 |
| 2 | 16 | 36 | 384 | 1024 |
| 3 | 8 | 26 | 256 | 384 |
| 4 | 8 | 36 | 256 | 512 |

- XON/XOFF is also output by the establishment of conditions.
- Ignores the data received when input buffer idle capacity is 0.

- a=220: Sets the maximum width of black mark by the amount selected by (nL+nH×256).

$$1 \leq (nL+nH \times 256) \leq 32767$$

Unit: 1 dot
Initial value: 40 dots

- a=221: Sets the maximum length of black mark page with the value selected by (nL+nH×256).

$$1 \leq (nL+nH \times 256) \leq 32767$$

Unit: 1 dot
Initial value: 2360 dots

- a=222: Head margin set by the value selected by (nL+nH×256).

$$1 \leq (nL+nH \times 256) \leq 32767$$

Unit: 168dot
Initial value: 0dot

- a=223: Sets black mark bottom margin with the amount selected by (nL+nH×256).

$$1 \leq (nL+nH \times 256) \leq 255$$

Unit: 1 dot
Initial value: 34 dots

- a=224: Sets cut distance with the value selected by (nL+nH×256).

$$1 \leq (nL+nH \times 256) \leq 255$$

Unit: 1 dot
Initial value: 232 dots

- a=225: Sets head distance with the value selected by (nL+nH×256).

$$1 \leq (nL+nH \times 256) \leq 255$$

Unit: 1 dot
Initial value: 56 dots

CT-S2000

- a=1: Sets the user NV memory capacity to the size specified by (nL+nH×256).

| (nL+nH×256) | Memory Capacity |
|-------------|-----------------|
| 1 | 1K bytes |
| 2 | 64K bytes |
| 3 | 128K bytes |
| 4(Default) | 192K bytes |

- a=2: Sets NV graphic memory capacity to the size specified by (nL+nH×256).

| (nL+nH×256) | Memory Capacity |
|-------------|-----------------|
| 1 | None |
| 2 | 64K bytes |
| 3 | 128K bytes |
| 4 | 192K bytes |
| 5 | 256K bytes |
| 6 | 320K bytes |
| 7(Default) | 384K bytes |

- a=3: Sets paper width to the size specified by (nL+nH×256).

| (nL+nH×256) | Paper Width |
|-------------|----------------|
| 1 | 58mm(360dot) |
| 2 | 58mm(384dot) |
| 3 | 58mm(432dot) |
| 4 | 58mm(432dot) |
| 5 | 58mm(436dot) |
| 6 | 80mm(512dot) |
| 7(Default) | 80mm(576dot) |
| 8 | 82.5mm(640dot) |

- a=5: Sets printing density to the level specified by (nL+nH×256).

| (nL+nH×256) | Printing Density |
|-------------|------------------|
| 65530 | 70% |
| 65531 | 75% |
| 65532 | 80% |
| 65533 | 85% |
| 65534 | 90% |
| 65535 | 95% |
| 0(Default) | 100% |
| 1 | 105% |
| 2 | 110% |
| 3 | 115% |
| 4 | 120% |
| 5 | 125% |
| 6 | 130% |
| 7 | 135% |
| 8 | 140% |

- a=6: Sets printing speed to the value specified by (nL+nH×256).

| (nL+nH×256) | Printing Speed |
|-------------|-------------------------------|
| 1 | Printing speed level 1 (84%) |
| 2 | Printing speed level 2 (86%) |
| 3 | Printing speed level 3 (88%) |
| 4 | Printing speed level 4 (90%) |
| 5 | Printing speed level 5 (92%) |
| 6 | Printing speed level 6 (94%) |
| 7 | Printing speed level 7 (96%) |
| 8 | Printing speed level 8 (98%) |
| 9(Default) | Printing speed level 9 (100%) |

CT-S2000

- a=116: Sets the paper specified by (nL+nH×256).

| (nL+nH×256) | Paper |
|-------------|-------------------------------|
| 1(Default) | Specified single color paper. |
| 257 | Recommended 2-color paper5 |

- a=201: Outputs ACK to the position specified by (nL+nH×256).

| (nL+nH×256) | ACK Output Position |
|-------------|---------------------|
| 1(Default) | ACK-in-Busy |
| 2 | ACK-while-Busy |
| 3 | ACK-after-Busy |

- a=202: Controls input buffer full Busy with the value selected by (nL+nH×256) and controls Busy with output/cancel timing (remaining capacity).

| (nL+nH×256) | When Input Buffer Capacity "Small" is Set | | When Input Buffer Capacity 4K Bytes (Large) is Set | |
|-------------|---|--------|--|--------|
| | Output | Cancel | Output | Cancel |
| 1 | 16 | 26 | 128 | 256 |
| 2 | 16 | 40 | 128 | 512 |
| 3 | 30 | 50 | 72 | 256 |
| 4 | 30 | 60 | 72 | 512 |

- XON/XOFF is also output by the establishment of conditions.
- Ignores the data received when input buffer idle capacity is 0.

- a=212: Selects DMA (Direct Memory Access) control of serial communication specified by (nL+nH×256).

| (nL+nH×256) | DMA control |
|-------------|-------------|
| 1 | Invalid |
| 2(Default) | Valid |

- a=213: Selects the flow control specified by (nL+nH×256) when virtual COM is set.

| (nL+nH×256) | Flow control |
|-------------|--------------|
| 1(Default) | PC setting |
| 2 | DTR/DSR |
| 3 | XON/XOFF |

- a=214: Select the enable/disable of Kanji specified by (nL+nH×256)

| (nL+nH×256) | Kanji |
|-------------|--------------|
| 1 | Invalid(OFF) |
| 2(Default) | Valid(ON) |

- a=220: Sets the maximum width of black mark by the amount selected by (nL+nH×256).

$$1 \leq (nL+nH \times 256) \leq 32767$$

Unit: 1 dot

Initial value: 40 dots

CT-S2000

- a=221: Sets the maximum length of black mark page with the value selected by $(nL+nH \times 256)$.

$$1 \leq (nL+nH \times 256) \leq 32767$$

Unit: 1 dot

Initial value: 2360 dots

- a=222: Head margin set by the value selected by $(nL+nH \times 256)$.

$$1 \leq (nL+nH \times 256) \leq 32767$$

Unit: 168dot

Initial value: 0dot

- a=223: Sets black mark bottom margin with the amount selected by $(nL+nH \times 256)$.

$$1 \leq (nL+nH \times 256) \leq 255$$

Unit: 1 dot

Initial value: 34 dots

- a=224: Sets cut distance with the value selected by $(nL+nH \times 256)$.

$$1 \leq (nL+nH \times 256) \leq 255$$

Unit: 1 dot

Initial value: 232 dots

- a=225: Sets head distance with the value selected by $(nL+nH \times 256)$.

$$1 \leq (nL+nH \times 256) \leq 255$$

Unit: 1 dot

Initial value: 56 dots

CT-S4000

- a=1: Sets the user NV memory capacity to the size specified by (nL+nH×256).

| (nL+nH×256) | Memory Capacity |
|-------------|-----------------|
| 1 | 1K bytes |
| 2 | 64K bytes |
| 3 | 128K bytes |
| 4 | 192K bytes |

- a=2: Sets NV graphic memory capacity to the size specified by (nL+nH×256).

| (nL+nH×256) | Memory Capacity |
|-------------|-----------------|
| 1 | None |
| 2 | 64K bytes |
| 3 | 128K bytes |
| 4 | 192K bytes |
| 5 | 256K bytes |
| 6 | 320K bytes |
| 7(Default) | 384K bytes |

- a=3: Sets paper width to the size specified by (nL+nH×256).

| (nL+nH×256) | Paper Width |
|-------------|-------------|
| 5 | 512 dots |
| 6 | 576 dots |
| 7 | 660 dots |
| 8 | 720 dots |
| 9(Default) | 832 dots |

- a=5: Sets printing density to the level specified by (nL+nH×256).

| (nL+nH×256) | Printing Density |
|-------------|------------------|
| 65530 | 70% |
| 65531 | 75% |
| 65532 | 80% |
| 65533 | 85% |
| 65534 | 90% |
| 65535 | 95% |
| 0(Default) | 100% |
| 1 | 105% |
| 2 | 110% |
| 3 | 115% |
| 4 | 120% |
| 5 | 125% |
| 6 | 130% |
| 7 | 135% |
| 8 | 140% |

- a=6: Sets printing speed to the value specified by (nL+nH×256).

| (nL+nH×256) | Printing Speed |
|-------------|-------------------------------|
| 1 | Printing speed level 1 (84%) |
| 2 | Printing speed level 2 (86%) |
| 3 | Printing speed level 3 (88%) |
| 4 | Printing speed level 4 (90%) |
| 5 | Printing speed level 5 (92%) |
| 6 | Printing speed level 6 (94%) |
| 7 | Printing speed level 7 (96%) |
| 8 | Printing speed level 8 (98%) |
| 9(Default) | Printing speed level 9 (100%) |

CT-S4000

- a=116: Sets the paper specified by (nL+nH×256).

| (nL+nH×256) | Paper |
|-------------|-------------------------------|
| 1 (Default) | Specified single color paper. |
| 257 | Recommended 2-color paper5 |

- a=201: Outputs ACK to the position specified by (nL+nH×256).

| (nL+nH×256) | ACK Output Position |
|-------------|---------------------|
| 1(Default) | ACK-in-Busy |
| 2 | ACK-while-Busy |
| 3 | ACK-after-Busy |

- a=202: Controls input buffer full Busy with the value selected by (nL+nH×256) and controls Busy with output/cancel timing (remaining capacity).

| (nL+nH×256) | When Input Buffer Capacity "Small" is Set | | When Input Buffer Capacity 4K Bytes (Large) is Set | |
|-------------|---|--------|--|--------|
| | Output | Cancel | Output | Cancel |
| 1 | 16 | 26 | 128 | 256 |
| 2 | 16 | 40 | 128 | 512 |
| 3 | 30 | 50 | 72 | 256 |
| 4 | 30 | 60 | 72 | 512 |

- XON/XOFF is also output by the establishment of conditions.
- Ignores the data received when input buffer idle capacity is 0.

- a=212: Selects DMA (Direct Memory Access) control of serial communication specified by (nL+nH×256).

| (nL+nH×256) | DMA control |
|-------------|-------------|
| 1 | Invalid |
| 2 (Default) | Valid |

- a=213: Selects the flow control specified by (nL+nH×256) when virtual COM is set.

| (nL+nH×256) | Flow control |
|-------------|--------------|
| 1(Default) | PC setting |
| 2 | DTR/DSR |
| 3 | XON/XOFF |

- a=214: Select the enable/disable of Kanji specified by (nL+nH×256).

| (nL+nH×256) | Kanji |
|-------------|--------------|
| 1 | Invalid(OFF) |
| 2(Default) | Valid(ON) |

CT-S801/CT-S851

- a=1: Sets the user NV memory capacity to the size specified by (nL+nH×256).

| (nL+nH×256) | Memory Capacity |
|-------------|-----------------|
| 1 | 1K bytes |
| 2 | 64K bytes |
| 3 | 128K bytes |
| 4(Default) | 192K bytes |

- a=2: Sets NV graphic memory capacity to the size specified by (nL+nH×256).

| (nL+nH×256) | Memory Capacity |
|-------------|-----------------|
| 1 | None |
| 2 | 64K bytes |
| 3 | 128K bytes |
| 4 | 192K bytes |
| 5 | 256K bytes |
| 6 | 320K bytes |
| 7(Default) | 384K bytes |

- a=3: Sets paper width to the size specified by (nL+nH×256).

| (nL+nH×256) | Paper Width |
|-------------|----------------|
| 1 | 58mm(360dot) |
| 2 | 58mm(384dot) |
| 3 | 58mm(432dot) |
| 4 | 58mm(432dot) |
| 5 | 58mm(436dot) |
| 6 | 80mm(512dot) |
| 7(Default) | 80mm(576dot) |
| 8 | 82.5mm(640dot) |
| 9 | 58mm(390dot) |
| 10 | 80mm(546dot) |

- a=5: Sets printing density to the level specified by (nL+nH×256).

| (nL+nH×256) | Printing Density |
|-------------|------------------|
| 65530 | 70% |
| 65531 | 75% |
| 65532 | 80% |
| 65533 | 85% |
| 65534 | 90% |
| 65535 | 95% |
| 0(Default) | 100% |
| 1 | 105% |
| 2 | 110% |
| 3 | 115% |
| 4 | 120% |
| 5 | 125% |
| 6 | 130% |
| 7 | 135% |
| 8 | 140% |

- a=6: Sets printing speed to the value specified by (nL+nH×256).

| (nL+nH×256) | Printing Speed |
|-------------|-------------------------------|
| 1 | Printing speed level 1 (84%) |
| 2 | Printing speed level 2 (86%) |
| 3 | Printing speed level 3 (88%) |
| 4 | Printing speed level 4 (90%) |
| 5 | Printing speed level 5 (92%) |
| 6 | Printing speed level 6 (94%) |
| 7 | Printing speed level 7 (96%) |
| 8 | Printing speed level 8 (98%) |
| 9(Default) | Printing speed level 9 (100%) |

CT-S801/CT-S851

- a=116: Sets the paper specified by (nL+nH×256).

| (nL+nH×256) | Paper |
|-------------|-------------------------------|
| 1(Default) | Specified single color paper. |
| 257 | Recommended 2-color paper5 |

- a=201: Outputs ACK to the position specified by (nL+nH×256).

| (nL+nH×256) | ACK Output Position |
|-------------|---------------------|
| 1(Default) | ACK-in-Busy |
| 2 | ACK-while-Busy |
| 3 | ACK-after-Busy |

- a=202: Controls input buffer full Busy with the value selected by (nL+nH×256) and controls Busy with output/cancel timing (remaining capacity).

| (nL+nH×256) | When Input Buffer Capacity "Small" is Set | | When Input Buffer Capacity 4K Bytes (Large) is Set | |
|-------------|---|--------|--|--------|
| | Output | Cancel | Output | Cancel |
| 1 | 16 | 26 | 128 | 256 |
| 2 | 16 | 40 | 128 | 512 |
| 3 | 30 | 50 | 72 | 256 |
| 4 | 30 | 60 | 72 | 512 |

- XON/XOFF is also output by the establishment of conditions.
- Ignores the data received when input buffer idle capacity is 0.

- a=212: Selects DMA (Direct Memory Access) control of serial communication specified by (nL+nH×256).

| (nL+nH×256) | DMA control |
|-------------|-------------|
| 1 | Invalid |
| 2(Default) | Valid |

- a=213: Selects the flow control specified by (nL+nH×256) when virtual COM is set.

| (nL+nH×256) | Flow control |
|-------------|--------------|
| 1(Default) | PC setting |
| 2 | DTR/DSR |
| 3 | XON/XOFF |

- a=214: Select the enable/disable of Kanji specified by (nL+nH×256)

| (nL+nH×256) | Kanji |
|-------------|--------------|
| 1 | Invalid(OFF) |
| 2(Default) | Valid(ON) |

- a=216: Select the JIS/Shift JIS specified by (nL+nH×256)

| (nL+nH×256) | JIS/Shift JIS |
|-------------|----------------|
| 1(Default) | JIS (ON) |
| 2 | Shift JIS(OFF) |

CT-S801/CT-S851

- a=217: Select the international character set specified by (nL+nH×256)

| (nL+nH×256) | Int'l Char set | (nL+nH×256) | Int'l Char set |
|-------------|----------------|-------------|----------------|
| 1(Default) | U.S.A. | 9 | Japan |
| 2 | France | 10 | Norway |
| 3 | Germany | 11 | Denmark II |
| 4 | U.K. | 12 | Spain II |
| 5 | Denmark I | 13 | Latin America |
| 6 | Sweden | 14 | Korea |
| 7 | Italy | 15 | Croatia |
| 8 | Spain I | 16 | P.R. China |

- a=218: Select the codepage specified by (nL+nH×256)

| (nL+nH×256) | Codepage | (nL+nH×256) | Codepage |
|-------------|----------------|-------------|----------------|
| 1 | Codepage PC437 | 8 | Codepage PC866 |
| 2 | Katakana | 9 | Codepage PC857 |
| 3 | Codepage PC850 | 10 | WPC1252 |
| 4 | Codepage PC860 | 11 | Space page |
| 5 | Codepage PC863 | 12 | Codepage PC864 |
| 6 | Codepage PC865 | 13 | Thai code18 |
| 7 | Codepage PC852 | | |

- a=220: Sets the maximum width of black mark by the amount selected by (nL+nH×256).

$1 \leq (nL+nH \times 256) \leq 32767$
 Unit: 1 dot
 Initial value: 40 dots

- a=221: Sets the maximum length of black mark page with the value selected by (nL+nH×256).

$1 \leq (nL+nH \times 256) \leq 32767$
 Unit: 1 dot
 Initial value: 2360 dots

- a=222: Head margin set by the value selected by (nL+nH×256).

$1 \leq (nL+nH \times 256) \leq 32767$
 Unit: 168dot
 Initial value: 0dot

- a=223: Sets black mark bottom margin with the amount selected by (nL+nH×256).

$1 \leq (nL+nH \times 256) \leq 255$
 Unit: 1 dot
 Initial value: 34 dots

- a=224: Sets cut distance with the value selected by (nL+nH×256).

$1 \leq (nL+nH \times 256) \leq 255$
 Unit: 1 dot
 Initial value: 232 dots

CT-S801/CT-S851

- a=225: Sets head distance with the value selected by (nL+nH×256).

$$1 \leq (nL+nH \times 256) \leq 255$$

Unit: 1 dot

Initial value: 56 dots

- a=230: Sets the language of LCD messages lselected by (nL+nH×256).

| (nL+nH×256) | Language |
|-------------|----------|
| 1(Default) | English |
| 2 | French |
| 3 | German |
| 4 | Italian |
| 5 | Spanish |
| 6 | Japanese |
| 7 | Chinese |

- a=231: Selects the enable/disable of download LCD message specified by (nL+nH×256)

| (nL+nH×256) | Download LCD message |
|-------------|----------------------|
| 1(Default) | Invalid(ON) |
| 2 | Valid(OFF) |

- a=232: Sets the LCD auto off time specified by (nL+nH×256)

| (nL+nH×256) | LCD auto off time |
|-------------|-------------------|
| 1(Default) | Invlid |
| 2 | 30 sec. later |
| 3 | 5 min. later |

- a=233: Selects the enable/disable of key lock specified by (nL+nH×256)

| (nL+nH×256) | Key lock |
|-------------|----------|
| 1(Default) | Invalid |
| 2 | Valid |

- a=234: Selects the direction of LCD message specified by (nL+nH×256)

| (nL+nH×256) | LCD display direction |
|-------------|-----------------------|
| 1(Default) | Normal |
| 2 | Inverted |

- a=240: Sets the buzzer level specified by (nL+nH×256)

| (nL+nH×256) | Buzzer volume |
|-------------|---------------|
| 1(Default) | Level 1 |
| 2 | Level 2 |
| 3 | Level 3 |
| 4 | Level 4 |

- a=241: Sets the max number of 1 head division specified by (nL+nH×256)

| (nL+nH×256) | Max dot in 1 head division |
|-------------|----------------------------|
| 1(Default) | 128 dots |
| 2 | 200 dots |
| 3 | 288 dots |

CT-S801

- a=242: Sets the max dot number with PoweredUSB specified by (nL+nH×256)

| (nL+nH×256) | PoweredUSB max dot nos |
|-------------|------------------------|
| 1(Default) | 128 dots |
| 2 | 200 dots |
| 3 | 288 dots |

- a=243: Selects the mechanism type specified by (nL+nH×256)

| (nL+nH×256) | Mechniasm type |
|-------------|----------------|
| 1(Default) | 2 inch |
| 2 | 3 inch |

CT-S601/CT-S651

- a=1: Sets the user NV memory capacity to the size specified by (nL+nH×256).

| (nL+nH×256) | Memory Capacity |
|-------------|-----------------|
| 1 | 1K bytes |
| 2 | 64K bytes |
| 3 | 128K bytes |
| 4(Default) | 192K bytes |

- a=2: Sets NV graphic memory capacity to the size specified by (nL+nH×256).

| (nL+nH×256) | Memory Capacity |
|-------------|-----------------|
| 1 | None |
| 2 | 64K bytes |
| 3 | 128K bytes |
| 4 | 192K bytes |
| 5 | 256K bytes |
| 6 | 320K bytes |
| 7(Default) | 384K bytes |

- a=3: Sets paper width to the size specified by (nL+nH×256).

| (nL+nH×256) | Paper Width |
|-------------|----------------|
| 1 | 58mm(360dot) |
| 2 | 58mm(384dot) |
| 3 | 58mm(432dot) |
| 4 | 58mm(432dot) |
| 5 | 58mm(436dot) |
| 6 | 80mm(512dot) |
| 7(Default) | 80mm(576dot) |
| 8 | 82.5mm(640dot) |
| 9 | 58mm(390dot) |
| 10 | 80mm(546dot) |

- a=5: Sets printing density to the level specified by (nL+nH×256).

| (nL+nH×256) | Printing Density |
|-------------|------------------|
| 65530 | 70% |
| 65531 | 75% |
| 65532 | 80% |
| 65533 | 85% |
| 65534 | 90% |
| 65535 | 95% |
| 0(Default) | 100% |
| 1 | 105% |
| 2 | 110% |
| 3 | 115% |
| 4 | 120% |
| 5 | 125% |
| 6 | 130% |
| 7 | 135% |
| 8 | 140% |

- a=6: Sets printing speed to the value specified by (nL+nH×256).

| (nL+nH×256) | Printing Speed |
|-------------|-------------------------------|
| 1 | Printing speed level 1 (84%) |
| 2 | Printing speed level 2 (86%) |
| 3 | Printing speed level 3 (88%) |
| 4 | Printing speed level 4 (90%) |
| 5 | Printing speed level 5 (92%) |
| 6 | Printing speed level 6 (94%) |
| 7 | Printing speed level 7 (96%) |
| 8 | Printing speed level 8 (98%) |
| 9(Default) | Printing speed level 9 (100%) |

CT-S601/CT-S651

- a=116: Sets the paper specified by (nL+nH×256).

| (nL+nH×256) | Paper |
|-------------|-------------------------------|
| 1(Default) | Specified single color paper. |
| 257 | Recommended 2-color paper5 |

- a=201: Outputs ACK to the position specified by (nL+nH×256).

| (nL+nH×256) | ACK Output Position |
|-------------|---------------------|
| 1(Default) | ACK-in-Busy |
| 2 | ACK-while-Busy |
| 3 | ACK-after-Busy |

- a=202: Controls input buffer full Busy with the value selected by (nL+nH×256) and controls Busy with output/cancel timing (remaining capacity).

| (nL+nH×256) | When Input Buffer Capacity "Small" is Set | | When Input Buffer Capacity 4K Bytes (Large) is Set | |
|-------------|---|--------|--|--------|
| | Output | Cancel | Output | Cancel |
| 1 | 16 | 26 | 128 | 256 |
| 2 | 16 | 40 | 128 | 512 |
| 3 | 30 | 50 | 72 | 256 |
| 4 | 30 | 60 | 72 | 512 |

- XON/XOFF is also output by the establishment of conditions.
- Ignores the data received when input buffer idle capacity is 0.

- a=212: Selects DMA (Direct Memory Access) control of serial communication specified by (nL+nH×256).

| (nL+nH×256) | DMA control |
|-------------|-------------|
| 1 | Invalid |
| 2(Default) | Valid |

- a=213: Selects the flow control specified by (nL+nH×256) when virtual COM is set.

| (nL+nH×256) | Flow control |
|-------------|--------------|
| 1(Default) | PC setting |
| 2 | DTR/DSR |
| 3 | XON/XOFF |

- a=214: Select the enable/disable of Kanji specified by (nL+nH×256)

| (nL+nH×256) | Kanji |
|-------------|--------------|
| 1 | Invalid(OFF) |
| 2(Default) | Valid(ON) |

- a=216: Select the JIS/Shift JIS specified by (nL+nH×256)

| (nL+nH×256) | JIS/Shift JIS |
|-------------|----------------|
| 1(Default) | JIS (ON) |
| 2 | Shift JIS(OFF) |

CT-S601/CT-S651

- a=217: Select the international character set specified by (nL+nH×256)

| (nL+nH×256) | Int'l Char set | (nL+nH×256) | Int'l Char set |
|-------------|----------------|-------------|----------------|
| 1(Default) | U.S.A. | 9 | Japan |
| 2 | France | 10 | Norway |
| 3 | Germany | 11 | Denmark II |
| 4 | U.K. | 12 | Spain II |
| 5 | Denmark I | 13 | Latin America |
| 6 | Sweden | 14 | Korea |
| 7 | Italy | 15 | Croatia |
| 8 | Spain I | 16 | P.R. China |

- a=218: Select the codepage specified by (nL+nH×256)

| (nL+nH×256) | Codepage | (nL+nH×256) | Codepage |
|-------------|----------------|-------------|----------------|
| 1 | Codepage PC437 | 8 | Codepage PC866 |
| 2 | Katakana | 9 | Codepage PC857 |
| 3 | Codepage PC850 | 10 | WPC1252 |
| 4 | Codepage PC860 | 11 | Space page |
| 5 | Codepage PC863 | 12 | Codepage PC864 |
| 6 | Codepage PC865 | 13 | Thai code18 |
| 7 | Codepage PC852 | | |

- a=220: Sets the maximum width of black mark by the amount selected by (nL+nH×256).

$1 \leq (nL+nH \times 256) \leq 32767$
 Unit: 1 dot
 Initial value: 40 dots

- a=221: Sets the maximum length of black mark page with the value selected by (nL+nH×256).

$1 \leq (nL+nH \times 256) \leq 32767$
 Unit: 1 dot
 Initial value: 2360 dots

- a=222: Head margin set by the value selected by (nL+nH×256).

$1 \leq (nL+nH \times 256) \leq 32767$
 Unit: 168dot
 Initial value: 0dot

- a=223: Sets black mark bottom margin with the amount selected by (nL+nH×256).

$1 \leq (nL+nH \times 256) \leq 255$
 Unit: 1 dot
 Initial value: 34 dots

- a=224: Sets cut distance with the value selected by (nL+nH×256).

$1 \leq (nL+nH \times 256) \leq 255$
 Unit: 1 dot
 Initial value: 232 dots

CT-S601/CT-S651

- a=225: Sets head distance with the value selected by (nL+nH×256).

$$1 \leq (nL+nH \times 256) \leq 255$$

Unit: 1 dot

Initial value: 56 dots

- a=243: Selects the mechanism type specified by (nL+nH×256)

| (nL+nH×256) | Mechanism type |
|-------------|----------------|
| 1(Default) | 2 inch |
| 2 | 3 inch |

- a=240: Sets the buzzer level specified by (nL+nH×256)

| (nL+nH×256) | Buzzer volume |
|-------------|---------------|
| 1(Default) | Level 1 |
| 2 | Level 2 |
| 3 | Level 3 |
| 4 | Level 4 |

- a=241: Sets the max number of 1 head division specified by (nL+nH×256)

| (nL+nH×256) | Max dot in 1 head division |
|-------------|----------------------------|
| 1(Default) | 128 dots |
| 2 | 200 dots |
| 3 | 288 dots |

- a=242: Sets the max dot number with PoweredUSB specified by (nL+nH×256)

| (nL+nH×256) | PoweredUSB max dot nos |
|-------------|------------------------|
| 1(Default) | 128 dots |
| 2 | 200 dots |
| 3 | 288 dots |

BD2-2220

- a=5: Sets printing density to the level specified by (nL+nH×256).

| (nL+nH×256) | Printing Density |
|-------------|------------------|
| 65530 | 70% |
| 65531 | 75% |
| 65532 | 80% |
| 65533 | 85% |
| 65534 | 90% |
| 65535 | 95% |
| 0(Default) | 100% |
| 1 | 105% |
| 2 | 110% |
| 3 | 115% |
| 4 | 120% |
| 5 | 125% |
| 6 | 130% |
| 7 | 135% |
| 8 | 140% |

- a=6: Sets printing speed to the value specified by (nL+nH×256).

| (nL+nH×256) | Printing Speed |
|-------------|-------------------------------|
| 1 | Printing speed level 1 (84%) |
| 2 | Printing speed level 2 (86%) |
| 3 | Printing speed level 3 (88%) |
| 4 | Printing speed level 4 (90%) |
| 5 | Printing speed level 5 (92%) |
| 6 | Printing speed level 6 (94%) |
| 7 | Printing speed level 7 (96%) |
| 8 | Printing speed level 8 (98%) |
| 9(Default) | Printing speed level 9 (100%) |

- a=201: Outputs ACK to the position specified by (nL+nH×256).

| (nL+nH×256) | ACK Output Position |
|-------------|---------------------|
| 1(Default) | ACK-in-Busy |
| 2 | ACK-while-Busy |
| 3 | ACK-after-Busy |

- a=202: Controls input buffer full Busy with the value selected by (nL+nH×256) and controls Busy with output/cancel timing (remaining capacity).

| (nL+nH×256) | When Input Buffer Capacity "Small" is Set | | When Input Buffer Capacity 4K Bytes (Large) is Set | |
|-------------|---|--------|--|--------|
| | Output | Cancel | Output | Cancel |
| 1 | 16 | 26 | 128 | 256 |
| 2 | 16 | 40 | 128 | 512 |
| 3 | 30 | 50 | 72 | 256 |
| 4 | 30 | 60 | 72 | 512 |

- XON/XOFF is also output by the establishment of conditions.
- Ignores the data received when input buffer idle capacity is 0.

PMU2XXX

- a=5: Sets printing density to the level specified by (nL+nH×256).

| (nL+nH×256) | Printing Density |
|-------------|------------------|
| 65530 | 70% |
| 65531 | 75% |
| 65532 | 80% |
| 65533 | 85% |
| 65534 | 90% |
| 65535 | 95% |
| 0(Default) | 100% |
| 1 | 105% |
| 2 | 110% |
| 3 | 115% |
| 4 | 120% |
| 5 | 125% |
| 6 | 130% |
| 7 | 135% |
| 8 | 140% |

- a=6: Sets printing speed to the value specified by (nL+nH×256).

| (nL+nH×256) | Printing Speed |
|-------------|-------------------------------|
| 1 | Printing speed level 1 (84%) |
| 2 | Printing speed level 2 (86%) |
| 3 | Printing speed level 3 (88%) |
| 4 | Printing speed level 4 (90%) |
| 5 | Printing speed level 5 (92%) |
| 6 | Printing speed level 6 (94%) |
| 7 | Printing speed level 7 (96%) |
| 8 | Printing speed level 8 (98%) |
| 9(Default) | Printing speed level 9 (100%) |

- a=201: Outputs ACK to the position specified by (nL+nH×256).

| (nL+nH×256) | ACK Output Position |
|-------------|---------------------|
| 1(Default) | ACK-in-Busy |
| 2 | ACK-while-Busy |
| 3 | ACK-after-Busy |

- a = 202: Controls input buffer full Busy with the value selected by (nL+nH×256) and controls Busy with output/cancel timing (remaining capacity).

| (nL+nH×256) | When Input Buffer Capacity "Small" is Set | | When Input Buffer Capacity 4K Bytes (Large) is Set | |
|-------------|---|--------|--|--------|
| | Output | Cancel | Output | Cancel |
| 1 | 16 | 26 | 128 | 256 |
| 2 | 16 | 40 | 128 | 512 |
| 3 | 30 | 50 | 72 | 256 |
| 4 | 30 | 60 | 72 | 512 |

- XON/XOFF is also output by the establishment of conditions.
- Ignores the data received when input buffer idle capacity is 0.
- a=220: Sets the maximum width of black mark by the amount selected by (nL+nH×256).

$$1 \leq (nL+nH \times 256) \leq 32767$$

Unit: 1 dot

Initial value: 40 dots

PMU2XXX

- a=221: Sets the maximum length of black mark page with the value selected by $(nL+nH \times 256)$.

$$1 \leq (nL+nH \times 256) \leq 32767$$

Unit: 1 dot

Initial value: 2360 dots

- a=222: Head margin set by the value selected by $(nL+nH \times 256)$.

$$1 \leq (nL+nH \times 256) \leq 32767$$

Unit: 168dot

Initial value: 0dot

- a=223: Sets black mark bottom margin with the amount selected by $(nL+nH \times 256)$.

$$1 \leq (nL+nH \times 256) \leq 255$$

Unit: 1 dot

Initial value: 34 dots

- a=224: Sets cut distance with the value selected by $(nL+nH \times 256)$.

$$1 \leq (nL+nH \times 256) \leq 255$$

Unit: 1 dot

Initial value: 232 dots

- a=225: Sets head distance with the value selected by $(nL+nH \times 256)$

$$1 \leq (nL+nH \times 256) \leq 255$$

Unit: 1 dot

Initial value: 56 dots

PMU2XXXII

- a=5: Sets printing density to the level specified by (nL+nH×256).

| (nL+nH×256) | Printing Density |
|-------------|------------------|
| 65530 | 70% |
| 65531 | 75% |
| 65532 | 80% |
| 65533 | 85% |
| 65534 | 90% |
| 65535 | 95% |
| 0(Default) | 100% |
| 1 | 105% |
| 2 | 110% |
| 3 | 115% |
| 4 | 120% |
| 5 | 125% |
| 6 | 130% |
| 7 | 135% |
| 8 | 140% |

- a=6: Sets printing speed to the value specified by (nL+nH×256).

| (nL+nH×256) | Printing Speed |
|-------------|-------------------------------|
| 1 | Printing speed level 1 (84%) |
| 2 | Printing speed level 2 (86%) |
| 3 | Printing speed level 3 (88%) |
| 4 | Printing speed level 4 (90%) |
| 5 | Printing speed level 5 (92%) |
| 6 | Printing speed level 6 (94%) |
| 7 | Printing speed level 7 (96%) |
| 8 | Printing speed level 8 (98%) |
| 9 (Default) | Printing speed level 9 (100%) |

- a=201: Outputs ACK to the position specified by (nL+nH×256).

| (nL+nH×256) | ACK Output Position |
|-------------|---------------------|
| 1(Default) | ACK-in-Busy |
| 2 | ACK-while-Busy |
| 3 | ACK-after-Busy |

- a=202: Controls input buffer full Busy with the value selected by (nL+nH×256)and controls Busy with output/cancel timing (remaining capacity).

| (nL+nH×256) | When Input Buffer Capacity "Small" is Set | | When Input Buffer Capacity 4K Bytes (Large) is Set | |
|-------------|---|--------|--|--------|
| | Output | Cancel | Output | Cancel |
| 1 | 16 | 26 | 128 | 256 |
| 2 | 16 | 40 | 128 | 512 |
| 3 | 30 | 50 | 72 | 256 |
| 4 | 30 | 60 | 72 | 512 |

- XON/XOFF is also output by the establishment of conditions.
- Ignores the data received when input buffer idle capacity is 0.

PMU2XXXII

- a=220: Sets the maximum width of black mark by the amount selected by (nL+nHx256).

$1 \leq (nL+nH \times 256) \leq 32767$
Unit: 1 dot
Initial value: 40 dots

- a=221: Sets the maximum length of black mark page with the value selected by (nL+nHx256).

$1 \leq (nL+nH \times 256) \leq 32767$
Unit: 1 dot
Initial value: 2360 dots

- a=222: Head margin set by the value selected by (nL+nHx256).

$1 \leq (nL+nH \times 256) \leq 32767$
Unit: 168dot
Initial value: 0dot

- a=223: Sets black mark bottom margin with the amount selected by (nL+nHx256).

$1 \leq (nL+nH \times 256) \leq 255$
Unit: 1 dot
Initial value: 34 dots

- a=224: Sets cut distance with the value selected by (nL+nHx256).

$1 \leq (nL+nH \times 256) \leq 255$
Unit: 1 dot
Initial value: 232 dots

- a=225: Sets head distance with the value selected by (nL+nHx256).

$1 \leq (nL+nH \times 256) \leq 255$
Unit: 1 dot
Initial value: 56 dots

CT-P292/293

- a=5: Sets printing density to the level specified by (nL+nH×256).

| (nL+nH×256) | Printing Density |
|-------------|------------------|
| 65530 | 70% |
| 65531 | 75% |
| 65532 | 80% |
| 65533 | 85% |
| 65534 | 90% |
| 65535 | 95% |
| 0(Default) | 100% |
| 1 | 105% |
| 2 | 110% |
| 3 | 115% |
| 4 | 120% |
| 5 | 125% |
| 6 | 130% |
| 7 | 135% |
| 8 | 140% |

- a=6: Sets printing speed to the value specified by (nL+nH×256).

| (nL+nH×256) | Printing Speed |
|-------------|-------------------------------|
| 1 | Printing speed level 1 (84%) |
| 2 | Printing speed level 2 (86%) |
| 3 | Printing speed level 3 (88%) |
| 4 | Printing speed level 4 (90%) |
| 5 | Printing speed level 5 (92%) |
| 6 | Printing speed level 6 (94%) |
| 7 | Printing speed level 7 (96%) |
| 8 | Printing speed level 8 (98%) |
| 9 (Default) | Printing speed level 9 (100%) |

- a=213: Selects the flow control specified by (nL+nH×256) when virtual COM is set.

| (nL+nH×256) | Flow control |
|-------------|--------------|
| 1(Default) | PC setting |
| 2 | DTR/DSR |
| 3 | XON/XOFF |

- a=214: Select the enable/disable of Kanji specified by (nL+nH×256)

| (nL+nH×256) | Kanji |
|-------------|--------------|
| 1 | Invalid(OFF) |
| 2(Default) | Valid(ON) |

- a=216: Select the JIS/Shift JIS specified by (nL+nH×256)

| (nL+nH×256) | JIS/Shift JIS |
|-------------|----------------|
| 1(Default) | JIS (ON) |
| 2 | Shift JIS(OFF) |

- a=217: Select the international character set specified by (nL+nH×256)

| (nL+nH×256) | Int'l Char set | (nL+nH×256) | Int'l Char set |
|-------------|----------------|-------------|----------------|
| 1(Default) | U.S.A. | 9 | Japan |
| 2 | France | 10 | Norway |
| 3 | Germany | 11 | Denmark II |
| 4 | U.K. | 12 | Spain II |
| 5 | Denmark I | 13 | Latin America |
| 6 | Sweden | 14 | Korea |
| 7 | Italy | 15 | Croatia |
| 8 | Spain I | 16 | P.R. China |

CT-P292/293

- a=218: Select the codepage specified by (nL+nH×256)

| (nL+nH×256) | Codepage | (nL+nH×256) | Codepage |
|-------------|----------------|-------------|----------------|
| 1 | Codepage PC437 | 8 | Codepage PC866 |
| 2 | Katakana | 9 | Codepage PC857 |
| 3 | Codepage PC850 | 10 | WPC1252 |
| 4 | Codepage PC860 | 11 | Space page |
| 5 | Codepage PC863 | 12 | Codepage PC864 |
| 6 | Codepage PC865 | 13 | Thai code18 |
| 7 | Codepage PC852 | | |

fn=6: Function 6 Sending the Set Customized Value

GS (E pL pH fn a

[Code] <1D>H<28>H<45>H<pL><pH><fn><a>

[Range] (pL+pH×256)=2 (pL=2, pH=0)
fn=6

CT-S280
a=5, 6, 116, 201, 202, 214, 216, 217, 218

CT-S281
a=5, 6, 116, 202, 213, 214, 216, 217, 218, 226

CT-S300/ CT-S310
a=3, 5, 6, 97, 116, 201, 202, 220, 221, 222, 223, 224, 225

CT-S2000
a=1, 2, 3, 5, 6, 116, 201, 202, 212, 213, 214, 220, 221, 222, 223, 224, 225

CT-S4000
a=1, 2, 3, 5, 6, 116, 201, 202, 212, 213, 214

CT-S801
a=1, 2, 3, 5, 6, 116, 201, 202, 212, 213, 214, 216, 217, 218, 220, 221, 222, 223, 224, 225, 230, 231, 232, 233, 234, 240, 240, 241, 242, 243

CT-S601
a=1, 2, 3, 5, 6, 116, 201, 202, 212, 213, 214, 216, 217, 218, 220, 221, 222, 223, 224, 225, 240, 240, 241, 242, 243

BD2-2220
a=5, 6, 201, 202

PMU2XXX
a=5, 6, 201, 202, 220, 221, 222, 223, 224, 225

PMU2XXXII
a=5, 6, 202, 220, 221, 222, 223, 224, 225

CT-P292/293
a=5, 6, 213, 214, 216, 217, 218

[Outline] **[The specification which is common to the model]**

- Sends the set value of customized value set by "a".

| | Hex. | No. of Data |
|----------------------|------------|-------------|
| Header | 37H | 1 |
| ID | 27H | 1 |
| Customized value No. | 30H to 39H | 1 to 3 |
| Separation number | 1FH | 1 |
| Customized value | 30H to 39H | 1 to 5 |
| NULL | 00H | 1 |

- Configuration of customized value No.

| a | Sending Data | | |
|-----|--------------|----------|----------|
| | 1st Byte | 2nd Byte | 3rd Byte |
| 1 | 49(^1") | — | — |
| 2 | 50(^2") | — | — |
| 3 | 51(^3") | — | — |
| 5 | 53(^5") | — | — |
| 6 | 54(^6") | — | — |
| 97 | 57(^9") | 55(^7") | — |
| 116 | 49(^1") | 49(^1") | 54(^6") |
| 201 | 50(^2") | 48(^0") | 49(^1") |
| 202 | 50(^2") | 48(^0") | 50(^2") |
| 212 | 50(^2") | 49(^1") | 50(^2") |
| 213 | 50(^2") | 49(^1") | 51(^3") |
| 214 | 50(^2") | 49(^1") | 52(^4") |
| 216 | 50(^2") | 49(^1") | 54(^6") |
| 217 | 50(^2") | 49(^1") | 55(^7") |
| 218 | 50(^2") | 49(^1") | 56(^8") |
| 220 | 50(^2") | 50(^2") | 48(^0") |
| 221 | 50(^2") | 50(^2") | 49(^1") |
| 222 | 50(^2") | 50(^2") | 50(^2") |
| 223 | 50(^2") | 50(^2") | 51(^3") |
| 224 | 50(^2") | 50(^2") | 52(^4") |
| 225 | 50(^2") | 50(^2") | 53(^5") |
| 226 | 50(^2") | 50(^2") | 54(^6") |
| 230 | 50(^2") | 51(^3") | 48(^0") |
| 231 | 50(^2") | 51(^3") | 49(^1") |
| 232 | 50(^2") | 51(^3") | 50(^2") |
| 233 | 50(^2") | 51(^3") | 51(^3") |
| 234 | 50(^2") | 51(^3") | 52(^4") |
| 240 | 50(^2") | 52(^4") | 48(^0") |
| 241 | 50(^2") | 52(^4") | 49(^1") |
| 242 | 50(^2") | 52(^4") | 50(^2") |
| 243 | 50(^2") | 52(^4") | 51(^3") |

CT-S280

- a=5: When print density is specified

| Setting Status | | Sending Data | | | | |
|----------------|---------------|--------------|----------|----------|----------|----------|
| Stored Value | Print Density | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 65530 | 70% | 54(^6") | 53(^5") | 53(^5") | 51(^3") | 48(^0") |
| 65531 | 75% | 54(^6") | 53(^5") | 53(^5") | 51(^3") | 49(^1") |
| 65532 | 80% | 54(^6") | 53(^5") | 53(^5") | 51(^3") | 50(^2") |
| 65533 | 85% | 54(^6") | 53(^5") | 53(^5") | 51(^3") | 51(^3") |
| 65534 | 90% | 54(^6") | 53(^5") | 53(^5") | 51(^3") | 52(^4") |
| 65535 | 95% | 54(^6") | 53(^5") | 53(^5") | 51(^3") | 53(^5") |
| 0 | Basic density | 48(^0") | — | — | — | — |
| 1 | 105% | 49(^1") | — | — | — | — |
| 2 | 110% | 50(^2") | — | — | — | — |
| 3 | 115% | 51(^3") | — | — | — | — |
| 4 | 120% | 52(^4") | — | — | — | — |
| 5 | 125% | 53(^5") | — | — | — | — |
| 6 | 130% | 54(^6") | — | — | — | — |
| 7 | 135% | 55(^7") | — | — | — | — |
| 8 | 140% | 56(^8") | — | — | — | — |

- a=6: When printing speed is specified

| Setting Status | | Sending Data | | | | |
|----------------|---------------|--------------|----------|----------|----------|----------|
| Stored Value | Print Speed | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 1 | Speed level 1 | 49(^1") | — | — | — | — |
| 2 | Speed level 2 | 50(^2") | — | — | — | — |
| 3 | Speed level 3 | 51(^3") | — | — | — | — |
| 4 | Speed level 4 | 52(^4") | — | — | — | — |
| 5 | Speed level 5 | 53(^5") | — | — | — | — |
| 6 | Speed level 6 | 54(^6") | — | — | — | — |
| 7 | Speed level 7 | 55(^7") | — | — | — | — |
| 8 | Speed level 8 | 56(^8") | — | — | — | — |
| 9 | Speed level 9 | 57(^9") | — | — | — | — |

- a=116: When kind of paper is specified

| Setting Status | | Sending Data | | | | |
|----------------|--------------------|--------------|----------|----------|----------|----------|
| Stored Value | Paper | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 1 | Single-color paper | 49(^1") | — | — | — | — |
| 2 | 2-color paper | 50(^2") | — | — | — | — |

- a=201: When ACK output position is specified

| Setting Status | | Sending Data | | | | |
|----------------|---------------------|--------------|----------|----------|----------|----------|
| Stored Value | ACK Output Position | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 1 | ACK-in-Busy | 49(^1") | — | — | — | — |
| 2 | ACK-while-Busy | 50(^2") | — | — | — | — |
| 3 | ACK-after-Busy | 51(^3") | — | — | — | — |

- a=202: Input buffer full Busy output/cancel timing

| Setting Status | | Sending Data | | | | |
|----------------|--------------------|--------------|----------|----------|----------|----------|
| Stored Value | BUSY Output/Cancel | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 1 | | 49(^1") | — | — | — | — |
| 2 | | 50(^2") | — | — | — | — |
| 3 | | 51(^3") | — | — | — | — |
| 4 | | 52(^4") | — | — | — | — |

- a=214: When Kanji is specified

| Setting Status | | Sending Data | | | | |
|----------------|-------|--------------|----------|----------|----------|----------|
| Stored Value | Kanji | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 1 | OFF | 49(^1") | — | — | — | — |
| 2 | ON | 50(^2") | — | — | — | — |

CT-S280

- a=216: When JIS/Shift JIS is specified

| Setting Status | | Sending Data | | | | |
|----------------|---------------|--------------|----------|----------|----------|----------|
| Stored Value | JIS/Shift JIS | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 1 | JIS | 49("1") | — | — | — | — |
| 2 | Shift JIS | 50("2") | — | — | — | — |

- a=217: When international character set is specified

| Setting Status | | Sending Data | | | | |
|----------------|-----------------|--------------|----------|----------|----------|----------|
| Stored Value | Int'l char. set | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 1 | U.S.A. | 49("1") | — | — | — | — |
| 2 | France | 50("2") | — | — | — | — |
| 3 | Germany | 51("3") | — | — | — | — |
| 4 | U.K. | 52("4") | — | — | — | — |
| 5 | Denmark I | 53("5") | — | — | — | — |
| 6 | Sweden | 54("6") | — | — | — | — |
| 7 | Italy | 55("7") | — | — | — | — |
| 8 | Spain I | 56("8") | — | — | — | — |
| 9 | Japan | 57("9") | — | — | — | — |
| 10 | Norway | 49("1") | 48("0") | — | — | — |
| 11 | Denmark II | 49("1") | 49("1") | — | — | — |
| 12 | Spain II | 49("1") | 50("2") | — | — | — |
| 13 | Latin America | 49("1") | 51("3") | — | — | — |
| 14 | Korea | 49("1") | 52("4") | — | — | — |

- a=218: When codepage is specified

| Setting Status | | Sending Data | | | | |
|----------------|----------------|--------------|----------|----------|----------|----------|
| Stored Value | Codepage | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 1 | Codepage PC437 | 49("1") | — | — | — | — |
| 2 | Katakana | 50("2") | — | — | — | — |
| 3 | Codepage PC850 | 51("3") | — | — | — | — |
| 4 | Codepage PC860 | 52("4") | — | — | — | — |
| 5 | Codepage PC863 | 53("5") | — | — | — | — |
| 6 | Codepage PC865 | 54("6") | — | — | — | — |
| 7 | Codepage PC852 | 55("7") | — | — | — | — |
| 8 | Codepage PC866 | 56("8") | — | — | — | — |
| 9 | Codepage PC857 | 57("9") | — | — | — | — |
| 10 | WPC1252 | 49("1") | 48("0") | — | — | — |
| 11 | Space page | 49("1") | 49("1") | — | — | — |
| 12 | Codepage PC864 | 49("1") | 50("2") | — | — | — |
| 13 | Thaicode18 | 49("1") | 51("3") | — | — | — |

CT-S281

- a=5: When print density is specified

| Setting Status | | Sending Data | | | | |
|----------------|---------------|--------------|----------|----------|----------|----------|
| Stored Value | Print Density | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 65530 | 70% | 54("6") | 53("5") | 53("5") | 51("3") | 48("0") |
| 65531 | 75% | 54("6") | 53("5") | 53("5") | 51("3") | 49("1") |
| 65532 | 80% | 54("6") | 53("5") | 53("5") | 51("3") | 50("2") |
| 65533 | 85% | 54("6") | 53("5") | 53("5") | 51("3") | 51("3") |
| 65534 | 90% | 54("6") | 53("5") | 53("5") | 51("3") | 52("4") |
| 65535 | 95% | 54("6") | 53("5") | 53("5") | 51("3") | 53("5") |
| 0 | Basic density | 48("0") | — | — | — | — |
| 1 | 105% | 49("1") | — | — | — | — |
| 2 | 110% | 50("2") | — | — | — | — |
| 3 | 115% | 51("3") | — | — | — | — |
| 4 | 120% | 52("4") | — | — | — | — |
| 5 | 125% | 53("5") | — | — | — | — |
| 6 | 130% | 54("6") | — | — | — | — |
| 7 | 135% | 55("7") | — | — | — | — |
| 8 | 140% | 56("8") | — | — | — | — |

- a=6: When printing speed is specified

| Setting Status | | Sending Data | | | | |
|----------------|---------------|--------------|----------|----------|----------|----------|
| Stored Value | Print Density | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 1 | Speed level 1 | 49("1") | — | — | — | — |
| 2 | Speed level 2 | 50("2") | — | — | — | — |
| 3 | Speed level 3 | 51("3") | — | — | — | — |
| 4 | Speed level 4 | 52("4") | — | — | — | — |
| 5 | Speed level 5 | 53("5") | — | — | — | — |
| 6 | Speed level 6 | 54("6") | — | — | — | — |
| 7 | Speed level 7 | 55("7") | — | — | — | — |
| 8 | Speed level 8 | 56("8") | — | — | — | — |
| 9 | Speed level 9 | 57("9") | — | — | — | — |

- a=116: When kind of paper is specified

| Setting Status | | Sending Data | | | | |
|----------------|--------------------|--------------|----------|----------|----------|----------|
| Stored Value | Paper | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 1 | Single-color paper | 49("1") | — | — | — | — |
| 2 | 2-color paper | 50("2") | 53("5") | 50("7") | — | — |

- a=202: Input buffer full Busy output/cancel timing

| Setting Status | | Sending Data | | | | |
|----------------|--------------------|--------------|----------|----------|----------|----------|
| Stored Value | BUSY Output/Cancel | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 1 | | 49("1") | — | — | — | — |
| 2 | | 50("2") | — | — | — | — |
| 3 | | 51("3") | — | — | — | — |
| 4 | | 52("4") | — | — | — | — |

- a=213: When the flow control of virtual COM is specified.

| Setting Status | | Sending Data | | | | |
|----------------|--------------|--------------|----------|----------|----------|----------|
| Stored Value | Flow control | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 1 | PC setting | 49("1") | — | — | — | — |
| 2 | DTR/DSR | 50("2") | — | — | — | — |
| 3 | XON/XOF | 51("3") | — | — | — | — |

- a=214: When Kanji is specified

| Setting Status | | Sending Data | | | | |
|----------------|-------|--------------|----------|----------|----------|----------|
| Stored Value | Kanji | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 1 | OFF | 49("1") | — | — | — | — |
| 2 | ON | 50("2") | — | — | — | — |

CT-S281

- a=216: When JIS/Shift JIS is specified

| Setting Status | | Sending Data | | | | |
|----------------|---------------|--------------|----------|----------|----------|----------|
| Stored Value | JIS/Shift JIS | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 1 | JIS | 49("1") | — | — | — | — |
| 2 | Shift JIS | 50("2") | — | — | — | — |

- a=217: When international character set is specified

| Setting Status | | Sending Data | | | | |
|----------------|-----------------|--------------|----------|----------|----------|----------|
| Stored Value | Int'l char. set | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 1 | U.S.A. | 49("1") | — | — | — | — |
| 2 | France | 50("2") | — | — | — | — |
| 3 | Germany | 51("3") | — | — | — | — |
| 4 | U.K. | 52("4") | — | — | — | — |
| 5 | Denmark I | 53("5") | — | — | — | — |
| 6 | Sweden | 54("6") | — | — | — | — |
| 7 | Italy | 55("7") | — | — | — | — |
| 8 | Spain I | 56("8") | — | — | — | — |
| 9 | Japan | 57("9") | — | — | — | — |
| 10 | Norway | 49("1") | 48("0") | — | — | — |
| 11 | Denmark II | 49("1") | 49("1") | — | — | — |
| 12 | Spain II | 49("1") | 50("2") | — | — | — |
| 13 | Latin America | 49("1") | 51("3") | — | — | — |
| 14 | Korea | 49("1") | 52("4") | — | — | — |
| 15 | Croathia | 49("1") | 53("5") | — | — | — |
| 16 | P.R.China | 49("1") | 54("6") | — | — | — |

- a=218: When codepage is specified

| Setting Status | | Sending Data | | | | |
|----------------|----------------|--------------|----------|----------|----------|----------|
| Stored Value | Codepage | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 1 | Codepage PC437 | 49("1") | — | — | — | — |
| 2 | Katakana | 50("2") | — | — | — | — |
| 3 | Codepage PC850 | 51("3") | — | — | — | — |
| 4 | Codepage PC860 | 52("4") | — | — | — | — |
| 5 | Codepage PC863 | 53("5") | — | — | — | — |
| 6 | Codepage PC865 | 54("6") | — | — | — | — |
| 7 | Codepage PC852 | 55("7") | — | — | — | — |
| 8 | Codepage PC866 | 56("8") | — | — | — | — |
| 9 | Codepage PC857 | 57("9") | — | — | — | — |
| 10 | WPC1252 | 49("1") | 48("0") | — | — | — |
| 11 | Space page | 49("1") | 49("1") | — | — | — |
| 12 | Codepage PC864 | 49("1") | 50("2") | — | — | — |
| 13 | Thaicode18 | 49("1") | 51("3") | — | — | — |

- a=226: When the wait time for manual cut is specified.

| Setting Status | | Sending Data | | | | |
|----------------|--------------------------|--------------|----------|----------|----------|----------|
| Stored Value | Wait time for manual cut | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 0 | 0 sec | 48("0") | 48("0") | 48("0") | 48("0") | 48("0") |
| 1 | 1 sec | 48("0") | 48("0") | 48("0") | 48("0") | 49("1") |
| ⋮ | ⋮ | ⋮ | ⋮ | ⋮ | ⋮ | ⋮ |
| 1200 | 1200 sec | 48("0") | 49("1") | 50("2") | 48("0") | 48("0") |

CT-S300/CT-S310

- a=3: When paper width is specified

| Setting Status | | Sending Data | | | | |
|----------------|-------------|--------------|----------|----------|----------|----------|
| Stored Value | Paper Width | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 1 | 58mm | 49("1") | — | — | — | — |
| 3 | 80mm | 54("6") | — | — | — | — |

- a=5: When print density is specified

| Setting Status | | Sending Data | | | | |
|----------------|---------------|--------------|----------|----------|----------|----------|
| Stored Value | Print Density | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 65530 | 70% | 54("6") | 53("5") | 53("5") | 51("3") | 48("0") |
| 65531 | 75% | 54("6") | 53("5") | 53("5") | 51("3") | 49("1") |
| 65532 | 80% | 54("6") | 53("5") | 53("5") | 51("3") | 50("2") |
| 65533 | 85% | 54("6") | 53("5") | 53("5") | 51("3") | 51("3") |
| 65534 | 90% | 54("6") | 53("5") | 53("5") | 51("3") | 52("4") |
| 65535 | 95% | 54("6") | 53("5") | 53("5") | 51("3") | 53("5") |
| 0 | Basic density | 48("0") | — | — | — | — |
| 1 | 105% | 49("1") | — | — | — | — |
| 2 | 110% | 50("2") | — | — | — | — |
| 3 | 115% | 51("3") | — | — | — | — |
| 4 | 120% | 52("4") | — | — | — | — |
| 5 | 125% | 53("5") | — | — | — | — |
| 6 | 130% | 54("6") | — | — | — | — |
| 7 | 135% | 55("7") | — | — | — | — |
| 8 | 140% | 56("8") | — | — | — | — |

- a=6: When printing speed is specified

| Setting Status | | Sending Data | | | | |
|----------------|---------------|--------------|----------|----------|----------|----------|
| Stored Value | Print Speed | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 1 | Speed level 1 | 49("1") | — | — | — | — |
| 2 | Speed level 2 | 50("2") | — | — | — | — |
| 3 | Speed level 3 | 51("3") | — | — | — | — |
| 4 | Speed level 4 | 52("4") | — | — | — | — |
| 5 | Speed level 5 | 53("5") | — | — | — | — |
| 6 | Speed level 6 | 54("6") | — | — | — | — |
| 7 | Speed level 7 | 55("7") | — | — | — | — |
| 8 | Speed level 8 | 56("8") | — | — | — | — |
| 9 | Speed level 9 | 57("9") | — | — | — | — |

- a=97: When number of divisions for head conducting is specified

| Setting Status | | Sending Data | | | | |
|----------------|-----------------------|--------------|----------|----------|----------|----------|
| Stored Value | No. of Divisions | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 2 | 2 division conducting | 50("2") | — | — | — | — |
| 4 | 4 division conducting | 52("4") | — | — | — | — |

- a=116: When kind of paper is specified

| Setting Status | | Sending Data | | | | |
|----------------|--------------------|--------------|----------|----------|----------|----------|
| Stored Value | Paper | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 1 | Single-color paper | 49("1") | — | — | — | — |
| 2 | 2-color paper | 50("2") | 53("5") | 55("7") | — | — |

CT-S300/CT-S310

- a=201: When ACK output position is specified

| Setting Status | | Sending Data | | | | |
|----------------|---------------------|--------------|----------|----------|----------|----------|
| Stored Value | ACK Output Position | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 1 | ACK-in-Busy | 49("1") | — | — | — | — |
| 2 | ACK-while-Busy | 50("2") | — | — | — | — |
| 3 | ACK-after-Busy | 51("3") | — | — | — | — |

- a=202: Input buffer full Busy output/cancel timing

| Setting Status | | Sending Data | | | | |
|----------------|--------------------|--------------|----------|----------|----------|----------|
| Stored Value | BUSY Output/Cancel | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 1 | | 49("1") | — | — | — | — |
| 2 | | 50("2") | — | — | — | — |
| 3 | | 51("3") | — | — | — | — |
| 4 | | 52("4") | — | — | — | — |

- a=220: When maximum black mark width is specified

| Setting Status | | Sending Data | | | | |
|----------------|-------------------|--------------|----------|----------|----------|----------|
| Stored Value | Maximum B.M Width | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 0 | 0dot | 49("1") | 48("0") | 48("0") | 48("0") | 48("0") |
| ⋮ | ⋮ | ⋮ | ⋮ | ⋮ | ⋮ | ⋮ |
| 32767 | 32767dot | 51("3") | 50("2") | 55("7") | 54("6") | 55("7") |

- a=221: When maximum length of black mark page is specified

| Setting Status | | Sending Data | | | | |
|----------------|-------------------------|--------------|----------|----------|----------|----------|
| Stored Value | Maximum B.M Page Length | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 0 | 0dot | 49("1") | 48("0") | 48("0") | 48("0") | 48("0") |
| ⋮ | ⋮ | ⋮ | ⋮ | ⋮ | ⋮ | ⋮ |
| 32767 | 32767dot | 51("3") | 50("2") | 55("7") | 54("6") | 55("7") |

- a=222: When head margin is specified

| Setting Status | | Sending Data | | | | |
|----------------|-------------|--------------|----------|----------|----------|----------|
| Stored Value | Head Margin | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 0 | 0dot | 49("1") | 48("0") | 48("0") | 48("0") | 48("0") |
| ⋮ | ⋮ | ⋮ | ⋮ | ⋮ | ⋮ | ⋮ |
| 32767 | 32767dot | 51("3") | 50("2") | 55("7") | 54("6") | 55("7") |

- a=223: When bottom margin is specified

| Setting Status | | Sending Data | | | | |
|----------------|---------------|--------------|----------|----------|----------|----------|
| Stored Value | Bottom Margin | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 0 | 0 | 48("0") | 48("0") | 48("0") | — | — |
| ⋮ | ⋮ | ⋮ | ⋮ | ⋮ | ⋮ | ⋮ |
| 255 | 255 | 50("2") | 53("5") | 53("5") | — | — |

- a=224: When cut distance is specified

| Setting Status | | Sending Data | | | | |
|----------------|--------------|--------------|----------|----------|----------|----------|
| Stored Value | Cut Distance | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 0 | 0 | 48("0") | 48("0") | 48("0") | — | — |
| ⋮ | ⋮ | ⋮ | ⋮ | ⋮ | ⋮ | ⋮ |
| 255 | 255 | 50("2") | 53("5") | 53("5") | — | — |

- a=225: When head distance is specified

| Setting Status | | Sending Data | | | | |
|----------------|---------------|--------------|----------|----------|----------|----------|
| Stored Value | Head Distance | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 0 | 0 | 48("0") | 48("0") | 48("0") | — | — |
| ⋮ | ⋮ | ⋮ | ⋮ | ⋮ | ⋮ | ⋮ |
| 255 | 255 | 50("2") | 53("5") | 53("5") | — | — |

CT-S2000

- a=1: When user NV memory capacity is specified

| Setting Status | | Sending Data | | | | |
|----------------|-----------------|--------------|----------|----------|----------|----------|
| Stored Value | Memory Capacity | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 1 | 1K bytes | 49("1") | — | — | — | — |
| 2 | 64K bytes | 50("2") | — | — | — | — |
| 3 | 128K bytes | 51("3") | — | — | — | — |
| 4 | 192K bytes | 52("4") | — | — | — | — |

- a=2: When NV graphics memory capacity is specified

| Setting Status | | Sending Data | | | | |
|----------------|-----------------|--------------|----------|----------|----------|----------|
| Stored Value | Memory Capacity | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 1 | None | 49("1") | — | — | — | — |
| 2 | 64K bytes | 50("2") | — | — | — | — |
| 3 | 128K bytes | 51("3") | — | — | — | — |
| 4 | 192K bytes | 52("4") | — | — | — | — |
| 5 | 256K bytes | 53("5") | — | — | — | — |
| 6 | 320K bytes | 54("6") | — | — | — | — |
| 7 | 384K bytes | 55("7") | — | — | — | — |

- a=3: When paper width is specified

| Setting Status | | Sending Data | | | | |
|----------------|----------------|--------------|----------|----------|----------|----------|
| Stored Value | Paper Width | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 1 | 58mm(360dot) | 49("1") | — | — | — | — |
| 2 | 58mm(384dot) | 50("2") | — | — | — | — |
| 3 | 58mm(432dot) | 51("3") | — | — | — | — |
| 4 | 58mm(432dot) | 52("4") | — | — | — | — |
| 5 | 58mm(436dot) | 53("5") | — | — | — | — |
| 6 | 80mm(512dot) | 54("6") | — | — | — | — |
| 7 | 80mm(576dot) | 55("7") | — | — | — | — |
| 8 | 82.5mm(640dot) | 56("8") | — | — | — | — |

- a=5: When print density is specified

| Setting Status | | Sending Data | | | | |
|----------------|---------------|--------------|----------|----------|----------|----------|
| Stored Value | Print Density | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 65530 | 70% | 54("6") | 53("5") | 53("5") | 51("3") | 48("0") |
| 65531 | 75% | 54("6") | 53("5") | 53("5") | 51("3") | 49("1") |
| 65532 | 80% | 54("6") | 53("5") | 53("5") | 51("3") | 50("2") |
| 65533 | 85% | 54("6") | 53("5") | 53("5") | 51("3") | 51("3") |
| 65534 | 90% | 54("6") | 53("5") | 53("5") | 51("3") | 52("4") |
| 65535 | 95% | 54("6") | 53("5") | 53("5") | 51("3") | 53("5") |
| 0 | Basic density | 48("0") | — | — | — | — |
| 1 | 105% | 49("1") | — | — | — | — |
| 2 | 110% | 50("2") | — | — | — | — |
| 3 | 115% | 51("3") | — | — | — | — |
| 4 | 120% | 52("4") | — | — | — | — |
| 5 | 125% | 53("5") | — | — | — | — |
| 6 | 130% | 54("6") | — | — | — | — |
| 7 | 135% | 55("7") | — | — | — | — |
| 8 | 140% | 56("8") | — | — | — | — |

- a=6: When printing speed is specified

| Setting Status | | Sending Data | | | | |
|----------------|---------------|--------------|----------|----------|----------|----------|
| Stored Value | Print Speed | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 1 | Speed level 1 | 49("1") | — | — | — | — |
| 2 | Speed level 2 | 50("2") | — | — | — | — |
| 3 | Speed level 3 | 51("3") | — | — | — | — |
| 4 | Speed level 4 | 52("4") | — | — | — | — |
| 5 | Speed level 5 | 53("5") | — | — | — | — |
| 6 | Speed level 6 | 54("6") | — | — | — | — |
| 7 | Speed level 7 | 55("7") | — | — | — | — |
| 8 | Speed level 8 | 56("8") | — | — | — | — |
| 9 | Speed level 9 | 57("9") | — | — | — | — |

CT-S2000

- a=116: When kind of paper is specified

| Setting Status | | Sending Data | | | | |
|----------------|--------------------|--------------|----------|----------|----------|----------|
| Stored Value | Paper | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 1 | Single-color paper | 49("1") | — | — | — | — |
| 2 | 2-color paper | 50("2") | 53("5") | 55("7") | — | — |

- a=201: When ACK output position is specified

| Setting Status | | Sending Data | | | | |
|----------------|---------------------|--------------|----------|----------|----------|----------|
| Stored Value | ACK Output Position | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 1 | ACK-in-Busy | 49("1") | — | — | — | — |
| 2 | ACK-while-Busy | 50("2") | — | — | — | — |
| 3 | ACK-after-Busy | 51("3") | — | — | — | — |

- a=202: Input buffer full Busy output/cancel timing

| Setting Status | | Sending Data | | | | |
|----------------|--------------------|--------------|----------|----------|----------|----------|
| Stored Value | BUSY Output/Cancel | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 1 | | 49("1") | — | — | — | — |
| 2 | | 50("2") | — | — | — | — |
| 3 | | 51("3") | — | — | — | — |
| 4 | | 52("4") | — | — | — | — |

- a=212: When DMA (Direct Memory Access) control of serial communication is specified

| Setting Status | | Sending Data | | | | |
|----------------|-------------|--------------|----------|----------|----------|----------|
| Stored Value | DMA control | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 1 | Valid | 49("1") | — | — | — | — |
| 2 | Invalid | 50("2") | — | — | — | — |

- a=213: When the flow control of virtual COM is specified.

| Setting Status | | Sending Data | | | | |
|----------------|--------------|--------------|----------|----------|----------|----------|
| Stored Value | Flow control | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 1 | PC setting | 49("1") | — | — | — | — |
| 2 | DTR/DSR | 50("2") | — | — | — | — |
| 3 | XON/XOF | 51("3") | — | — | — | — |

- a=214: When Kanji is specified

| Setting Status | | Sending Data | | | | |
|----------------|-------|--------------|----------|----------|----------|----------|
| Stored Value | Kanji | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 1 | OFF | 49("1") | — | — | — | — |
| 2 | ON | 50("2") | — | — | — | — |

- a=220: When maximum black mark width is specified

| Setting Status | | Sending Data | | | | |
|----------------|-------------------|--------------|----------|----------|----------|----------|
| Stored Value | Maximum B.M Width | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 0 | 0dot | 49("1") | 48("0") | 48("0") | 48("0") | 48("0") |
| ⋮ | ⋮ | ⋮ | ⋮ | ⋮ | ⋮ | ⋮ |
| 32767 | 32767dot | 51("3") | 50("2") | 55("7") | 54("6") | 55("7") |

- a=221: When maximum black mark page length is specified

| Setting Status | | Sending Data | | | | |
|----------------|-------------------------|--------------|----------|----------|----------|----------|
| Stored Value | Maximum B.M page length | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 0 | 0dot | 49("1") | 48("0") | 48("0") | 48("0") | 48("0") |
| ⋮ | ⋮ | ⋮ | ⋮ | ⋮ | ⋮ | ⋮ |
| 32767 | 32767dot | 51("3") | 50("2") | 55("7") | 54("6") | 55("7") |

CT-S2000

- a=222: When head margin is specified

| Setting Status | | Sending Data | | | | |
|----------------|-------------|--------------|----------|----------|----------|----------|
| Stored Value | Head Margin | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 0 | 0dot | 49(^"1") | 48(^"0") | 48(^"0") | 48(^"0") | 48(^"0") |
| ⋮ | ⋮ | ⋮ | ⋮ | ⋮ | ⋮ | ⋮ |
| 32767 | 32767dot | 51(^"3") | 50(^"2") | 55(^"7") | 54(^"6") | 55(^"7") |

- a=223: When bottom margin is specified

| Setting Status | | Sending Data | | | | |
|----------------|---------------|--------------|----------|----------|----------|----------|
| Stored Value | Bottom Margin | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 0 | 0 | 48(^"0") | 48(^"0") | 48(^"0") | — | — |
| ⋮ | ⋮ | ⋮ | ⋮ | ⋮ | ⋮ | ⋮ |
| 255 | 255 | 50(^"2") | 53(^"5") | 53(^"5") | — | — |

- a=224: When cut distance is specified

| Setting Status | | Sending Data | | | | |
|----------------|--------------|--------------|----------|----------|----------|----------|
| Stored Value | Cut Distance | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 0 | 0 | 48(^"0") | 48(^"0") | 48(^"0") | — | — |
| ⋮ | ⋮ | ⋮ | ⋮ | ⋮ | ⋮ | ⋮ |
| 255 | 255 | 50(^"2") | 53(^"5") | 53(^"5") | — | — |

- a=225: When head distance is specified

| Setting Status | | Sending Data | | | | |
|----------------|---------------|--------------|----------|----------|----------|----------|
| Stored Value | Head Distance | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 0 | 0 | 48(^"0") | 48(^"0") | 48(^"0") | — | — |
| ⋮ | ⋮ | ⋮ | ⋮ | ⋮ | ⋮ | ⋮ |
| 255 | 255 | 50(^"2") | 53(^"5") | 53(^"5") | — | — |

CT-S4000

- a=1: When user NV memory capacity is specified

| Setting Status | | Sending Data | | | | |
|----------------|-----------------|--------------|----------|----------|----------|----------|
| Stored Value | Memory Capacity | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 1 | 1K bytes | 49("1") | — | — | — | — |
| 2 | 64K bytes | 50("2") | — | — | — | — |
| 3 | 128K bytes | 51("3") | — | — | — | — |
| 4 | 192K bytes | 52("4") | — | — | — | — |

- a=2: When NV graphics memory capacity is specified

| Setting Status | | Sending Data | | | | |
|----------------|-----------------|--------------|----------|----------|----------|----------|
| Stored Value | Memory Capacity | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 1 | None | 49("1") | — | — | — | — |
| 2 | 64K bytes | 50("2") | — | — | — | — |
| 3 | 128K bytes | 51("3") | — | — | — | — |
| 4 | 192K bytes | 52("4") | — | — | — | — |
| 5 | 256K bytes | 53("5") | — | — | — | — |
| 6 | 320K bytes | 54("6") | — | — | — | — |
| 7 | 384K bytes | 55("7") | — | — | — | — |

- a=3: When paper width is specified

| Setting Status | | Sending Data | | | | |
|----------------|-------------|--------------|----------|----------|----------|----------|
| Stored Value | Paper Width | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 5 | 512 dots | 49("1") | — | — | — | — |
| 6 | 576 dots | 50("2") | — | — | — | — |
| 7 | 660 dots | 51("3") | — | — | — | — |
| 8 | 720 dots | 52("4") | — | — | — | — |
| 9 | 832 dots | 53("5") | — | — | — | — |

- a=5: When print density is specified

| Setting Status | | Sending Data | | | | |
|----------------|---------------|--------------|----------|----------|----------|----------|
| Stored Value | Print Density | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 65530 | 70% | 54("6") | 53("5") | 53("5") | 51("3") | 48("0") |
| 65531 | 75% | 54("6") | 53("5") | 53("5") | 51("3") | 49("1") |
| 65532 | 80% | 54("6") | 53("5") | 53("5") | 51("3") | 50("2") |
| 65533 | 85% | 54("6") | 53("5") | 53("5") | 51("3") | 51("3") |
| 65534 | 90% | 54("6") | 53("5") | 53("5") | 51("3") | 52("4") |
| 65535 | 95% | 54("6") | 53("5") | 53("5") | 51("3") | 53("5") |
| 0 | Basic density | 48("0") | — | — | — | — |
| 1 | 105% | 49("1") | — | — | — | — |
| 2 | 110% | 50("2") | — | — | — | — |
| 3 | 115% | 51("3") | — | — | — | — |
| 4 | 120% | 52("4") | — | — | — | — |
| 5 | 125% | 53("5") | — | — | — | — |
| 6 | 130% | 54("6") | — | — | — | — |
| 7 | 135% | 55("7") | — | — | — | — |
| 8 | 140% | 56("8") | — | — | — | — |

- a=6: When printing speed is specified

| Setting Status | | Sending Data | | | | |
|----------------|---------------|--------------|----------|----------|----------|----------|
| Stored Value | Print Speed | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 1 | Speed level 1 | 49("1") | — | — | — | — |
| 2 | Speed level 2 | 50("2") | — | — | — | — |
| 3 | Speed level 3 | 51("3") | — | — | — | — |
| 4 | Speed level 4 | 52("4") | — | — | — | — |
| 5 | Speed level 5 | 53("5") | — | — | — | — |
| 6 | Speed level 6 | 54("6") | — | — | — | — |
| 7 | Speed level 7 | 55("7") | — | — | — | — |
| 8 | Speed level 8 | 56("8") | — | — | — | — |
| 9 | Speed level 9 | 57("9") | — | — | — | — |

CT-S4000

- a=116: When kind of paper is specified

| Setting Status | | Sending Data | | | | |
|----------------|--------------------|--------------|----------|----------|----------|----------|
| Stored Value | Paper | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 1 | Single-color paper | 49("1") | — | — | — | — |
| 2 | 2-color paper | 50("2") | 53("5") | 55("7") | — | — |

- a=201: When ACK output position is specified

| Setting Status | | Sending Data | | | | |
|----------------|---------------------|--------------|----------|----------|----------|----------|
| Stored Value | ACK Output Position | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 1 | ACK-in-Busy | 49("1") | — | — | — | — |
| 2 | ACK-while-Busy | 50("2") | — | — | — | — |
| 3 | ACK-after-Busy | 51("3") | — | — | — | — |

- a=202: Input buffer full Busy output/cancel timing

| Setting Status | | Sending Data | | | | |
|----------------|--------------------|--------------|----------|----------|----------|----------|
| Stored Value | BUSY Output/Cancel | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 1 | | 49("1") | — | — | — | — |
| 2 | | 50("2") | — | — | — | — |
| 3 | | 51("3") | — | — | — | — |
| 4 | | 52("4") | — | — | — | — |

- a=212: When DMA (Direct Memory Access) control of serial communication is specified

| Setting Status | | Sending Data | | | | |
|----------------|-------------|--------------|----------|----------|----------|----------|
| Stored Value | DMA control | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 1 | Valid | 49("1") | — | — | — | — |
| 2 | Invalid | 50("2") | — | — | — | — |

- a=213: When the flow control of virtual COM is specified.

| Setting Status | | Sending Data | | | | |
|----------------|--------------|--------------|----------|----------|----------|----------|
| Stored Value | Flow control | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 1 | PC setting | 49("1") | — | — | — | — |
| 2 | DTR/DSR | 50("2") | — | — | — | — |
| 3 | XON/XOF | 51("3") | — | — | — | — |

- a=214: When Kanji is specified

| Setting Status | | Sending Data | | | | |
|----------------|-------|--------------|----------|----------|----------|----------|
| Stored Value | Kanji | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 1 | OFF | 49("1") | — | — | — | — |
| 2 | ON | 50("2") | — | — | — | — |

CT-S801/CT-S851

- a=1: When user NV memory capacity is specified

| Setting Status | | Sending Data | | | | |
|----------------|-----------------|--------------|----------|----------|----------|----------|
| Stored Value | Memory Capacity | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 1 | 1K bytes | 49("1") | — | — | — | — |
| 2 | 64K bytes | 50("2") | — | — | — | — |
| 3 | 128K bytes | 51("3") | — | — | — | — |
| 4 | 192K bytes | 52("4") | — | — | — | — |

- a=2: When NV graphics memory capacity is specified

| Setting Status | | Sending Data | | | | |
|----------------|-----------------|--------------|----------|----------|----------|----------|
| Stored Value | Memory Capacity | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 1 | None | 49("1") | — | — | — | — |
| 2 | 64K bytes | 50("2") | — | — | — | — |
| 3 | 128K bytes | 51("3") | — | — | — | — |
| 4 | 192K bytes | 52("4") | — | — | — | — |
| 5 | 256K bytes | 53("5") | — | — | — | — |
| 6 | 320K bytes | 54("6") | — | — | — | — |
| 7 | 384K bytes | 55("7") | — | — | — | — |

- a=3: When paper width is specified

| Setting Status | | Sending Data | | | | |
|----------------|----------------|--------------|----------|----------|----------|----------|
| Stored Value | Paper Width | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 1 | 58mm(360dot) | 49("1") | — | — | — | — |
| 2 | 58mm(384dot) | 50("2") | — | — | — | — |
| 3 | 58mm(432dot) | 51("3") | — | — | — | — |
| 4 | 58mm(432dot) | 52("4") | — | — | — | — |
| 5 | 58mm(436dot) | 53("5") | — | — | — | — |
| 6 | 80mm(512dot) | 54("6") | — | — | — | — |
| 7 | 80mm(576dot) | 55("7") | — | — | — | — |
| 8 | 82.5mm(640dot) | 56("8") | — | — | — | — |

- a=5: When print density is specified

| Setting Status | | Sending Data | | | | |
|----------------|---------------|--------------|----------|----------|----------|----------|
| Stored Value | Print Density | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 65530 | 70% | 54("6") | 53("5") | 53("5") | 51("3") | 48("0") |
| 65531 | 75% | 54("6") | 53("5") | 53("5") | 51("3") | 49("1") |
| 65532 | 80% | 54("6") | 53("5") | 53("5") | 51("3") | 50("2") |
| 65533 | 85% | 54("6") | 53("5") | 53("5") | 51("3") | 51("3") |
| 65534 | 90% | 54("6") | 53("5") | 53("5") | 51("3") | 52("4") |
| 65535 | 95% | 54("6") | 53("5") | 53("5") | 51("3") | 53("5") |
| 0 | Basic density | 48("0") | — | — | — | — |
| 1 | 105% | 49("1") | — | — | — | — |
| 2 | 110% | 50("2") | — | — | — | — |
| 3 | 115% | 51("3") | — | — | — | — |
| 4 | 120% | 52("4") | — | — | — | — |
| 5 | 125% | 53("5") | — | — | — | — |
| 6 | 130% | 54("6") | — | — | — | — |
| 7 | 135% | 55("7") | — | — | — | — |
| 8 | 140% | 56("8") | — | — | — | — |

- a=6: When printing speed is specified

| Setting Status | | Sending Data | | | | |
|----------------|---------------|--------------|----------|----------|----------|----------|
| Stored Value | Print Speed | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 1 | Speed level 1 | 49("1") | — | — | — | — |
| 2 | Speed level 2 | 50("2") | — | — | — | — |
| 3 | Speed level 3 | 51("3") | — | — | — | — |
| 4 | Speed level 4 | 52("4") | — | — | — | — |
| 5 | Speed level 5 | 53("5") | — | — | — | — |
| 6 | Speed level 6 | 54("6") | — | — | — | — |
| 7 | Speed level 7 | 55("7") | — | — | — | — |
| 8 | Speed level 8 | 56("8") | — | — | — | — |
| 9 | Speed level 9 | 57("9") | — | — | — | — |

CT-S801/CT-S851

- a=116: When kind of paper is specified

| Setting Status | | Sending Data | | | | |
|----------------|--------------------|--------------|----------|----------|----------|----------|
| Stored Value | Paper | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 1 | Single-color paper | 49("1") | — | — | — | — |
| 2 | 2-color paper | 50("2") | 53("5") | 55("7") | — | — |

- a=201: When ACK output position is specified

| Setting Status | | Sending Data | | | | |
|----------------|---------------------|--------------|----------|----------|----------|----------|
| Stored Value | ACK Output Position | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 1 | ACK-in-Busy | 49("1") | — | — | — | — |
| 2 | ACK-while-Busy | 50("2") | — | — | — | — |
| 3 | ACK-after-Busy | 51("3") | — | — | — | — |

- a=202: Input buffer full Busy output/cancel timing

| Setting Status | | Sending Data | | | | |
|----------------|--------------------|--------------|----------|----------|----------|----------|
| Stored Value | BUSY Output/Cancel | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 1 | | 49("1") | — | — | — | — |
| 2 | | 50("2") | — | — | — | — |
| 3 | | 51("3") | — | — | — | — |
| 4 | | 52("4") | — | — | — | — |

- a=212: When DMA (Direct Memory Access) control of serial communication is specified

| Setting Status | | Sending Data | | | | |
|----------------|-------------|--------------|----------|----------|----------|----------|
| Stored Value | DMA control | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 1 | Valid | 49("1") | — | — | — | — |
| 2 | Invalid | 50("2") | — | — | — | — |

- a=213: When the flow control of virtual COM is specified.

| Setting Status | | Sending Data | | | | |
|----------------|--------------|--------------|----------|----------|----------|----------|
| Stored Value | Flow control | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 1 | PC setting | 49("1") | — | — | — | — |
| 2 | DTR/DSR | 50("2") | — | — | — | — |
| 3 | XON/XOF | 51("3") | — | — | — | — |

- a=214: When Kanji is specified

| Setting Status | | Sending Data | | | | |
|----------------|-------|--------------|----------|----------|----------|----------|
| Stored Value | Kanji | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 1 | OFF | 49("1") | — | — | — | — |
| 2 | ON | 50("2") | — | — | — | — |

- a=216: When JIS/Shift JIS is specified

| Setting Status | | Sending Data | | | | |
|----------------|---------------|--------------|----------|----------|----------|----------|
| Stored Value | JIS/Shift JIS | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 1 | JIS | 49("1") | — | — | — | — |
| 2 | Shift JIS | 50("2") | — | — | — | — |

CT-S801/CT-S851

- a=217: When international character set is specified

| Setting Status | | Sending Data | | | | |
|----------------|-----------------|--------------|----------|----------|----------|----------|
| Stored Value | Int'l char. set | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 1 | U.S.A. | 49("1") | — | — | — | — |
| 2 | France | 50("2") | — | — | — | — |
| 3 | Germany | 51("3") | — | — | — | — |
| 4 | U.K. | 52("4") | — | — | — | — |
| 5 | Denmark I | 53("5") | — | — | — | — |
| 6 | Sweden | 54("6") | — | — | — | — |
| 7 | Italy | 55("7") | — | — | — | — |
| 8 | Spain I | 56("8") | — | — | — | — |
| 9 | Japan | 57("9") | — | — | — | — |
| 10 | Norway | 49("1") | 48("0") | — | — | — |
| 11 | Denmark II | 49("1") | 49("1") | — | — | — |
| 12 | Spain II | 49("1") | 50("2") | — | — | — |
| 13 | Latin America | 49("1") | 51("3") | — | — | — |
| 14 | Korea | 49("1") | 52("4") | — | — | — |
| 15 | Croathia | 49("1") | 53("5") | — | — | — |
| 16 | P.R.China | 49("1") | 54("6") | — | — | — |

- a=218: When codepage is specified

| Setting Status | | Sending Data | | | | |
|----------------|----------------|--------------|----------|----------|----------|----------|
| Stored Value | Codepage | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 1 | Codepage PC437 | 49("1") | — | — | — | — |
| 2 | Katakana | 50("2") | — | — | — | — |
| 3 | Codepage PC850 | 51("3") | — | — | — | — |
| 4 | Codepage PC860 | 52("4") | — | — | — | — |
| 5 | Codepage PC863 | 53("5") | — | — | — | — |
| 6 | Codepage PC865 | 54("6") | — | — | — | — |
| 7 | Codepage PC852 | 55("7") | — | — | — | — |
| 8 | Codepage PC866 | 56("8") | — | — | — | — |
| 9 | Codepage PC857 | 57("9") | — | — | — | — |
| 10 | WPC1252 | 49("1") | 48("0") | — | — | — |
| 11 | Space page | 49("1") | 49("1") | — | — | — |
| 12 | Codepage PC864 | 49("1") | 50("2") | — | — | — |
| 13 | Thaicode18 | 49("1") | 51("3") | — | — | — |

- a=220: When maximum black mark width is specified

| Setting Status | | Sending Data | | | | |
|----------------|-------------------|--------------|----------|----------|----------|----------|
| Stored Value | Maximum B.M Width | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 0 | 0dot | 49("1") | 48("0") | 48("0") | 48("0") | 48("0") |
| ⋮ | ⋮ | ⋮ | ⋮ | ⋮ | ⋮ | ⋮ |
| 32767 | 32767dot | 51("3") | 50("2") | 55("7") | 54("6") | 55("7") |

- a=221: When maximum black mark page length is specified

| Setting Status | | Sending Data | | | | |
|----------------|-------------------------|--------------|----------|----------|----------|----------|
| Stored Value | Maximum B.M page length | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 0 | 0dot | 49("1") | 48("0") | 48("0") | 48("0") | 48("0") |
| ⋮ | ⋮ | ⋮ | ⋮ | ⋮ | ⋮ | ⋮ |
| 32767 | 32767dot | 51("3") | 50("2") | 55("7") | 54("6") | 55("7") |

- a=222: When head margin is specified

| Setting Status | | Sending Data | | | | |
|----------------|-------------|--------------|----------|----------|----------|----------|
| Stored Value | Head Margin | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 0 | 0dot | 49("1") | 48("0") | 48("0") | 48("0") | 48("0") |
| ⋮ | ⋮ | ⋮ | ⋮ | ⋮ | ⋮ | ⋮ |
| 32767 | 32767dot | 51("3") | 50("2") | 55("7") | 54("6") | 55("7") |

CT-S801/CT-S851

- a=223: When bottom margin is specified

| Setting Status | | Sending Data | | | | |
|----------------|---------------|--------------|----------|----------|----------|----------|
| Stored Value | Bottom Margin | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 0 | 0 | 48("0") | 48("0") | 48("0") | — | — |
| ⋮ | ⋮ | ⋮ | ⋮ | ⋮ | ⋮ | ⋮ |
| 255 | 255 | 50("2") | 53("5") | 53("5") | — | — |

- a=224: When cut distance is specified

| Setting Status | | Sending Data | | | | |
|----------------|--------------|--------------|----------|----------|----------|----------|
| Stored Value | Cut Distance | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 0 | 0 | 48("0") | 48("0") | 48("0") | — | — |
| ⋮ | ⋮ | ⋮ | ⋮ | ⋮ | ⋮ | ⋮ |
| 255 | 255 | 50("2") | 53("5") | 53("5") | — | — |

- a=225: When head distance is specified

| Setting Status | | Sending Data | | | | |
|----------------|---------------|--------------|----------|----------|----------|----------|
| Stored Value | Head Distance | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 0 | 0 | 48("0") | 48("0") | 48("0") | — | — |
| ⋮ | ⋮ | ⋮ | ⋮ | ⋮ | ⋮ | ⋮ |
| 255 | 255 | 50("2") | 53("5") | 53("5") | — | — |

- a=230: When LCD language is specified

| Setting Status | | Sending Data | | | | |
|----------------|--------------|--------------|----------|----------|----------|----------|
| Stored Value | LCD language | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 1 | English | 49("1") | — | — | — | — |
| 2 | French | 50("2") | — | — | — | — |
| 3 | German | 51("3") | — | — | — | — |
| 4 | Italian | 52("4") | — | — | — | — |
| 5 | Spanish | 53("5") | — | — | — | — |
| 6 | Japanese | 54("6") | — | — | — | — |
| 7 | Chinese | 55("7") | — | — | — | — |

- a=231: When LCD download characters is specified

| Setting Status | | Sending Data | | | | |
|----------------|--------------|--------------|----------|----------|----------|----------|
| Stored Value | LCD download | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 1 | Disabled | 49("1") | — | — | — | — |
| 2 | Enabled | 50("2") | — | — | — | — |

- a=232: When LCD auto off time is specified

| Setting Status | | Sending Data | | | | |
|----------------|---------------|--------------|----------|----------|----------|----------|
| Stored Value | Auto off time | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 1 | None | 49("1") | — | — | — | — |
| 2 | 30 sec. later | 50("2") | — | — | — | — |
| 3 | 5 min. later | 51("3") | — | — | — | — |

- a=233: When key lock is specified

| Setting Status | | Sending Data | | | | |
|----------------|----------|--------------|----------|----------|----------|----------|
| Stored Value | Key lock | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 1 | Enabled | 49("1") | — | — | — | — |
| 2 | Disabled | 50("2") | — | — | — | — |

CT-S801/CT-S851

- a=234:When LCD direction is specified

| Setting Status | | Sending Data | | | | |
|----------------|---------------|--------------|----------|----------|----------|----------|
| Stored Value | LCD direction | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 1 | Normal | 49("1") | — | — | — | — |
| 2 | Inverted | 50("2") | — | — | — | — |

- a=240:When buzzer volume is specified

| Setting Status | | Sending Data | | | | |
|----------------|---------------|--------------|----------|----------|----------|----------|
| Stored Value | Buzzer volume | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 1 | Level 1 | 49("1") | — | — | — | — |
| 2 | Level 2 | 50("2") | — | — | — | — |
| 3 | Level 3 | 51("3") | — | — | — | — |
| 4 | Level 4 | 52("4") | — | — | — | — |

- a=241:When max dot number in 1 head division is specified

| Setting Status | | Sending Data | | | | |
|----------------|------------|--------------|----------|----------|----------|----------|
| Stored Value | Dot number | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 1 | 128 dots | 49("1") | — | — | — | — |
| 2 | 200 dots | 50("2") | — | — | — | — |
| 3 | 288 dots | 51("3") | — | — | — | — |

- a=242:When PowerUSB max dot number is specified

| Setting Status | | Sending Data | | | | |
|----------------|------------|--------------|----------|----------|----------|----------|
| Stored Value | Dot number | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 1 | 128 dots | 49("1") | — | — | — | — |
| 2 | 200 dots | 50("2") | — | — | — | — |
| 3 | 288 dots | 51("3") | — | — | — | — |

- a=243:When Mechanism type メカタイプ is specified

| Setting Status | | Sending Data | | | | |
|----------------|----------------|--------------|----------|----------|----------|----------|
| Stored Value | Mechanism type | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 1 | 2 inch | 49("1") | — | — | — | — |
| 2 | 3 inch | 50("2") | — | — | — | — |

CT-S601/CT-S651

- a=1: When user NV memory capacity is specified

| Setting Status | | Sending Data | | | | |
|----------------|-----------------|--------------|----------|----------|----------|----------|
| Stored Value | Memory Capacity | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 1 | 1K bytes | 49("1") | — | — | — | — |
| 2 | 64K bytes | 50("2") | — | — | — | — |
| 3 | 128K bytes | 51("3") | — | — | — | — |
| 4 | 192K bytes | 52("4") | — | — | — | — |

- a=2: When NV graphics memory capacity is specified

| Setting Status | | Sending Data | | | | |
|----------------|-----------------|--------------|----------|----------|----------|----------|
| Stored Value | Memory Capacity | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 1 | None | 49("1") | — | — | — | — |
| 2 | 64K bytes | 50("2") | — | — | — | — |
| 3 | 128K bytes | 51("3") | — | — | — | — |
| 4 | 192K bytes | 52("4") | — | — | — | — |
| 5 | 256K bytes | 53("5") | — | — | — | — |
| 6 | 320K bytes | 54("6") | — | — | — | — |
| 7 | 384K bytes | 55("7") | — | — | — | — |

- a=3: When paper width is specified

| Setting Status | | Sending Data | | | | |
|----------------|----------------|--------------|----------|----------|----------|----------|
| Stored Value | Paper Width | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 1 | 58mm(360dot) | 49("1") | — | — | — | — |
| 2 | 58mm(384dot) | 50("2") | — | — | — | — |
| 3 | 58mm(432dot) | 51("3") | — | — | — | — |
| 4 | 58mm(432dot) | 52("4") | — | — | — | — |
| 5 | 58mm(436dot) | 53("5") | — | — | — | — |
| 6 | 80mm(512dot) | 54("6") | — | — | — | — |
| 7 | 80mm(576dot) | 55("7") | — | — | — | — |
| 8 | 82.5mm(640dot) | 56("8") | — | — | — | — |

- a=5: When print density is specified

| Setting Status | | Sending Data | | | | |
|----------------|---------------|--------------|----------|----------|----------|----------|
| Stored Value | Print Density | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 65530 | 70% | 54("6") | 53("5") | 53("5") | 51("3") | 48("0") |
| 65531 | 75% | 54("6") | 53("5") | 53("5") | 51("3") | 49("1") |
| 65532 | 80% | 54("6") | 53("5") | 53("5") | 51("3") | 50("2") |
| 65533 | 85% | 54("6") | 53("5") | 53("5") | 51("3") | 51("3") |
| 65534 | 90% | 54("6") | 53("5") | 53("5") | 51("3") | 52("4") |
| 65535 | 95% | 54("6") | 53("5") | 53("5") | 51("3") | 53("5") |
| 0 | Basic density | 48("0") | — | — | — | — |
| 1 | 105% | 49("1") | — | — | — | — |
| 2 | 110% | 50("2") | — | — | — | — |
| 3 | 115% | 51("3") | — | — | — | — |
| 4 | 120% | 52("4") | — | — | — | — |
| 5 | 125% | 53("5") | — | — | — | — |
| 6 | 130% | 54("6") | — | — | — | — |
| 7 | 135% | 55("7") | — | — | — | — |
| 8 | 140% | 56("8") | — | — | — | — |

- a=6: When printing speed is specified

| Setting Status | | Sending Data | | | | |
|----------------|---------------|--------------|----------|----------|----------|----------|
| Stored Value | Print Speed | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 1 | Speed level 1 | 49("1") | — | — | — | — |
| 2 | Speed level 2 | 50("2") | — | — | — | — |
| 3 | Speed level 3 | 51("3") | — | — | — | — |
| 4 | Speed level 4 | 52("4") | — | — | — | — |
| 5 | Speed level 5 | 53("5") | — | — | — | — |
| 6 | Speed level 6 | 54("6") | — | — | — | — |
| 7 | Speed level 7 | 55("7") | — | — | — | — |
| 8 | Speed level 8 | 56("8") | — | — | — | — |
| 9 | Speed level 9 | 57("9") | — | — | — | — |

CT-S601/CT-S651

- a=116: When kind of paper is specified

| Setting Status | | Sending Data | | | | |
|----------------|--------------------|--------------|----------|----------|----------|----------|
| Stored Value | Paper | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 1 | Single-color paper | 49("1") | — | — | — | — |
| 2 | 2-color paper | 50("2") | 53("5") | 55("7") | — | — |

- a=201: When ACK output position is specified

| Setting Status | | Sending Data | | | | |
|----------------|---------------------|--------------|----------|----------|----------|----------|
| Stored Value | ACK Output Position | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 1 | ACK-in-Busy | 49("1") | — | — | — | — |
| 2 | ACK-while-Busy | 50("2") | — | — | — | — |
| 3 | ACK-after-Busy | 51("3") | — | — | — | — |

- a=202: Input buffer full Busy output/cancel timing

| Setting Status | | Sending Data | | | | |
|----------------|--------------------|--------------|----------|----------|----------|----------|
| Stored Value | BUSY Output/Cancel | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 1 | | 49("1") | — | — | — | — |
| 2 | | 50("2") | — | — | — | — |
| 3 | | 51("3") | — | — | — | — |
| 4 | | 52("4") | — | — | — | — |

- a=212: When DMA (Direct Memory Access) control of serial communication is specified

| Setting Status | | Sending Data | | | | |
|----------------|-------------|--------------|----------|----------|----------|----------|
| Stored Value | DMA control | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 1 | Valid | 49("1") | — | — | — | — |
| 2 | Invalid | 50("2") | — | — | — | — |

- a=213: When the flow control of virtual COM is specified.

| Setting Status | | Sending Data | | | | |
|----------------|--------------|--------------|----------|----------|----------|----------|
| Stored Value | Flow control | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 1 | PC setting | 49("1") | — | — | — | — |
| 2 | DTR/DSR | 50("2") | — | — | — | — |
| 3 | XON/XOF | 51("3") | — | — | — | — |

- a=214: When Kanji is specified

| Setting Status | | Sending Data | | | | |
|----------------|-------|--------------|----------|----------|----------|----------|
| Stored Value | Kanji | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 1 | OFF | 49("1") | — | — | — | — |
| 2 | ON | 50("2") | — | — | — | — |

- a=216: When JIS/Shift JIS is specified

| Setting Status | | Sending Data | | | | |
|----------------|---------------|--------------|----------|----------|----------|----------|
| Stored Value | JIS/Shift JIS | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 1 | JIS | 49("1") | — | — | — | — |
| 2 | Shift JIS | 50("2") | — | — | — | — |

CT-S601/CT-S651

- a=217: When international character set is specified

| Setting Status | | Sending Data | | | | |
|----------------|-----------------|--------------|----------|----------|----------|----------|
| Stored Value | Int'l char. set | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 1 | U.S.A. | 49("1") | — | — | — | — |
| 2 | France | 50("2") | — | — | — | — |
| 3 | Germany | 51("3") | — | — | — | — |
| 4 | U.K. | 52("4") | — | — | — | — |
| 5 | Denmark I | 53("5") | — | — | — | — |
| 6 | Sweden | 54("6") | — | — | — | — |
| 7 | Italy | 55("7") | — | — | — | — |
| 8 | Spain I | 56("8") | — | — | — | — |
| 9 | Japan | 57("9") | — | — | — | — |
| 10 | Norway | 49("1") | 48("0") | — | — | — |
| 11 | Denmark II | 49("1") | 49("1") | — | — | — |
| 12 | Spain II | 49("1") | 50("2") | — | — | — |
| 13 | Latin America | 49("1") | 51("3") | — | — | — |
| 14 | Korea | 49("1") | 52("4") | — | — | — |
| 15 | Croathia | 49("1") | 53("5") | — | — | — |
| 16 | P.R.China | 49("1") | 54("6") | — | — | — |

- a=218: When codepage is specified

| Setting Status | | Sending Data | | | | |
|----------------|----------------|--------------|----------|----------|----------|----------|
| Stored Value | Codepage | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 1 | Codepage PC437 | 49("1") | — | — | — | — |
| 2 | Katakana | 50("2") | — | — | — | — |
| 3 | Codepage PC850 | 51("3") | — | — | — | — |
| 4 | Codepage PC860 | 52("4") | — | — | — | — |
| 5 | Codepage PC863 | 53("5") | — | — | — | — |
| 6 | Codepage PC865 | 54("6") | — | — | — | — |
| 7 | Codepage PC852 | 55("7") | — | — | — | — |
| 8 | Codepage PC866 | 56("8") | — | — | — | — |
| 9 | Codepage PC857 | 57("9") | — | — | — | — |
| 10 | WPC1252 | 49("1") | 48("0") | — | — | — |
| 11 | Space page | 49("1") | 49("1") | — | — | — |
| 12 | Codepage PC864 | 49("1") | 50("2") | — | — | — |
| 13 | Thaicode18 | 49("1") | 51("3") | — | — | — |

- a=220: When maximum black mark width is specified

| Setting Status | | Sending Data | | | | |
|----------------|-------------------|--------------|----------|----------|----------|----------|
| Stored Value | Maximum B.M Width | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 0 | 0dot | 49("1") | 48("0") | 48("0") | 48("0") | 48("0") |
| ⋮ | ⋮ | ⋮ | ⋮ | ⋮ | ⋮ | ⋮ |
| 32767 | 32767dot | 51("3") | 50("2") | 55("7") | 54("6") | 55("7") |

- a=221: When maximum black mark page length is specified

| Setting Status | | Sending Data | | | | |
|----------------|-------------------------|--------------|----------|----------|----------|----------|
| Stored Value | Maximum B.M page length | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 0 | 0dot | 49("1") | 48("0") | 48("0") | 48("0") | 48("0") |
| ⋮ | ⋮ | ⋮ | ⋮ | ⋮ | ⋮ | ⋮ |
| 32767 | 32767dot | 51("3") | 50("2") | 55("7") | 54("6") | 55("7") |

- a=222: When head margin is specified

| Setting Status | | Sending Data | | | | |
|----------------|-------------|--------------|----------|----------|----------|----------|
| Stored Value | Head Margin | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 0 | 0dot | 49("1") | 48("0") | 48("0") | 48("0") | 48("0") |
| ⋮ | ⋮ | ⋮ | ⋮ | ⋮ | ⋮ | ⋮ |
| 32767 | 32767dot | 51("3") | 50("2") | 55("7") | 54("6") | 55("7") |

CT-S601/CT-S651

- a=223: When bottom margin is specified

| Setting Status | | Sending Data | | | | |
|----------------|---------------|--------------|----------|----------|----------|----------|
| Stored Value | Bottom Margin | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 0 | 0 | 48("0") | 48("0") | 48("0") | — | — |
| ⋮ | ⋮ | ⋮ | ⋮ | ⋮ | ⋮ | ⋮ |
| 255 | 255 | 50("2") | 53("5") | 53("5") | — | — |

- a=224: When cut distance is specified

| Setting Status | | Sending Data | | | | |
|----------------|--------------|--------------|----------|----------|----------|----------|
| Stored Value | Cut Distance | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 0 | 0 | 48("0") | 48("0") | 48("0") | — | — |
| ⋮ | ⋮ | ⋮ | ⋮ | ⋮ | ⋮ | ⋮ |
| 255 | 255 | 50("2") | 53("5") | 53("5") | — | — |

- a=225: When head distance is specified

| Setting Status | | Sending Data | | | | |
|----------------|---------------|--------------|----------|----------|----------|----------|
| Stored Value | Head Distance | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 0 | 0 | 48("0") | 48("0") | 48("0") | — | — |
| ⋮ | ⋮ | ⋮ | ⋮ | ⋮ | ⋮ | ⋮ |
| 255 | 255 | 50("2") | 53("5") | 53("5") | — | — |

- a=240: When buzzer volume is specified

| Setting Status | | Sending Data | | | | |
|----------------|---------------|--------------|----------|----------|----------|----------|
| Stored Value | Buzzer volume | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 1 | Level 1 | 49("1") | — | — | — | — |
| 2 | Level 2 | 50("2") | — | — | — | — |
| 3 | Level 3 | 51("3") | — | — | — | — |
| 4 | Level 4 | 52("4") | — | — | — | — |

- a=241: When max dot number in 1 head division is specified

| Setting Status | | Sending Data | | | | |
|----------------|------------|--------------|----------|----------|----------|----------|
| Stored Value | Dot number | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 1 | 128 dots | 49("1") | — | — | — | — |
| 2 | 200 dots | 50("2") | — | — | — | — |
| 3 | 288 dots | 51("3") | — | — | — | — |

- a=242: When PowerUSB max dot number is specified

| Setting Status | | Sending Data | | | | |
|----------------|------------|--------------|----------|----------|----------|----------|
| Stored Value | Dot number | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 1 | 128 dots | 49("1") | — | — | — | — |
| 2 | 200 dots | 50("2") | — | — | — | — |
| 3 | 288 dots | 51("3") | — | — | — | — |

- a=243: When Mechanism type *メカタイプ* is specified

| Setting Status | | Sending Data | | | | |
|----------------|----------------|--------------|----------|----------|----------|----------|
| Stored Value | Mechanism type | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 1 | 2 inch | 49("1") | — | — | — | — |
| 2 | 3 inch | 50("2") | — | — | — | — |

BD2-2220

- a=5: When print density is specified

| Setting Status | | Sending Data | | | | |
|----------------|---------------|--------------|----------|----------|----------|----------|
| Stored Value | Print Density | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 65530 | 70% | 54("6") | 53("5") | 53("5") | 51("3") | 48("0") |
| 65531 | 75% | 54("6") | 53("5") | 53("5") | 51("3") | 49("1") |
| 65532 | 80% | 54("6") | 53("5") | 53("5") | 51("3") | 50("2") |
| 65533 | 85% | 54("6") | 53("5") | 53("5") | 51("3") | 51("3") |
| 65534 | 90% | 54("6") | 53("5") | 53("5") | 51("3") | 52("4") |
| 65535 | 95% | 54("6") | 53("5") | 53("5") | 51("3") | 53("5") |
| 0 | Basic density | 48("0") | — | — | — | — |
| 1 | 105% | 49("1") | — | — | — | — |
| 2 | 110% | 50("2") | — | — | — | — |
| 3 | 115% | 51("3") | — | — | — | — |
| 4 | 120% | 52("4") | — | — | — | — |
| 5 | 125% | 53("5") | — | — | — | — |
| 6 | 130% | 54("6") | — | — | — | — |
| 7 | 135% | 55("7") | — | — | — | — |
| 8 | 140% | 56("8") | — | — | — | — |

- a=6: When printing speed is specified

| Setting Status | | Sending Data | | | | |
|----------------|---------------|--------------|----------|----------|----------|----------|
| Stored Value | Print Speed | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 1 | Speed level 1 | 49("1") | — | — | — | — |
| 2 | Speed level 2 | 50("2") | — | — | — | — |
| 3 | Speed level 3 | 51("3") | — | — | — | — |
| 4 | Speed level 4 | 52("4") | — | — | — | — |
| 5 | Speed level 5 | 53("5") | — | — | — | — |
| 6 | Speed level 6 | 54("6") | — | — | — | — |
| 7 | Speed level 7 | 55("7") | — | — | — | — |
| 8 | Speed level 8 | 56("8") | — | — | — | — |
| 9 | Speed level 9 | 57("9") | — | — | — | — |

- a=201: When ACK output position is specified

| Setting Status | | Sending Data | | | | |
|----------------|---------------------|--------------|----------|----------|----------|----------|
| Stored Value | ACK Output Position | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 1 | ACK-in-Busy | 49("1") | — | — | — | — |
| 2 | ACK-while-Busy | 50("2") | — | — | — | — |
| 3 | ACK-after-Busy | 51("3") | — | — | — | — |

- a=202: Input buffer full Busy output/cancel timing

| Setting Status | | Sending Data | | | | |
|----------------|--------------------|--------------|----------|----------|----------|----------|
| Stored Value | BUSY Output/Cancel | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 1 | | 49("1") | — | — | — | — |
| 2 | | 50("2") | — | — | — | — |
| 3 | | 51("3") | — | — | — | — |
| 4 | | 52("4") | — | — | — | — |

PMU2XXX

- a=5: When print density is specified

| Setting Status | | Sending Data | | | | |
|----------------|---------------|--------------|----------|----------|----------|----------|
| Stored Value | Print Density | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 65530 | 70% | 54("6") | 53("5") | 53("5") | 51("3") | 48("0") |
| 65531 | 75% | 54("6") | 53("5") | 53("5") | 51("3") | 49("1") |
| 65532 | 80% | 54("6") | 53("5") | 53("5") | 51("3") | 50("2") |
| 65533 | 85% | 54("6") | 53("5") | 53("5") | 51("3") | 51("3") |
| 65534 | 90% | 54("6") | 53("5") | 53("5") | 51("3") | 52("4") |
| 65535 | 95% | 54("6") | 53("5") | 53("5") | 51("3") | 53("5") |
| 0 | Basic density | 48("0") | — | — | — | — |
| 1 | 105% | 49("1") | — | — | — | — |
| 2 | 110% | 50("2") | — | — | — | — |
| 3 | 115% | 51("3") | — | — | — | — |
| 4 | 120% | 52("4") | — | — | — | — |
| 5 | 125% | 53("5") | — | — | — | — |
| 6 | 130% | 54("6") | — | — | — | — |
| 7 | 135% | 55("7") | — | — | — | — |
| 8 | 140% | 56("8") | — | — | — | — |

- a=6: When printing speed is specified

| Setting Status | | Sending Data | | | | |
|----------------|---------------|--------------|----------|----------|----------|----------|
| Stored Value | Print Speed | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 1 | Speed level 1 | 49("1") | — | — | — | — |
| 2 | Speed level 2 | 50("2") | — | — | — | — |
| 3 | Speed level 3 | 51("3") | — | — | — | — |
| 4 | Speed level 4 | 52("4") | — | — | — | — |
| 5 | Speed level 5 | 53("5") | — | — | — | — |
| 6 | Speed level 6 | 54("6") | — | — | — | — |
| 7 | Speed level 7 | 55("7") | — | — | — | — |
| 8 | Speed level 8 | 56("8") | — | — | — | — |
| 9 | Speed level 9 | 57("9") | — | — | — | — |

- a=201: When ACK output position is specified

| Setting Status | | Sending Data | | | | |
|----------------|---------------------|--------------|----------|----------|----------|----------|
| Stored Value | ACK Output Position | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 1 | ACK-in-Busy | 49("1") | — | — | — | — |
| 2 | ACK-while-Busy | 50("2") | — | — | — | — |
| 3 | ACK-after-Busy | 51("3") | — | — | — | — |

- a=202: Input buffer full Busy output/cancel timing

| Setting Status | | Sending Data | | | | |
|----------------|--------------------|--------------|----------|----------|----------|----------|
| Stored Value | BUSY Output/Cancel | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 1 | | 49("1") | — | — | — | — |
| 2 | | 50("2") | — | — | — | — |
| 3 | | 51("3") | — | — | — | — |
| 4 | | 52("4") | — | — | — | — |

PMU2XXX

- a=220: When maximum black mark width is specified

| Setting Status | | Sending Data | | | | |
|----------------|-------------------|--------------|----------|----------|----------|----------|
| Stored Value | Maximum B.M Width | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 0 | 0dot | 49(^1") | 48(^0") | 48(^0") | 48(^0") | 48(^0") |
| ⋮ | ⋮ | ⋮ | ⋮ | ⋮ | ⋮ | ⋮ |
| 32767 | 32767dot | 51(^3") | 50(^2") | 55(^7") | 54(^6") | 55(^7") |

- a=221: When maximum length of black mark page is specified

| Setting Status | | Sending Data | | | | |
|----------------|-------------------------|--------------|----------|----------|----------|----------|
| Stored Value | Maximum B.M Page Length | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 0 | 0dot | 49(^1") | 48(^0") | 48(^0") | 48(^0") | 48(^0") |
| ⋮ | ⋮ | ⋮ | ⋮ | ⋮ | ⋮ | ⋮ |
| 32767 | 32767dot | 51(^3") | 50(^2") | 55(^7") | 54(^6") | 55(^7") |

- a=222: When head margin is specified

| Setting Status | | Sending Data | | | | |
|----------------|-------------|--------------|----------|----------|----------|----------|
| Stored Value | Head Margin | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 0 | 0dot | 49(^1") | 48(^0") | 48(^0") | 48(^0") | 48(^0") |
| ⋮ | ⋮ | ⋮ | ⋮ | ⋮ | ⋮ | ⋮ |
| 32767 | 32767dot | 51(^3") | 50(^2") | 55(^7") | 54(^6") | 55(^7") |

- a=223: When bottom margin is specified

| Setting Status | | Sending Data | | | | |
|----------------|---------------|--------------|----------|----------|----------|----------|
| Stored Value | Bottom Margin | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 0 | 0 | 48(^0") | 48(^0") | 48(^0") | — | — |
| ⋮ | ⋮ | ⋮ | ⋮ | ⋮ | ⋮ | ⋮ |
| 255 | 255 | 50(^2") | 53(^5") | 53(^5") | — | — |

- a=224: When cut distance is specified

| Setting Status | | Sending Data | | | | |
|----------------|--------------|--------------|----------|----------|----------|----------|
| Stored Value | Cut Distance | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 0 | 0 | 48(^0") | 48(^0") | 48(^0") | — | — |
| ⋮ | ⋮ | ⋮ | ⋮ | ⋮ | ⋮ | ⋮ |
| 255 | 255 | 50(^2") | 53(^5") | 53(^5") | — | — |

- a=225: When head distance is specified

| Setting Status | | Sending Data | | | | |
|----------------|---------------|--------------|----------|----------|----------|----------|
| Stored Value | Head Distance | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 0 | 0 | 48(^0") | 48(^0") | 48(^0") | — | — |
| ⋮ | ⋮ | ⋮ | ⋮ | ⋮ | ⋮ | ⋮ |
| 255 | 255 | 50(^2") | 53(^5") | 53(^5") | — | — |

PMU2XXXII

- a=5: When print density is specified

| Setting Status | | Sending Data | | | | |
|----------------|---------------|--------------|----------|----------|----------|----------|
| Stored Value | Print Density | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 65530 | 70% | 54(^6") | 53(^5") | 53(^5") | 51(^3") | 48(^0") |
| 65531 | 75% | 54(^6") | 53(^5") | 53(^5") | 51(^3") | 49(^1") |
| 65532 | 80% | 54(^6") | 53(^5") | 53(^5") | 51(^3") | 50(^2") |
| 65533 | 85% | 54(^6") | 53(^5") | 53(^5") | 51(^3") | 51(^3") |
| 65534 | 90% | 54(^6") | 53(^5") | 53(^5") | 51(^3") | 52(^4") |
| 65535 | 95% | 54(^6") | 53(^5") | 53(^5") | 51(^3") | 53(^5") |
| 0 | Basic density | 48(^0") | — | — | — | — |
| 1 | 105% | 49(^1") | — | — | — | — |
| 2 | 110% | 50(^2") | — | — | — | — |
| 3 | 115% | 51(^3") | — | — | — | — |
| 4 | 120% | 52(^4") | — | — | — | — |
| 5 | 125% | 53(^5") | — | — | — | — |
| 6 | 130% | 54(^6") | — | — | — | — |
| 7 | 135% | 55(^7") | — | — | — | — |
| 8 | 140% | 56(^8") | — | — | — | — |

- a=6: When printing speed is specified

| Setting Status | | Sending Data | | | | |
|----------------|---------------|--------------|----------|----------|----------|----------|
| Stored Value | Print Speed | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 1 | Speed level 1 | 49(^1") | — | — | — | — |
| 2 | Speed level 2 | 50(^2") | — | — | — | — |
| 3 | Speed level 3 | 51(^3") | — | — | — | — |
| 4 | Speed level 4 | 52(^4") | — | — | — | — |
| 5 | Speed level 5 | 53(^5") | — | — | — | — |
| 6 | Speed level 6 | 54(^6") | — | — | — | — |
| 7 | Speed level 7 | 55(^7") | — | — | — | — |
| 8 | Speed level 8 | 56(^8") | — | — | — | — |
| 9 | Speed level 9 | 57(^9") | — | — | — | — |

- a=202: Input buffer full Busy output/cancel timing

| Setting Status | | Sending Data | | | | |
|----------------|--------------------|--------------|----------|----------|----------|----------|
| Stored Value | BUSY Output/Cancel | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 1 | | 49(^1") | — | — | — | — |
| 2 | | 50(^2") | — | — | — | — |
| 3 | | 51(^3") | — | — | — | — |
| 4 | | 52(^4") | — | — | — | — |

- a=220: When maximum black mark width is specified

| Setting Status | | Sending Data | | | | |
|----------------|-------------------|--------------|----------|----------|----------|----------|
| Stored Value | Maximum B.M Width | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 0 | 0dot | 49(^1") | 48(^0") | 48(^0") | 48(^0") | 48(^0") |
| ⋮ | ⋮ | ⋮ | ⋮ | ⋮ | ⋮ | ⋮ |
| 32767 | 32767dot | 51(^3") | 50(^2") | 55(^7") | 54(^6") | 55(^7") |

- a=221: When maximum length of black mark page is specified

| Setting Status | | Sending Data | | | | |
|----------------|-------------------------|--------------|----------|----------|----------|----------|
| Stored Value | Maximum B.M Page Length | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 0 | 0dot | 49(^1") | 48(^0") | 48(^0") | 48(^0") | 48(^0") |
| ⋮ | ⋮ | ⋮ | ⋮ | ⋮ | ⋮ | ⋮ |
| 32767 | 32767dot | 51(^3") | 50(^2") | 55(^7") | 54(^6") | 55(^7") |

- a=222: When head margin is specified

| Setting Status | | Sending Data | | | | |
|----------------|-------------|--------------|----------|----------|----------|----------|
| Stored Value | Head Margin | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 0 | 0dot | 49(^1") | 48(^0") | 48(^0") | 48(^0") | 48(^0") |
| ⋮ | ⋮ | ⋮ | ⋮ | ⋮ | ⋮ | ⋮ |
| 32767 | 32767dot | 51(^3") | 50(^2") | 55(^7") | 54(^6") | 55(^7") |

PMU2XXXII

- a=223: When bottom margin is specified

| Setting Status | | Sending Data | | | | |
|----------------|---------------|--------------|----------|----------|----------|----------|
| Stored Value | Bottom Margin | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 0 | 0 | 48(^0") | 48(^0") | 48(^0") | — | — |
| ⋮ | ⋮ | ⋮ | ⋮ | ⋮ | ⋮ | ⋮ |
| 255 | 255 | 50(^2") | 53(^5") | 53(^5") | — | — |

- a=224: When cut distance is specified

| Setting Status | | Sending Data | | | | |
|----------------|--------------|--------------|----------|----------|----------|----------|
| Stored Value | Cut Distance | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 0 | 0 | 48(^0") | 48(^0") | 48(^0") | — | — |
| ⋮ | ⋮ | ⋮ | ⋮ | ⋮ | ⋮ | ⋮ |
| 255 | 255 | 50(^2") | 53(^5") | 53(^5") | — | — |

- a=225: When head distance is specified

| Setting Status | | Sending Data | | | | |
|----------------|---------------|--------------|----------|----------|----------|----------|
| Stored Value | Head Distance | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 0 | 0 | 48(^0") | 48(^0") | 48(^0") | — | — |
| ⋮ | ⋮ | ⋮ | ⋮ | ⋮ | ⋮ | ⋮ |
| 255 | 255 | 50(^2") | 53(^5") | 53(^5") | — | — |

CT-P292/293

- a=5: When print density is specified

| Setting Status | | Sending Data | | | | |
|----------------|---------------|--------------|----------|----------|----------|----------|
| Stored Value | Print Density | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 65530 | 70% | 54(^6") | 53(^5") | 53(^5") | 51(^3") | 48(^0") |
| 65531 | 75% | 54(^6") | 53(^5") | 53(^5") | 51(^3") | 49(^1") |
| 65532 | 80% | 54(^6") | 53(^5") | 53(^5") | 51(^3") | 50(^2") |
| 65533 | 85% | 54(^6") | 53(^5") | 53(^5") | 51(^3") | 51(^3") |
| 65534 | 90% | 54(^6") | 53(^5") | 53(^5") | 51(^3") | 52(^4") |
| 65535 | 95% | 54(^6") | 53(^5") | 53(^5") | 51(^3") | 53(^5") |
| 0 | Basic density | 48(^0") | — | — | — | — |
| 1 | 105% | 49(^1") | — | — | — | — |
| 2 | 110% | 50(^2") | — | — | — | — |
| 3 | 115% | 51(^3") | — | — | — | — |
| 4 | 120% | 52(^4") | — | — | — | — |
| 5 | 125% | 53(^5") | — | — | — | — |
| 6 | 130% | 54(^6") | — | — | — | — |
| 7 | 135% | 55(^7") | — | — | — | — |
| 8 | 140% | 56(^8") | — | — | — | — |

- a=6: When printing speed is specified

| Setting Status | | Sending Data | | | | |
|----------------|---------------|--------------|----------|----------|----------|----------|
| Stored Value | Print Speed | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 1 | Speed level 1 | 49(^1") | — | — | — | — |
| 2 | Speed level 2 | 50(^2") | — | — | — | — |
| 3 | Speed level 3 | 51(^3") | — | — | — | — |
| 4 | Speed level 4 | 52(^4") | — | — | — | — |
| 5 | Speed level 5 | 53(^5") | — | — | — | — |
| 6 | Speed level 6 | 54(^6") | — | — | — | — |
| 7 | Speed level 7 | 55(^7") | — | — | — | — |
| 8 | Speed level 8 | 56(^8") | — | — | — | — |
| 9 | Speed level 9 | 57(^9") | — | — | — | — |

- a=213: When the flow control of virtual COM is specified.

| Setting Status | | Sending Data | | | | |
|----------------|--------------|--------------|----------|----------|----------|----------|
| Stored Value | Flow control | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 1 | PC setting | 49(^1") | — | — | — | — |
| 2 | DTR/DSR | 50(^2") | — | — | — | — |
| 3 | XON/XOF | 51(^3") | — | — | — | — |

- a=216: When JIS/Shift JIS is specified

| Setting Status | | Sending Data | | | | |
|----------------|---------------|--------------|----------|----------|----------|----------|
| Stored Value | JIS/Shift JIS | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 1 | JIS | 49(^1") | — | — | — | — |
| 2 | Shift JIS | 50(^2") | — | — | — | — |

- a=217: When international character set is specified

| Setting Status | | Sending Data | | | | |
|----------------|-----------------|--------------|----------|----------|----------|----------|
| Stored Value | Int'l char. set | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 1 | U.S.A. | 49(^1") | — | — | — | — |
| 2 | France | 50(^2") | — | — | — | — |
| 3 | Germany | 51(^3") | — | — | — | — |
| 4 | U.K. | 52(^4") | — | — | — | — |
| 5 | Denmark I | 53(^5") | — | — | — | — |
| 6 | Sweden | 54(^6") | — | — | — | — |
| 7 | Italy | 55(^7") | — | — | — | — |
| 8 | Spain I | 56(^8") | — | — | — | — |
| 9 | Japan | 57(^9") | — | — | — | — |
| 10 | Norway | 49(^1") | 48(^0") | — | — | — |
| 11 | Denmark II | 49(^1") | 49(^1") | — | — | — |
| 12 | Spain II | 49(^1") | 50(^2") | — | — | — |
| 13 | Latin America | 49(^1") | 51(^3") | — | — | — |
| 14 | Korea | 49(^1") | 52(^4") | — | — | — |
| 15 | Croatia | 49(^1") | 53(^5") | — | — | — |
| 16 | P.R.China | 49(^1") | 54(^6") | — | — | — |

CT-P292/293

- a=218: When codepage is specified

| Setting Status | | Sending Data | | | | |
|----------------|----------------|--------------|----------|----------|----------|----------|
| Stored Value | Codepage | 1st Byte | 2nd Byte | 3rd Byte | 4th Byte | 5th Byte |
| 1 | Codepage PC437 | 49("1") | — | — | — | — |
| 2 | Katakana | 50("2") | — | — | — | — |
| 3 | Codepage PC850 | 51("3") | — | — | — | — |
| 4 | Codepage PC860 | 52("4") | — | — | — | — |
| 5 | Codepage PC863 | 53("5") | — | — | — | — |
| 6 | Codepage PC865 | 54("6") | — | — | — | — |
| 7 | Codepage PC852 | 55("7") | — | — | — | — |
| 8 | Codepage PC866 | 56("8") | — | — | — | — |
| 9 | Codepage PC857 | 57("9") | — | — | — | — |
| 10 | WPC1252 | 49("1") | 48("0") | — | — | — |
| 11 | Space page | 49("1") | 49("1") | — | — | — |
| 12 | Codepage PC864 | 49("1") | 50("2") | — | — | — |
| 13 | Thaicode18 | 49("1") | 51("3") | — | — | — |

GS (E pL pH fn a d1 d2

[Code] <1D>H<28>H<45>H<pL><pH><fn><a><d1><d2>

[Range] (pL+pH×256)=4 (pL=4, pH=0)
 fn=7
 a=10, 12, 17

- [Outline]** **[The specification which is common to the model]**
- Copies the data of user-defined code page in the font specified by "a".
 - Configuration of customized value No.

| d1 | d2 | Function |
|----|----|---|
| 31 | 30 | Loads the character code page data specified by "a" in storage area to work area. |
| 30 | 31 | Saves the character code page data in work area to the storage area of the font specified by "a". |

- Work area: Area where data is initialized by power OFF or resetting (initialize).
Operation is made in accordance with the data set in this area.
- Storage area: Area where data is not initialized by power OFF or resetting (initialize).
- User-defined code page: Page 255 (ESC t 255)
- This function operates only in printer function setting mode.

[The specification which depend on the model]

CT-S300/CT-S310/CT-S801/CT-S851/CT-S601/CT-S651/CT-P292/293

| a | Font Type |
|----|---------------------------------------|
| 10 | Font B: 9 (horizontal)×17 (vertical) |
| 12 | Font A: 12 (horizontal)×24 (vertical) |
| 17 | Font C: 8 (horizontal)×16 (vertical) |

CT-S280/CT-S281/CT-S2000/CT-S4000/BD2-2220/PMU2XXX/PMU2XXXII

| a | Font Type |
|----|---------------------------------------|
| 10 | Font B: 9 (horizontal)×24 (vertical) |
| 12 | Font A: 12 (horizontal)×24 (vertical) |
| 17 | Font C: 8 (horizontal)×16 (vertical) |

fn=8: Function 8 Defining Data by the Column Format to Character Code Page of Work Area

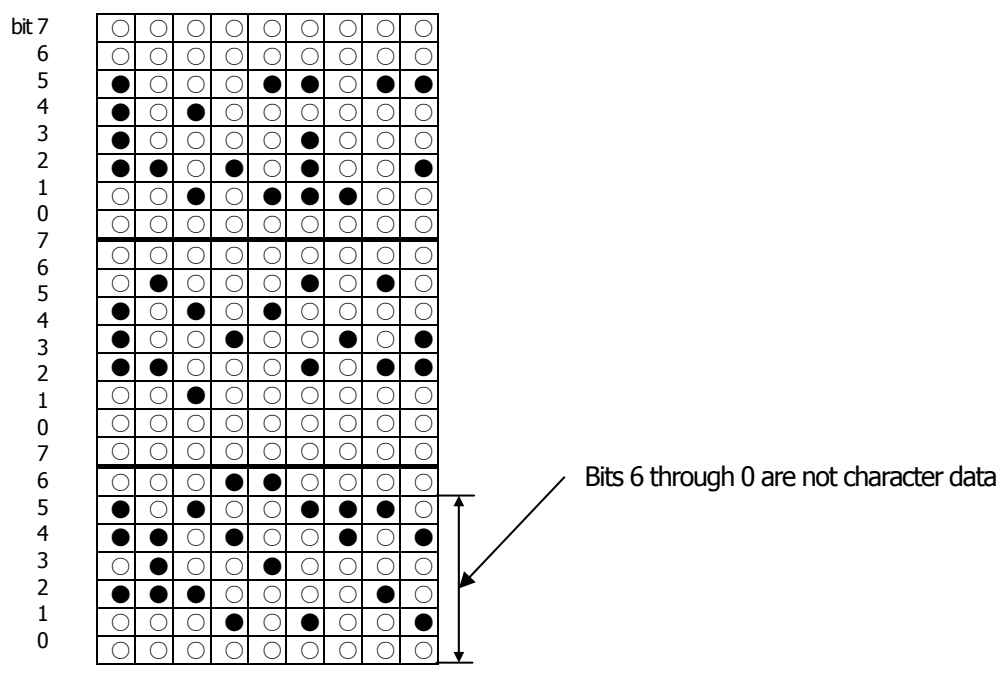
GS (E pL pH fn y c1 c2 [xd1...d(y×x)]k

[Code] <1D>H<28>H<45>H<pL><pH><fn><y><c1><c2>[<x><d1>...<d(y×x)>]<k>

[Range] $5 \leq (pL+pH \times 256) \leq 65535$
 fn=8
 y=2 (At selection of font C)
 y=3 (At selection of other than font C)
 $128 \leq c1 \leq c2 \leq 255$
 $0 \leq x \leq 12$ (At selection of font A)
 $0 \leq x \leq 9$ (At selection of font B)
 $0 \leq x \leq 8$ (At selection of font C)
 $0 \leq d \leq 255$
 $k = c2 - c1 + 1$

- [Outline] **[The specification which is common to the model]**
- Defines the data in column format in units of character on the code page in RAM.
 - Operates only in printer function setting mode.

Data structure(9×17)
 d1 d4d25
 d3 d6d27



fn=9: Function 9 Defining Data in the Raster Format to the Character Code Page of Work Area

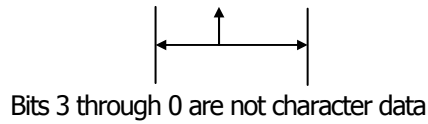
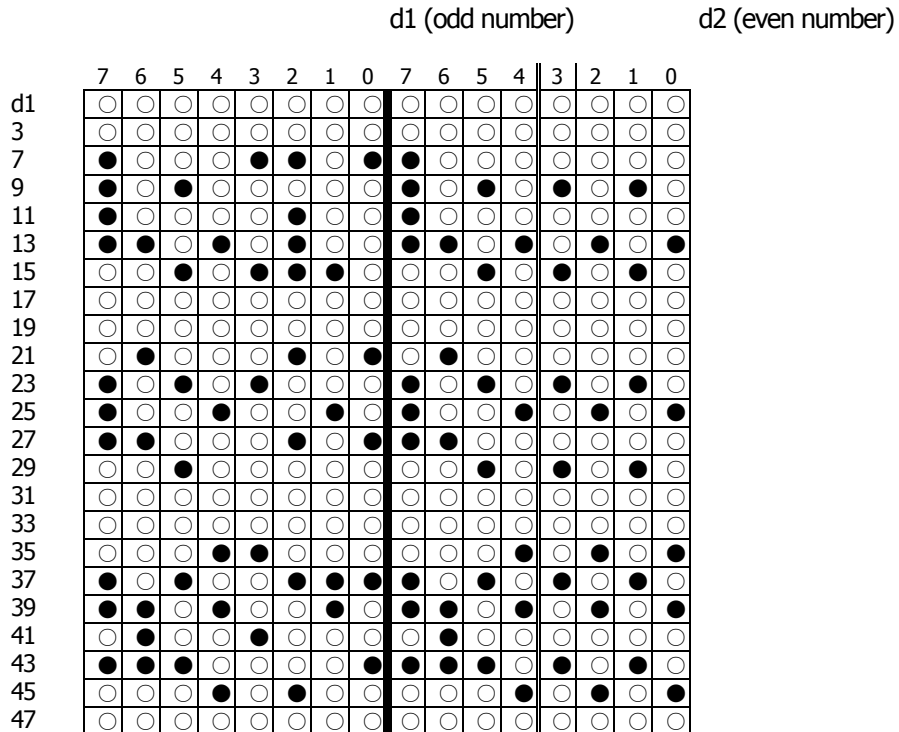
GS (E pL pH fn x c1 c2 [y d1...d(x×y)]k

[Code] <1D>H<28>H<45>H<pL><pH><fn><x><c1><c2>[<y><d1>..<d(yXx)>]<k>

[Range] $5 \leq (pL+pH \times 256) \leq 65535$
 fn=9
 x=1 (At selection of font C), x=2 (At selection of other than font C)
 $128 \leq c1 \leq c2 \leq 255$
 $0 \leq y \leq 24$ (At selection of font A)
 $0 \leq y \leq 16$ (At selection of font C), $0 \leq d \leq 255$
 $k=c2-c1+1$
CT-S300/CT-S310/CT-S801/CT-S851/CT-S601/CT-S651/CT-P292/293
 $0 \leq x \leq 17$ (At selection of font B)
CT-S280/CT-S281/CT-S2000/CT-S4000/BD2-2220/PMU2XXX/PMU2XXXII
 $0 \leq x \leq 24$ (At selection of font B)

- [Outline] **[The specification which is common to the model]**
- Defines the data in raster format in units of character on the character code page in work area.
 - Operates only in printer function setting mode.

Data structure(12×24)



fn=10: Function 10 Erasing Data of Character Code Page Data in Work Area

GS (E pL pH fn c1 c2

[Code] <1D>H<28>H<45>H<pL><pH><fn><c1><c2>

[Range] (pL+pH×256)=3
fn=10
128≤c1≤c2≤255

[Outline] **[The specification which is common to the model]**

- Erases (set to space) data in units of character on the character code page in work area.
- Operates only in printer function setting mode.

fn=11: Function 11 Setting Communication Conditions

GS (E pL pH fn a d1...dk

[Code] <1D>H<28>H<45>H<pL><pH><fn><a><d1>...<dk>

[Range] $3 \leq (pL + pH \times 256) \leq 65535$ ($0 \leq pL \leq 255, 0 \leq pH \leq 255$)
 fn=11
 $1 \leq a \leq 4$ (Not changed in other than specified range)
 $48 \leq d \leq 57$ (Not changed in other than specified range)
 $1 \leq k \leq 6$

[Outline] [The specification which is common to the model]

- Sets the communication conditions of serial interface specified by "a".
- a=1: Setting baud rate

| Baud Rate | d1 | d2 | d3 | d4 | d5 | d6 |
|-----------|---------|---------|---------|---------|---------|---------|
| ⊙1200 | 49("1") | 50("2") | 48("0") | 48("0") | - | - |
| 2400 | 50("2") | 52("4") | 48("0") | 48("0") | - | - |
| 4800 | 52("4") | 56("8") | 48("0") | 48("0") | - | - |
| ▲9600 | 57("9") | 54("6") | 48("0") | 48("0") | - | - |
| △19200 | 49("1") | 57("9") | 50("2") | 48("0") | 48("0") | - |
| 38400 | 51("3") | 56("8") | 52("4") | 48("0") | 48("0") | - |
| ●57600 | 53("5") | 55("7") | 54("6") | 48("0") | 48("0") | - |
| ●115200 | 49("1") | 49("1") | 53("5") | 50("2") | 48("0") | 48("0") |

⊙...support by CT-S280, CT-S281, CT-S2000, CT-S4000, CT-S801, CT-S851, CT-S601, CT-S651, PMU2XXXII

●...support by CT-S280, CT-S2000, CT-S4000, CT-S801, CT-S851, CT-S601, CT-S651, PMU2XXX

* PMU2XXX: Prohibit the use of 57600. CT-P292/293 does not support 115200bps.

△...Default : CT-S300, CT-S310, CT-S2000(JPN/EUR), CT-S4000(JPN/EUR)

▲...Default : CT-S280, CT-S281, CT-S2000(USA), CT-S4000(USA), CT-S801, CT-S851, CT-S601, CT-S651, BD2-2220, PMU2XXX, PMU2XXXII, CT-P292/293

- a=2: Setting to specified parity

| d1 | Parity Setting |
|--------------|----------------|
| 48 (Default) | No parity |
| 49 | Odd parity |
| 50 | Even parity |

- a=3: Setting to specified flow control

| d1 | Flow Control |
|--------------|--------------|
| 48 (Default) | DSR/DTR |
| 49 | XON/XOFF |

- a=4: Setting to specified data length

| d1 | Setting Data Length |
|--------------|---------------------|
| 55 | 7-bit length |
| 56 (Default) | 8-bit length |

- Operates only in printer function setting mode.
- Which of dip SW or memory SW is used at initialization depends on "Selecting communication condition setting" of dip SW1-1.

fn=12: Function 12 Sending the Set Communication Conditions

GS (E pL pH fn a

[Code] <1D>H<28>H<45>H<pL><pH><fn><a>

[Range] (pL+pH×256)=2 (pL=2, pH=0)
fn=12
1≤a≤4 (Does not send in other than specified range)

[Outline] **[The specification which is common to the model]**
• Sends communication conditions of serial interface specified by "a".

| | Hex. | No. of Data |
|--------------------------------------|----------------------|-------------|
| Header | 37H | 1 |
| ID | 33H | 1 |
| Kind of communication conditions (a) | 31H("1") to 34H("4") | 1 |
| Separation number | 1FH | 1 |
| Set value | 30H to 39H | 1 to 6 |
| NULL | 00H | 1 |

• Set value

a=1: At specification of baud rate

| Baud Rate | d1 | d2 | d3 | d4 | D5 | d6 |
|-----------------|---------|---------|---------|---------|---------|---------|
| ⊙1200 | 49("1") | 50("2") | 48("0") | 48("0") | - | - |
| 2400 | 50("2") | 52("4") | 48("0") | 48("0") | - | - |
| 4800 | 52("4") | 56("8") | 48("0") | 48("0") | - | - |
| 9600 | 57("9") | 54("6") | 48("0") | 48("0") | - | - |
| 19200 (Default) | 49("1") | 57("9") | 50("2") | 48("0") | 48("0") | - |
| 38400 | 51("3") | 56("8") | 52("4") | 48("0") | 48("0") | - |
| ●57600 | 53("5") | 55("7") | 54("6") | 48("0") | 48("0") | - |
| ●115200 | 49("1") | 49("1") | 53("5") | 50("2") | 48("0") | 48("0") |

⊙...support by CT-S280, CT-S281, CT-S2000, CT-S4000, CT-S801, CT-S851, CT-S601, CT-S651, PMU2XXXII

●...support by CT-S280, CT-S2000, CT-S4000, PMU2XXX, PMU2XXXII, CT-P292/293

(CT-P292/293 does not support.)

a=2: At specification of parity

| d1 | Parity Setting |
|----|----------------|
| 48 | No parity |
| 49 | Odd parity |
| 50 | Even parity |

a=3: At specification of flow control

| d1 | Flow Control |
|----|--------------|
| 48 | DTR/DSR |
| 49 | XON/XOFF |

a=4: At specification of data length

| d1 | Setting Data Length |
|----|---------------------|
| 48 | 7-bit length |
| 49 | 8-bit length |

fn=255: Function 255 Setting All Contents Set by Printer Function Setting Mode to the State at Shipment

GS (E pL pH fn a

[Code] <1D>H<28>H<45>H<pL><pH><fn><a>

[Range] (pL+pH×256)=2
fn=255
a=3, 5, 11, 255

[Outline] **[The specification which is common to the model]**

- Restores various kinds of function set by printer function setting mode to the setting at the time of shipment (initial value described in User's Manual).

| a | Function |
|-----|--|
| 3 | Memory switch |
| 5 | Customized value |
| 7 | Character code |
| 11 | Communication conditions of serial interface |
| 255 | Sets all contents set in printer function setting mode to the state at the time of shipment. |

GS (K pL pH fn m

| | | | | | | |
|---------------|---------|---------|-------------|-------------|-------------|-----------|
| Support model | CT-S280 | CT-S300 | CT-S2000 | CT-S4000 | BD2-2220 | PMU2XXX |
| | CT-S281 | CT-S310 | CT-S801/851 | CT-S601/651 | CT-P292/293 | PMU2XXXII |

[Function] Selecting print control method

[Outline] **[The specification which is common to the model]**
 Executes the setting related to the print control specified by the value of "fn".

| Function No. (fn) | Function |
|-----------------------------|--|
| Function 49 | Sets printing density. |
| Function 50 | Sets printing speed. |
| Function 97 | Sets the number of divisions for head conducting.* |

*fn=97 is supported by only CT-S300, CT-S310

fn=49: Function 49 Setting Printing Density

GS (K pL pH fn m

[Code] <1D>H<28>H<4B>H<pL><pH><fn><m>

[Range] (pL+pH×256)=2 (pL=2, pH=0)
fn=49
0 ≤ m ≤ 8, 250 ≤ m ≤ 255

[Default] m=0 (Customized value setting value)

[Outline] **[The specification which is common to the model]**
• Sets printing density.

| m | Printing Density |
|-----|----------------------------------|
| 250 | Selects density level -6 (70%) |
| 251 | Selects density level -5 (75%) |
| 252 | Selects density level -4 (80%) |
| 253 | Selects density level -3 (85%) |
| 254 | Selects density level -2 (90%) |
| 255 | Selects density level -1 (95%) |
| 0 | Selects standard density (100%) |
| 1 | Selects density level + 1 (105%) |
| 2 | Selects density level + 2 (110%) |
| 3 | Selects density level + 3 (115%) |
| 4 | Selects density level + 4 (120%) |
| 5 | Selects density level + 5 (125%) |
| 6 | Selects density level + 6 (130%) |
| 7 | Selects density level + 7 (135%) |
| 8 | Selects density level + 8 (140%) |

fn=50: Function 50 Setting Printing Speed

GS (K pL pH fn m

- [Code]** <1D>H<28>H<4B>H<pL><pH><fn><m>
- [Range]** (pL+pH×256)=2 (pL=2, pH=0)
fn=50
 $0 \leq m \leq 9, 48 \leq m \leq 57$
- [Default]** m=0 (Customized value setting)
- [Outline]** **[The specification which is common to the model]**
- Sets printing speed.

| m | Printing Speed |
|-------|----------------------------------|
| 0, 48 | Selects customized value setting |
| 1, 49 | Selects printing speed level 1. |
| 2, 50 | Selects printing speed level 2. |
| 3, 51 | Selects printing speed level 3. |
| 4, 52 | Selects printing speed level 4. |
| 5, 53 | Selects printing speed level 5. |
| 6, 54 | Selects printing speed level 6. |
| 7, 55 | Selects printing speed level 7. |
| 8, 56 | Selects printing speed level 8. |
| 9, 57 | Selects printing speed level 9. |

fn=97: Function 97 Setting Number of Divisions for Head Conducting

GS (K pL pH fn m

[Code] <1D>H<28>H<4B>H<pL><pH><fn><m>

[Range] (pL+pH×256)=2 (pL=2, pH=0)
fn=97
m=0, 24, 48, 50, 52

[Default] m=0 (Customized value setting)

[Outline] [The specification which depend on the model]

CT-S300/CT-S310

- Sets the number of divisions for head conducting.

| m | No. of Divisions for Head Conducting |
|-------|--------------------------------------|
| 0, 48 | Selects customized value setting |
| 2, 50 | Selects 2-division conducting. |
| 4, 52 | Selects 4-division conducting. |

GS (M pL pH fn m

| | | | | | | |
|---------------|---------|---------|-------------|-------------|-------------|-----------|
| Support model | CT-S280 | CT-S300 | CT-S2000 | CT-S4000 | BD2-2220 | PMU2XXX |
| | CT-S281 | CT-S310 | CT-S801/851 | CT-S601/651 | CT-P292/293 | PMU2XXXII |

[Function] Customizing the printer

[Outline] [The specification which is common to the model]

- Executes processing related to escape/recovery of the value set in the work area or the data defined by various kinds of command.

| fn | Function |
|----------------------------|--|
| Function 1 | Copies the set value stored in work area to the storage area. |
| Function 2 | Copies the set value stored in storage area to the work area. |
| Function 3 | Specifies the auto loading function of the set value at initialization to be valid or invalid. |

- Work area:
Area where data is initialized by power OFF of resetting (initialize). Operation is made in accordance with the data set in this area.
- Storage area:
Area where data is not initialized by power OFF or resetting (initialize).

Commands for this function

| Command Type | Command |
|-----------------------------------|---|
| Status relations | ESC c3, GS a |
| Macro registration | GS : |
| Character type | ESC M, ESC R, ESC t |
| Font attribute | ESC !, ESC -, ESC E, ESC G, ESC V, ESC {, GS !, GS B, GS b, GS (N* |
| Line feed amount, character space | ESC SP, ESC 2, ESC 3 |
| Barcode | GS H, GS f, GS h, GS w |
| 2-dimensional code(**) | GS (k<fn65 to 70> |
| Print position | ESC D, ESC T, ESC a, GS L, GS W |
| Kanji control relations | FS !, FS &, FS (A, FS -, FS ., FS C, FS S, FS W |
| Other | ESC c 4, ESC c 5, GS (D, GS (H <fn49>, GS P |

** ... Supported with CT-S2000 and CT-S4000 label models.

* ... Not supported with BD2-2220.

fn=1、 49: Function 1 Copies the set value stored in work area to the storage area

GS (M pL pH fn m

[Code] <1D>H<28>H<4D>H<pL><pH><fn><m>

[Range] (pL+pH×256)=2 (pL=2, pH=0)
fn=1, 49
m=1, 49

[Outline] **[The specification which is common to the model]**
• Copies the set value stored in work area to the storage area.

[Caution] • This command allows writing to non-volatile memory. Therefore, using this command frequently may result in breakage of non-volatile memory. Use this command appropriately [10 times max./day].
• During execution of this command, the printer is in Busy state and stops receiving operation. Therefore, data transmission from the host is prohibited.

fn=2、 50: Function 2 Copies the set value stored in storage area to the work area

GS (M pL pH fn m

[Code] <1D>H<28>H<4D>H<pL><pH><fn><m>

[Range] (pL+pH×256)=2 (pL=2, pH=0)
fn=2, 50
m=0, 1, 48, 49

[Outline] **[The specification which is common to the model]**
• Changes the set value of work area by the value of "m".

| m | Function |
|-------|--|
| 0, 48 | Sets all set values of work area to the initial value described in the specification. |
| 1, 49 | Copies the set value stored in storage area to the work area. When there is no set value in storage area, sets the value to the initial value described in the specification. |

fn=3、 51: Function 3 Specifies the auto loading function of the set value at initialization to be valid or invalid

GS (M pL pH fn m

[Code] <1D>H<28>H<4D>H<pL><pH><fn><m>

[Range] (pL+pH×256)=2 (pL=2, pH=0)
fn=3, 51
m=0, 1, 48, 49

[Outline] [The specification which is common to the model]

- Determines the setting of storage area at initialization to the work area by the value of "m".

| m | Function |
|-------|--|
| 0, 48 | Does not copy data from storage area to work area at initialization. |
| 1, 49 | Copies data from storage area to work area at initialization. |

GS (N pL pH fn m

| | | | | | | |
|---------------|---------|---------|-------------|-------------|-------------|-----------|
| Support model | CT-S280 | CT-S300 | CT-S2000 | CT-S4000 | BD2-2220 | PMU2XXX |
| | CT-S281 | CT-S310 | CT-S801/851 | CT-S601/651 | CT-P292/293 | PMU2XXXII |

[Function] Designating font attribute

[Outline] **[The specification which is common to the model!]**
 • Executes processing of font attribute by the specified fn value.

| fn | Function |
|----|--------------------------|
| 48 | Selects character color. |

fn=48: Function 48 Selects character color

GS (N pL pH fn m

[Code] <1D>H<28>H<4E>H<pL><pH><fn><m>

[Range] (pL+pH×256)=2 (pL=2, pH=0)
 fn=48
 m=49 (At single color paper setting)
 m=49, 50 (At 2-color paper setting)

[Default] m=49

[Outline] **[The specification which is common to the model!]**
 • Prints the succeeding characters with the energy set in m.

| m | Function |
|----|-------------|
| 49 | High energy |
| 50 | Low energy |

2.2.17 2-dimensional code Commands

GS (k pL pH cn fn [parameter]

| | | | | | | |
|---------------|---------|---------|-------------|-------------|-------------|-----------|
| Support model | CT-S280 | CT-S300 | CT-S2000 | CT-S4000 | BD2-2220 | PMU2XXX |
| | CT-S281 | CT-S310 | CT-S801/851 | CT-S601/651 | CT-P292/293 | PMU2XXXII |

[Function] Setting and printing 2-dimensional code

[Outline] **[The specification which is common to the model]**

- Executes processing specified by function code (fn) with the 2-dimensional code specified by cn.
- 2-dimensional codes selectable with the value of cn are shown below.

| cn | 2-dimensional code |
|----|--------------------|
| 48 | PDF417 |
| 49 | QRCode |

- Executes various processing related to 2-dimensional code specified by fn.

| cn | fn | Code | Function No. | Function |
|----|----------------------|-----------------------------------|--|--|
| 48 | 65 | GS (k pL pH cn fn n | Function65 | Sets the number of digits of PDF417. |
| | 66 | GS (k pL pH cn fn n | Function66 | Sets the number of steps of PDF417. |
| | 67 | GS (k pL pH cn fn n | Function67 | Sets the module width of PDF417. |
| | 68 | GS (k pL pH cn fn n | Function68 | Sets the height of the step of PDF417. |
| | 69 | GS (k pL pH cn fn m n | Function69 | Sets error correction level of PDF417. |
| | 70 | GS (k pL pH cn fn m | Function70 | Sets the option of PDF417. |
| | 80 | GS (k pL pH cn fn m d1 ... dk | Function80 | Stores received data to symbol storage area*. |
| | 81 | GS (k pL pH cn fn m | Function81 | Prints 2-dimensional code data* of 2-dimensional code data storage area. |
| 82 | GS (k pL pH cn fn m | Function82 | Sends size information of 2-dimensional code data in 2-dimensional code data storage area. | |

| cn | fn | Code | Function No. | Function |
|----|----------------------|-----------------------------------|--|---|
| 49 | 65 | GS (k pL pH cn fn n1 n2 | Function165 | Specifies QRCode model. |
| | 67 | GS (k pL pH cn fn n | Function167 | Sets the size of QRCode module. |
| | 69 | GS (k pL pH cn fn m n | Function169 | Sets error correction level of QRCode. |
| | 80 | GS (k pL pH cn fn m d1 ... dk | Function180 | Stores received data to 2-dimensional code data storage area. |
| | 81 | GS (k pL pH cn fn m | Function181 | Prints 2-dimensional code data in 2-dimensional code data storage area. |
| 82 | GS (k pL pH cn fn m | Function182 | Sends the size information of 2-dimensional code data in 2-dimensional code data storage area. | |

* 2-dimensional code data storage area ... Indicates the area where [cn=48: Function 80], and [cn=49: Function 180] data are stored.

* 2-dimensional code data ... Indicates data (d1 ... dk) of [cn=48: Function 80], [cn=49: Function 180].

fn=65: Function 65 Setting the number of digits of PDF417

GS (k pL pH cn fn n

| | |
|-----------|--|
| [Code] | <1D>H<28>H<6B>H<pL><pH><cn><fn><n> |
| [Range] | (pL+pH×256)=3 (pL=3, pH=0) cn=48 fn=65 0≤n≤30 |
| [Outline] | [The specification which is common to the model] <ul style="list-style-type: none">• Sets the number of digits of PDF417.• With n=0, automatic processing is specified.<ul style="list-style-type: none">* For the number of digits in this case, the number of code words is calculated based on current print area.• With n≠0, the number of digits of PDF417 data area is designated to n code word. |
| [Caution] | [The specification which is common to the model] <ul style="list-style-type: none">• Start pattern and stop pattern are not included in the number of digits.• Left-step indicator code word and right-step indicator code word are not included in the number of digits. |
| [Default] | n=0 |

fn=66: Function 66 Setting the number of steps of PDF417

GS (k pL pH cn fn n

| | |
|-----------|---|
| [Code] | <1D>H<28>H<6B>H<pL><pH><cn><fn><n> |
| [Range] | (pL+pH×256)=3 (pL=3, pH=0) cn=48 fn=66 n=0, 3≤n≤90 |
| [Outline] | [The specification which is common to the model] <ul style="list-style-type: none">• Sets the number of steps of PDF417.• With n=0, automatic processing is specified.<ul style="list-style-type: none">* The number of steps in this case is calculated based on the number of code words and current print area.• With n≠0, the number of steps of PDF417 is set to n steps. |
| [Default] | n=0 |

fn=67: Function 67 Setting module width of PDF417

GS (k pL pH cn fn n

| | |
|-----------|---|
| [Code] | <1D>H<28>H<6B>H<pL><pH><cn><fn><n> |
| [Range] | (pL+pH×256)=3 (pL=3, pH=0) cn=48 fn=67 2≤n≤8 |
| [Outline] | [The specification which is common to the model] <ul style="list-style-type: none">• Sets the width of one module of PDF417 to n dots. |
| [Default] | n=3 |

fn=68: Function 68 Setting the height of step of PDF417

GS (k pL pH cn fn n

| | |
|-----------|--|
| [Code] | <1D>H<28>H<6B>H<pL><pH><cn><fn><n> |
| [Range] | (pL+pH×256)=3 (pL=3, pH=0) cn=48 fn=68 2≤n≤8 |
| [Outline] | [The specification which is common to the model] <ul style="list-style-type: none">• Sets the height of the step of PDF417 to [Module width (Function 67) x n]. |
| [Default] | n=3 |

fn=69: Function 69 Setting error correction level of PDF417

GS (k pL pH cn fn m n

[Code] <1D>H<28>H<6B>H<pL><pH><cn><fn><m><n>

[Range] (pL+pH×256)=4 (pL=4, pH=0)
 cn=48
 fn=69
 m=48, 49
 48≤n≤56 (when m=48 is specified)
 1≤n≤40 (when m=49 is specified)

[Outline] **[The specification which is common to the model]**

- Sets error correction level of PDF417
- When m=48, set by the level of n.

| n | Fncion | Error Correction Code Words |
|----|-----------------------------------|-----------------------------|
| 48 | Selects error correction level 0. | 2 |
| 49 | Selects error correction level 1. | 4 |
| 50 | Selects error correction level 2. | 8 |
| 51 | Selects error correction level 3. | 16 |
| 52 | Selects error correction level 4. | 32 |
| 53 | Selects error correction level 5. | 64 |
| 54 | Selects error correction level 6. | 128 |
| 55 | Selects error correction level 7. | 256 |
| 56 | Selects error correction level 8. | 512 |

- When m=49, [set by the ratio (nx10%)] to the number of data code words.
- Calculation result (A) = Value of (number of data code words nx0.1) rounded to the nearest one.

| Result (A) | Fncion | Error Correction Code Words |
|------------|-----------------------------------|-----------------------------|
| 0 to 3 | Selects error correction level 1. | 4 |
| 4 to 10 | Selects error correction level 2. | 8 |
| 11 to 20 | Selects error correction level 3. | 16 |
| 21 to 45 | Selects error correction level 4. | 32 |
| 46 to 100 | Selects error correction level 5. | 64 |
| 101 to 200 | Selects error correction level 6. | 128 |
| 201 to 400 | Selects error correction level 7. | 256 |
| 401 to | Selects error correction level 8. | 512 |

[Default] m=49, n=1

fn=70: Function 70 Setting Options for PDF417

GS (k pL pH cn fn m

[Code] <1D>H<28>H<6B>H<pL><pH><cn><fn><m>

[Range] (pL+pH×256)=3 (pL=3, pH=0)
cn=48
fn=70
m=0, 1

[Outline] [The specification which depend on the model]
• Specifies or clears the PDF417 option.

| m | Function |
|---|--|
| 0 | Canceling Processing of simple PDF417 |
| 1 | Specifying Processing of simple PDF417 |

[Caution] • When cleared with m=0, standard processing for PDF417 is conducted thereafter.

[Default] m=0

fn=80: Function 80 Storing received data to 2-dimensional code data storage area

GS (k pL pH cn fn m d1...dk

[Code] <1D>H<28>H<6B>H<pL><pH><cn><fn><m><d1...dk>

[Range] $4 \leq (pL+pH \times 256) \leq 65535$ ($0 \leq pL \leq 255$, $0 \leq pH \leq 255$)
cn=48
fn=80
m=48
 $0 \leq d \leq 255$
 $k = (pL+pH \times 256) - 3$

[Outline] [The specification which is common to the model]
• Stores PDF417 2-dimensional code data (d1...dk) to 2-dimensional code data storage area.
• Processes [(pL+pH×256)-3] of d1 and thereafter as 2-dimensional code data.

[Sample Program]

[Print Results]

[Refer to Sample Program and Print Results for fn=81: Function181.](#)

fn=81: Function 81 Printing 2-dimensional code data in 2-dimensional code data storage area

GS (k pL pH cn fn m

[Code] <1D>H<28>H<6B>H<pL><pH><cn><fn><m>

[Range] (pL+pH×256)=3 (pL=3, pH=0)
cn=48
fn=81
m=48

[Outline] **[The specification which is common to the model]**
• Prints PDF417 stored in 2-dimensional code data storage area.

[Caution] **[The specification which is common to the model]**
• Quiet zone (blank area around PDF417) shall be secured by the user.

[Sample Program]

```
LPRINT CHR$( &H1D ); "(" ; "k"; CHR$(10); CHR$(0); CHR$(48); CHR$(80); CHR$(48);  
LPRINT "CITIZEN"  
LPRINT CHR$( &H1D ); "(" ; "k"; CHR$(3); CHR$(0); CHR$(48); CHR$(81); CHR$(48);
```

[Print Results]



fn=82: Function 82 Sending the size of 2-dimensional code data in 2-dimensional code data storage area

GS (k pL pH cn fn m

[Code] <1D>H<28>H<6B>H<pL><pH><cn><fn><m>

[Range] (pL+pH×256)=3 (pL=3,pH=0)
 cn=48
 fn=82
 m=48

[Outline] **[The specification which is common to the model]**

- Sends the size information when printing 2-dimensional data stored in the 2-dimensional code data storage area.

| | Hex | Decimal | Data Size |
|-----------------|------------|----------|--------------|
| Header | 37H | 55 | 1 byte |
| Identifier | 2FH | 47 | 1 byte |
| Horizontal size | 30H to 39H | 48 to 57 | 1 to 5 bytes |
| Separator | 1FH | 31 | 1 byte |
| Vertical size | 30H to 39H | 48 to 57 | 1 to 5 bytes |
| Separator | 1FH | 31 | 1 byte |
| Fixed value | 31H | 49 | 1 byte |
| Separator | 1FH | 31 | 1 byte |
| Other info | 30H or 31H | 48 or 49 | 1 byte |
| NUL | 00H | 0 | 1 byte |

- "Horizontal size" and "Vertical size" indicate the number of dots of PDF417.
- Other info indicates whether symbol is printable or not.

| Hex | Decimal | Information |
|-----|---------|---------------|
| 30H | 48 | Printable |
| 31H | 49 | Not printable |

[Caution] **[The specification which is common to the model]**

- PDF417 is not printed with the processing of this function.
- Quiet zone (blank area around PDF417 symbol) is not included in the size information.

fn=65: Function 165 Specifying QRCode model

GS (k pL pH cn fn n1 n2

[Code] <1D>H<28>H<6B>H<pL><pH><cn><fn><n1><n2>

[Range] (pL+pH×256)=4 (pL=4, pH=0)
cn=49
fn=65
n1=49, 50
n2=0

[Outline] [The specification which is common to the model]
• Specifies QRCode model.

| n1 | Function |
|----|---------------|
| 49 | Sets model 1. |
| 50 | Sets model 2. |

[Default] n1=50
n2=0

fn=67: Function 167 Sets the module width of QRCode

GS (k pL pH cn fn n

[Code] <1D>H<28>H<6B>H<pL><pH><cn><fn><n>

[Range] (pL+pH×256)=3 (pL=3, pH=0)
cn=49
fn=67
 $1 \leq n \leq 16$

[Outline] [The specification which is common to the model]
• Sets the width of 1 module of QRCode to n dots.

[Default] n=3

fn=69: Function 169 Setting QRCode error correction level

GS (k pL pH cn fn n

[Code] <1D>H<28>H<6B>H<pL><pH><cn><fn><n>

[Range] (pL+pH×256)=3 (pL=3, pH=0)
 cn=49
 fn=69
 48≤n≤51

[Outline] [The specification which is common to the model]
 • Sets QRCode error correction level.

| n | Function | Ref.: Recovery power (%) approximated |
|----|-----------------------------------|---------------------------------------|
| 48 | Selects error correction level L. | 7 |
| 49 | Selects error correction level M. | 15 |
| 50 | Selects error correction level Q. | 25 |
| 51 | Selects error correction level H. | 30 |

fn=80: Function 180 Storing received data to 2-dimensional code data storage area

GS (k pL pH cn fn m d1...dk

[Code] <1D>H<28>H<6B>H<pL><pH><cn><fn><m><d1...dk>

[Range] $4 \leq (pL+pH \times 256) \leq 7092$ ($0 \leq pL \leq 255$, $0 \leq pH \leq 28$)
 cn=49
 fn=80
 m=48
 $0 \leq d \leq 255$
 $k = (pL+pH \times 256) - 3$

[Outline] [The specification which is common to the model]
 • Stores QRCode 2-dimensional code data (d1...dk) to 2-dimensional code data storage area.
 • Processes $[(pL+pH \times 256) - 3]$ of d1 and thereafter as 2-dimensional code data.

[Sample Program]

[Print Results]

[Refer to Sample Program and Print Results for fn=81: Function181.](#)

fn=81: Function 181 Printing 2-dimensional code data in 2-dimensional code data storage area

GS (k pL pH cn fn m

[Code] <1D>H<28>H<6B>H<pL><pH><cn><fn><m>

[Range] (pL+pH×256)=3 (pL=3, pH=0)
cn=49
fn=81
m=48

[Outline] **[The specification which is common to the model]**
• Prints QRCode data stored in 2-dimensional code data storage area.

[Caution] **[The specification which is common to the model]**
• Quiet zone (blank area around QRCode) shall be secured by the user.

[Sample Program]

```
LPRINT CHR$(&H1D) ; "(" ; "k" ; CHR$(10) ; CHR$(0) ; CHR$(49) ; CHR$(80) ; CHR$(48) ;  
LPRINT "CITIZEN"  
LPRINT CHR$(&H1D) ; "(" ; "k" ; CHR$(3) ; CHR$(0) ; CHR$(49) ; CHR$(81) ; CHR$(48) ;
```

[Print Results]



**fn=82: Function 182 Sending the size of 2-dimensional code data in
2-dimensional code data storage area**

GS (k pL pH cn fn m

[Code] <1D>H<28>H<6B>H<pL><pH><cn><fn><m>

[Range] (pL+pH×256)=3(pL=3, pH=0)
cn=49
fn=82
m=48

[Outline] **[The specification which is common to the model]**

- Sends the size information when printing 2-dimensional data stored in the 2-dimensional code data storage area.

| | Hex | Decimal | Data size |
|-----------------|------------|----------|--------------|
| Header | 37H | 55 | 1 byte |
| Identifier | 2FH | 47 | 1 byte |
| Horizontal size | 30H to 39H | 48 to 57 | 1 to 5 bytes |
| Separator | 1FH | 31 | 1 byte |
| Vertical size | 30H to 39H | 48 to 57 | 1 to 5 bytes |
| Separator | 1FH | 31 | 1 byte |
| Fixed value | 31H | 49 | 1 byte |
| Separator | 1FH | 31 | 1 byte |
| Other info | 30H or 31H | 48 or 49 | 1 byte |
| NUL | 00H | 0 | 1 byte |

- "Horizontal size" and "Vertical size" indicate the number of dots of QRCode.
- Other info indicates whether symbol is printable or not.

| Hex | Decimal | Information |
|-----|---------|---------------|
| 30H | 48 | Printable |
| 31H | 49 | Not printable |

[Caution] **[The specification which depend on the model]**

- QRCode is not printed with the processing of this function.
- Quiet zone (blank area around QRCode symbol) is not included in the size information.

2.2.18 Other Commands

DLE ENQ n

| | | | | | | |
|---------------|---------|---------|-------------|-------------|-------------|-----------|
| Support model | CT-S280 | CT-S300 | CT-S2000 | CT-S4000 | BD2-2220 | PMU2XXX |
| | CT-S281 | CT-S310 | CT-S801/851 | CT-S601/651 | CT-P292/293 | PMU2XXXII |

[Function] Real-time request to printer

[Code] <10>H<05>H<n>

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

[Outline] **[The specification which is common to the model]**

- The printer responds in real-time to the request that the host specifies with number "n".

| n | Function |
|---|---|
| 0 | At the setting of execution of GS ^ by the FEED switch, the same processing as that pressing the FEED switch once is carried out. |
| 1 | After recovering from an error, the printer resumes printing from the beginning of the line where the error occurred. |
| 2 | The printer clears the receive buffer and the print buffer, and then recovers from the error. |

[Caution] **[The specification which is common to the model]**

- (n = 1) or (n = 2) shall be used after removing the error.
- If another data string of <10>H<04>H<n> (1 n 4) is received, the printer acts the same way as with this command. Therefore, the user should be reminded of this fact.

[Example 1]

Suppose a command "ESC * m nL nH [d1 ... dk]", where d1 = <10>H, d2 = <04>H, d3 = <01>H.

- The DLE EOT n command cannot be interleaved into the code string of another command consisting of 2 bytes or more.

[Example 2]

If the printer sends DLE EOT 3 after the host has sent up to ESC 3 in its attempt to send ESC 3 n, the printer handles the ESC 3 as ESC 3 <10>H. Thus, the user should be cautious.

- This command is ignored during transmission of block data.

[See Also] [DLE EOT](#)

DLE DC4 fn m t (Specification of fn = 1)

| | | | | | | |
|---------------|---------|---------|-------------|-------------|-------------|-----------|
| Support model | CT-S280 | CT-S300 | CT-S2000 | CT-S4000 | BD2-2220 | PMU2XXX |
| | CT-S281 | CT-S310 | CT-S801/851 | CT-S601/651 | CT-P292/293 | PMU2XXXII |

[Function] Outputting specified pulse in real-time

[Code] <10>H<14>H<fn><d1> ...<d7>

[Range] fn=1, m=1, 2 t=d3=20, d4=1, d5=6, d6=2, d7=8

[Outline] **[The specification which is common to the model]**

- A signal specified with "t" is output to the connector pin specified with "m".

| m | Connector Pin |
|---|--|
| 0 | Pin No. 2 of drawer kick-out connector |
| 1 | Pin No. 5 of drawer kick-out connector |

- Set the ON time/OFF time to t x100 ms, respectively.

[Caution] **[The specification which is common to the model]**

- If another data string of 10H 04H n (1 n 4) is received, the printer acts the same way as with this command. Therefore, the user should be reminded of this fact.

[Example 1]

Suppose a command "ESC * m nL nH [d1 ... dk]", where d1=10H, d2=04H, d3=01H.

- The DLE EOT n command cannot be interleaved into the code string of another command consisting of 2 bytes or more.

[Example 2]

If the printer sends DLE EOT 3 after the host has sent up to ESC 3 in its attempt to send ESC 3 n, the printer handles the ESC 3 as ESC 3 10H. Thus, the user should be cautious.

- This command is ignored under the following conditions.
 - During sending block data
 - During output of signal to drawer kick connector
 - During occurrence of error

[See Also] [ESC p](#)

DLE DC4 fn d1...d7 (Specification of fn = 8)

| | | | | | | |
|---------------|---------|---------|-------------|-------------|-------------|-----------|
| Support model | CT-S280 | CT-S300 | CT-S2000 | CT-S4000 | BD2-2220 | PMU2XXX |
| | CT-S281 | CT-S310 | CT-S801/851 | CT-S601/651 | CT-P292/293 | PMU2XXXII |

[Function] Buffer clear

[Code] <10>H<14>H<fn><d1> ...<d7>

[Range] fn=8, d1=1, d2=3, d3=20, d4=1, d5=6, d6=2, d7=8

[Outline] **[The specification which is common to the model]**

- Erases all data in receiving buffer or print buffer.
- Sends the following 3-byte data group.

| | Hex. | Decimal | No. of Data |
|------------|------|---------|-------------|
| Header | 37H | 55 | 1 byte |
| Identifier | 25H | 37 | 1 byte |
| NULL | 00H | 0 | 1 byte |

- Enters the state of selecting STANDARD MODE.

[Caution] **[The specification which is common to the model]**

- If another data string of 10H 04H n (1 n 4) is received, the printer acts the same way as with this command. Therefore, the user should be reminded of this fact.

[Example 1]

Suppose a command "ESC * m nL nH [d1 ... dk]", where d1=10H, d2=04H, d3=01H.

- The DLE EOT n command cannot be interleaved into the code string of another command consisting of 2 bytes or more.

[Example 2]

If the printer sends DLE EOT 3 after the host has sent up to ESC 3 in its attempt to send ESC 3 n, the printer handles the ESC 3 as ESC 3 10H. Thus, the user should be cautious.

- This command is ignored during transmission of block data.

ESC = n

| | | | | | | |
|---------------|---------|---------|-------------|-------------|-------------|-----------|
| Support model | CT-S280 | CT-S300 | CT-S2000 | CT-S4000 | BD2-2220 | PMU2XXX |
| | CT-S281 | CT-S310 | CT-S801/851 | CT-S601/651 | CT-P292/293 | PMU2XXXII |

[Function] Data input control

[Code] <1B>H<3D>H<n>

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

[Outline] **[The specification which is common to the model]**

- Selecting equipment for which data input from the host is valid.
- Each bit of "n" indicates as follows.
- When the printer has not been selected, this printer abandons all the received data until it is selected by this command.

| Bit | Equipment | Value | |
|-----|-------------|---------|-------|
| | | 0 | 1 |
| 0 | Printer | Invalid | Valid |
| 1 | Not defined | — | — |
| 2 | Not defined | — | — |
| 3 | Not defined | — | — |
| 4 | Not defined | — | — |
| 5 | Not defined | — | — |
| 6 | Not defined | — | — |
| 7 | Not defined | — | — |

[Caution] **[The specification which is common to the model]**

- Even when the printer has not been selected, it can become BUSY state through printer operation.
- When the printer is deselected, this printer discards all the data until it is selected with this command. (Except DLE EOT, DLE ENQ, and DLE DC4)

[Default] n=1

ESC @

| | | | | | | |
|---------------|---------|---------|-------------|-------------|-------------|-----------|
| Support model | CT-S280 | CT-S300 | CT-S2000 | CT-S4000 | BD2-2220 | PMU2XXX |
| | CT-S281 | CT-S310 | CT-S801/851 | CT-S601/651 | CT-P292/293 | PMU2XXXII |

[Function] Initializing the printer

[Code] <1B>H<40>H

[Outline] **[The specification which is common to the model]**
• Clears data stored in the print buffer and brings various settings to the initial state (Default state).

[Caution] **[The specification which is common to the model]**

- The settings of DIP switches are not read again.
- Data inside the internal input buffer is not cleared.
- Macro definitions are not cleared.
- NV bit image definitions are not cleared.
- Data in the user NV memory is not cleared.

[Sample Program]

```
LPRINT CHR$(&H1B);"!"; CHR$(&H30);  
LPRINT CHR$(&H1B);"V"; CHR$(1);  
LPRINT "AAA"; CHR$(&HA);  
LPRINT CHR$(&H1B);"@";  
LPRINT "AAA"; CHR$(&HA);
```

[Print Results]

▷▷▷

AAA

Each setting has been initialized by this command.

ESC L

| | | | | | | |
|---------------|---------|---------|-------------|-------------|-------------|-----------|
| Support model | CT-S280 | CT-S300 | CT-S2000 | CT-S4000 | BD2-2220 | PMU2XXX |
| | CT-S281 | CT-S310 | CT-S801/851 | CT-S601/651 | CT-P292/293 | PMU2XXXII |

[Function] Selecting PAGE MODE

[Code] <1B>H<4C>H

[Outline] **[The specification which is common to the model]**

- Switches from STANDARD MODE to PAGE MODE.

[Caution] **[The specification which is common to the model]**

- This command is only effective if it entered at the beginning of a line.
- This command is not effective if it is entered when in PAGE MODE.
- STANDARD MODE is restored when printing specified by FF is finished or when ESC S is issued.
- The character mapping start position will be the point specified by ESC T in the print area specified by ESC W.
- The commands listed below, which have separate settings for PAGE MODE and STANDARD MODE, are changed to the settings for PAGE MODE use.
 - (1) Spacing setting: ESC SP, FS S
 - (2) Line feed width setting: ESC 2, ESC 3
- The following commands are valid only in PAGE MODE.
 - (1) ESC V Specifying/canceling 90°-right-turned characters.
 - (2) ESC a Aligning the characters.
 - (3) ESC { Specifying/canceling the inverted characters.
 - (4) GS L Setting the left margin.
 - (5) G3S W Setting the print area width.
- The following commands are disabled in PAGE MODE.
 - (1) GS (A Executes test printing.
 - (2) FS p Prints NV memory bit image.
 - (3) FS q Defines NV memory bit image.
 - (4) GS v 0 Prints raster bit image.
- ESC @ restores STANDARD MODE.

[See Also] [Appendix 5.1.4 "Example of using PAGE MODE"](#)
[FF](#)、[CAN](#)、[ESC FF](#)、[ESC S](#)、[ESC T](#)、[ESC W](#)、[GS W](#)、[GS \](#)

ESC S

| | | | | | | |
|---------------|---------|---------|-------------|-------------|-------------|-----------|
| Support model | CT-S280 | CT-S300 | CT-S2000 | CT-S4000 | BD2-2220 | PMU2XXX |
| | CT-S281 | CT-S310 | CT-S801/851 | CT-S601/651 | CT-P292/293 | PMU2XXXII |

[Function] Selecting STANDARD MODE

[Code] <1B>H<53>H

[Outline] **[The specification which is common to the model]**

- Switches from PAGE MODE to STANDARD MODE.

[Caution] **[The specification which is common to the model]**

- This command is only effective if it is entered when in PAGE MODE.
- Any data mapped in PAGE MODE is erased.
- After this command is executed, the beginning of the line is taken as the next print start position.
- The print area defined by ESC W is initialized.
- The commands listed below, which have separate settings for STANDARD MODE and PAGE MODE, are changed to the settings for STANDARD MODE use.
 - (1) Spacing setting: ESC SP, FS S
 - (2) Line feed width setting: ESC 2, ESC 3
- The following commands are valid only in setting in STANDARD MODE.
 - (1) ESC W Sets the space amount for setting print area in PAGE MODE.
 - (2) ESC T Selects the printing direction of character in PAGE MODE.
 - (3) GS \$ Sets the absolute position of character vertical direction in PAGE MODE.
- STANDARD MODE is selected when the printer is turned on or reset, or when ESC @ is executed.

[See Also] [FF](#), [ESC FF](#), [ESC L](#)

ESC p m n1 n2

| | | | | | | |
|---------------|---------|---------|-------------|-------------|-------------|-----------|
| Support model | CT-S280 | CT-S300 | CT-S2000 | CT-S4000 | BD2-2220 | PMU2XXX |
| | CT-S281 | CT-S310 | CT-S801/851 | CT-S601/651 | CT-P292/293 | PMU2XXXII |

[Function] Generating the specified pulses

[Code] <1B>H<70>H<m><n1><n2>

[Range] m=0, 1, 48, 49
0<n1≤n2≤255

[Outline] **[The specification which is common to the model]**

- The signals specified by "n1" and "n2" are output to the connector pin specified by "m".
- "m" has the followings.

| m | Connector Pin |
|-------|---------------------------|
| 0, 48 | Drawer kick-out pin No. 2 |
| 1, 49 | Drawer kick-out pin No. 5 |

- The ON time is n1 x2 ms, and OFF time n2 x2 ms.

[Caution] **[The specification which is common to the model]**

- When "m" is beyond a definition range, no signal is output, discarding "n1" and "n2".
- The drawer drive duty must be within the following range:

$$\frac{\text{ON time}}{\text{ON time} + \text{OFF time}} \leq 0.2$$

(The OFF time should be 4 times or more longer than the ON time.)

[Sample Program]

```
LPRINT CHR$( &H1B) + "p"
LPRINT CHR$(0);          ..... Selects pin No. 2.
LPRINT CHR$(5);          ..... Sets ON time to 10 ms
LPRINT CHR$(50);         ..... Sets OFF time to 100 ms
```

GS (A pL pH n m

| | | | | | | |
|---------------|---------|---------|-------------|-------------|-------------|-----------|
| Support model | CT-S280 | CT-S300 | CT-S2000 | CT-S4000 | BD2-2220 | PMU2XXX |
| | CT-S281 | CT-S310 | CT-S801/851 | CT-S601/651 | CT-P292/293 | PMU2XXXII |

[Function] Execution of test printing

[Code] <1D>H<28>H<41>H<pL><pH><n><m>

[Range] $(pL+(pH \times 256))=2$ ($pL=2, pH=0$)
 $0 \leq n \leq 2, 48 \leq n \leq 50$
 $1 \leq m \leq 4, 49 \leq m \leq 52$

[Outline] **[The specification which is common to the model]**

- Specified test printing will be executed.
- pL, pH will specify the number of subsequent parameters by $(pL+(pH \times 256))$ bytes.
- "n" will specify the paper for test printing in the following table.

| n | Category of Paper |
|-------|---------------------------|
| 0, 48 | Basic paper (Paper rolls) |
| 1, 49 | Paper rolls |
| 2, 50 | |

- "m" will specify the category of test printing in the following table.

| m | Category of Test Printing |
|-------|---------------------------|
| 1, 49 | Hexadecimal dump |
| 2, 50 | Printer's status printing |
| 3, 51 | Rolling pattern printing |

[The specification which depend on the model]

PMU2XXXII/CT-P292/293

| m | Category of Test Printing |
|-------|--------------------------------|
| 1, 49 | Hexadecimal dump |
| 2, 50 | Printer's status printing |
| 3, 51 | Rolling pattern printing |
| 4, 52 | Memory Switch sitting printing |

[Caution] **[The specification which is common to the model]**

- This command is only valid when processed at the head of a line during the STANDARD MODE.
- The command will be ignored in PAGE MODE.
- During macro definition, if this command is processed, the macro definition is suspended, and the command starts being processed.
- Printer will reset its hard disk after finishing test printing. Therefore, the printer makes download characters, bit map images and macros undefined, clears the reception buffer/print buffer, and returns the various settings to defaults. At this time, the DIP switches are read again.
- Paper cutting is performed at the end of test printing.
 - *Functions with cutter-mounted model and when cutter is set to be enabled.
- Printer will be BUSY when the processing of the command starts.

GS I n

| | | | | | | |
|---------------|---------|---------|-------------|-------------|-------------|-----------|
| Support model | CT-S280 | CT-S300 | CT-S2000 | CT-S4000 | BD2-2220 | PMU2XXX |
| | CT-S281 | CT-S310 | CT-S801/851 | CT-S601/651 | CT-P292/293 | PMU2XXXII |

[Function] Sending the printer ID

[Code] <1D>H<49>H<n>

[Range] **CT-S280/BD2-2220**
 $1 \leq n \leq 3, 49 \leq n \leq 51, 65 \leq n \leq 67, n=69, 112$
CT-S281/CT-S300/CT-S310/CT-S2000/CT-S4000/CT-S801/CT-S851
CT-S601/CT-S651/PMU2XXX/PMU2XXXII/CT-P292/293
 $1 \leq n \leq 4, 49 \leq n \leq 52, 65 \leq n \leq 67, n=69, 112$

[Outline] **[The specification which is common to the model]**

- Sends the specified printer ID.

[Caution] **[The specification which is common to the model]**

- Under DTR/DSR control, the printer sends the printer ID after verifying that the host is ready to receive.
- If the host is not ready to receive, the printer waits for the host to become ready to receive.
- Under XON/XOFF control, the printer sends the printer ID without checking whether or not the host is ready to receive.
- Because this command is executed when data is mapped in the receive buffer, there may be a delay between command receiving and printer ID sending depending on the condition of the receive buffer.
- If ASB (Automatic Status Back) is enabled by GS a, the host must discriminate between the printer ID due to this command and the status due to ASB.

[The specification which depend on the model]

CT-S281/CT-S300/CT-S310/CT-S2000/CT-S4000/CT-S801/CT-S851
CT-S601/CT-S651/PMU2XXX/PMU2XXXII

- Sending the Black mark length is valid only when Black mark paper is selected.

CT-S280

| n | Type of Printer ID | Specification | Value (Hex.) |
|------|--------------------|--------------------------------|--------------|
| 1、49 | Model ID | CT-S280 | 31H |
| 2、50 | Type ID | Refer to table "Type ID" below | |
| 3、51 | ROM version ID | Differs by ROM version. | |

Type ID If n=2, 50 is specified:

| Bit | Meaning | Hex. | Decimal |
|-----|--------------------------------------|------|---------|
| 0 | Not equipped for 2 byte code support | 00H | 0 |
| | Equipped for 2 byte code support | 01H | 1 |
| 1 | Fixed | 00H | 0 |
| 2 | Reserved | 00H | 0 |
| 3 | Reserved | 00H | 0 |
| 4 | Fixed | 00H | 0 |
| 5 | Reserved | 00H | 0 |
| 6 | Reserved | 00H | 0 |
| 7 | Fixed | 00H | 0 |

- Printer information configuration on and after transmitted n=65 is shown below.

| n | Kind of Printer Information | Information |
|-----|-------------------------------|--|
| 65 | Firmware version | Differs by firmware version. |
| 66 | Manufacturer name | CITIZEN |
| 67 | Model name | CT-S280 |
| 69 | Kinds of multi-language fonts | Japanese Kanji specifications: KANJI |
| 112 | State of DSW | Refer to table "DSW" below (only serial model) |

- Sends printer information specified by n=65 or more.

| | Hex. | Number of Data |
|--------|------------|---------------------------------|
| Header | 5FH | 1 |
| Data | 20H to 7FH | Subject to item to be responded |
| NULL | 00H | 1 |

DSW If n=112 is specified:

| Bit | Function | Hex. | Decimal |
|-----|--------------------------|------|---------|
| 0 | Dip switch [DSW5] is OFF | 00H | 0 |
| | Dip switch [DSW5] is ON | 01H | 1 |
| 1 | Dip switch [DSW6] is OFF | 00H | 0 |
| | Dip switch [DSW6] is ON | 02H | 2 |
| 2 | Dip switch [DSW7] is OFF | 00H | 0 |
| | Dip switch [DSW7] is ON | 04H | 4 |
| 3 | Dip switch [DSW8] is OFF | 00H | 0 |
| | Dip switch [DSW8] is ON | 08H | 8 |
| 4 | Reserved | 00H | 0 |
| 5 | Reserved | 00H | 0 |
| 6 | Fixed | 40H | 64 |
| 7 | Fixed | 00H | 0 |

*only serial model

CT-S281

| n | Type of Printer ID | Specification | Value (Hex.) |
|------|--------------------|--------------------------------|--------------|
| 1、49 | Model ID | CT-S281 | 31H |
| 2、50 | Type ID | Refer to table "Type ID" below | |
| 3、51 | ROM version ID | Differs by ROM version. | |

Type ID If n=2, 50 is specified:

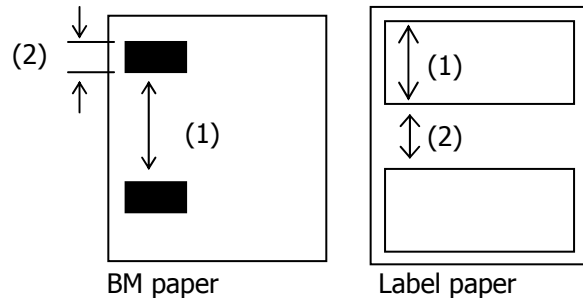
| Bit | Meaning | Hex. | Decimal |
|-----|---|------|---------|
| 0 | Not equipped for 2 byte code support | 00H | 0 |
| | Equipped for 2 byte code support | 01H | 1 |
| 1 | Fixed | 00H | 0 |
| 2 | Thermal paper | 00H | 0 |
| | Black mark paper/ Label paper (when Black mark paper/ Label paper is selected) | 04H | 4 |
| 3 | Reserved | 00H | 0 |
| 4 | Fixed | 00H | 0 |
| 5 | Reserved | 00H | 0 |
| 6 | Reserved | 00H | 0 |
| 7 | Fixed | 00H | 0 |

n = 4, 52 specified (only for B.M/Label specs)

The Black mark length/label gap length and mark interval/label length currently used are returned in 4-byte code. All fractional parts in millimeters are rounded off.

Byte 1 + Byte 2 x256 = Black mark interval/label length

Byte 3 + Byte 4 x256 = Black mark length mm/label gap length



- Printer information configuration on and after transmitted n=65 is shown below.

| n | Kind of Printer Information | Information |
|-----|-------------------------------|---|
| 65 | Firmware version | Differs by firmware version. |
| 66 | Manufacturer name | CITIZEN |
| 67 | Model name | CT-S281 |
| 69 | Kinds of multi-language fonts | Japanese Kanji specifications: KANJI |
| 112 | State of DSW | Refer to table "DSW" below (only serial model) |

DSW If n = 112 is specified:

| Bit | Function | Hex. | Decimal |
|-----|--------------------------|------|---------|
| 0 | Dip switch [DSW8] is OFF | 00H | 0 |
| | Dip switch [DSW8] is ON | 01H | 1 |
| 1 | Dip switch [DSW7] is OFF | 00H | 0 |
| | Dip switch [DSW7] is ON | 02H | 2 |
| 2 | Dip switch [DSW6] is OFF | 00H | 0 |
| | Dip switch [DSW6] is ON | 04H | 4 |
| 3 | Dip switch [DSW5] is OFF | 00H | 0 |
| | Dip switch [DSW5] is ON | 08H | 8 |
| 4 | Dip switch [DSW4] is OFF | 00H | 0 |
| | Dip switch [DSW4] is ON | 10H | 16 |
| 5 | Dip switch [DSW3] is OFF | 00H | 0 |
| | Dip switch [DSW3] is ON | 20H | 32 |
| 6 | Dip switch [DSW2] is OFF | 00H | 0 |
| | Dip switch [DSW2] is ON | 40H | 64 |
| 7 | Dip switch [DSW1] is OFF | 00H | 0 |
| | Dip switch [DSW1] is ON | 80H | 128 |

*only serial model

CT-S300/CT-S310

| n | Type of Printer ID | Specification | Value (Hex.) |
|------|--------------------|----------------------------------|--------------|
| 1、49 | Model ID | CT-S300,CT-S310 | 35H |
| 2、50 | Type ID | Refer to table "Type ID" below | |
| 3、51 | ROM version ID | Differs by ROM version. | |
| 4、52 | Black mark Length | Depends on Black mark paper (mm) | |

Type ID If n=2, 50 is specified:

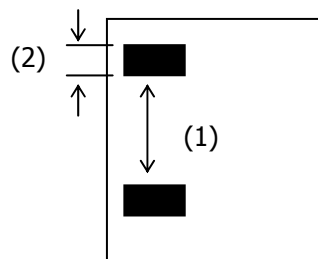
| Bit | Meaning | Hex. | Decimal |
|-----|---|------|---------|
| 0 | Equipped for 2 byte code support | 01H | 1 |
| 1 | Equipped with auto cutter | 02H | 2 |
| 2 | Thermal paper | 00H | 0 |
| | Black mark paper (when Black mark paper is selected) | 04H | 4 |
| 3 | Undefined | -- | -- |
| 4 | Unused | 00H | 0 |
| 5 | Undefined | -- | -- |
| 6 | Undefined | -- | -- |
| 7 | Unused | 00H | 0 |

n = 4, 52 specified (only for B.M specs)

The Black mark length and mark interval currently used are returned in 4-byte code. All fractional parts in millimeters are rounded off.

Byte 1 + Byte 2 x256 = Black mark interval

Byte 3 + Byte 4 x256 = Black mark length mm



Black mark paper

- Printer information configuration on and after transmitted n=65 is shown below.

| n | Kind of Printer Information | Information |
|-----|-------------------------------|--|
| 65 | Firmware version | Differs by firmware version. |
| 66 | Manufacturer name | CBM,CITIZEN |
| 67 | Model name | CT-S300, CT-S310 |
| 69 | Kinds of multi-language fonts | Japanese Kanji specifications: KANJI Hangul specification:KOREA Chinese specifications:CHINA GB18030 |
| 112 | State of DSW | Refer to table "DSW" below (only serial model) |

- Sends printer information specified by n=65 or more.

| | Hex. | Number of Data |
|--------|------------|---------------------------------|
| Header | 5FH | 1 |
| Data | 20H to 7FH | Subject to item to be responded |
| NULL | 00H | 1 |

DSW If n = 112 is specified:

| Bit | Function | Hex. | Decimal |
|-----|--------------------------|------|---------|
| 0 | Dip switch [DSW5] is OFF | 00H | 0 |
| | Dip switch [DSW5] is ON | 01H | 1 |
| 1 | Dip switch [DSW6] is OFF | 00H | 0 |
| | Dip switch [DSW6] is ON | 02H | 2 |
| 2 | Dip switch [DSW7] is OFF | 00H | 0 |
| | Dip switch [DSW7] is ON | 04H | 4 |
| 3 | Dip switch [DSW8] is OFF | 00H | 0 |
| | Dip switch [DSW8] is ON | 08H | 8 |
| 4 | Reserved | 00H | 0 |
| 5 | Reserved | 00H | 0 |
| 6 | Fixed | 40H | 64 |
| 7 | Fixed | 00H | 0 |

*only serial model

CT-S2000

| n | Type of Printer ID | Specification | Value (Hex.) |
|-------|--------------------------|---|--------------|
| 1, 49 | Model ID | CT-S2000 | 51H |
| 2, 50 | Type ID | Refer to table "Type ID" below | |
| 3, 51 | ROM version ID | Differs by ROM version. | |
| 4, 52 | Black mark/ Label Length | Depends on Black mark paper/ Label paper (mm) | |

Type ID If n=2, 50 is specified:

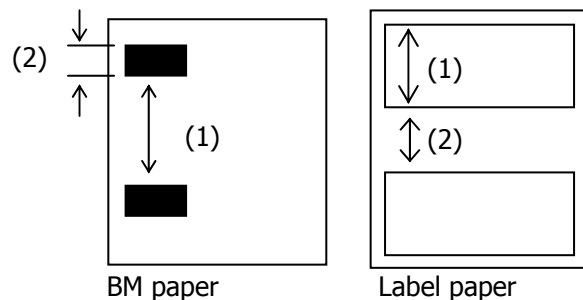
| Bit | Meaning | Hex. | Decimal |
|-----|---|------|---------|
| 0 | Equipped for 2 byte code support | 01H | 1 |
| 1 | Equipped with auto cutter | 02H | 2 |
| 2 | Thermal paper | 00H | 0 |
| | Black mark paper/ Label paper (when Black mark paper/ Label paper is selected) | 04H | 4 |
| 3 | Undefined | -- | -- |
| 4 | Unused | 00H | 0 |
| 5 | Undefined | -- | -- |
| 6 | Undefined | -- | -- |
| 7 | Unused | 00H | 0 |

n = 4, 52 specified (only for B.M/Label specs)

The Black mark length/label gap length and mark interval/label length currently used are returned in 4-byte code. All fractional parts in millimeters are rounded off.

Byte 1 + Byte 2 x256 = Black mark interval/label length

Byte 3 + Byte 4 x256 = Black mark length mm/label gap length



- Printer information configuration on and after transmitted n=65 is shown below.

| n | Kind of Printer Information | Information |
|-----|-------------------------------|--|
| 65 | Firmware version | Differs by firmware version. |
| 66 | Manufacturer name | CITIZEN |
| 67 | Model name | CT-S2000 |
| 69 | Kinds of multi-language fonts | Japanese Kanji specifications: KANJI Hangul specification: KOREA Chinese specifications: CHINA GB18030 |
| 112 | State of DSW | Refer to table "DSW" below (only serial model) |

- Sends printer information specified by n=65 or more.

| | Hex. | Number of Data |
|--------|------------|---------------------------------|
| Header | 5FH | 1 |
| Data | 20H to 7FH | Subject to item to be responded |
| NULL | 00H | 1 |

DSW If n=112 is specified:

| Bit | Function | Hex. | Decimal |
|-----|--------------------------|------|---------|
| 0 | Dip switch [DSW5] is OFF | 00H | 0 |
| | Dip switch [DSW5] is ON | 01H | 1 |
| 1 | Dip switch [DSW6] is OFF | 00H | 0 |
| | Dip switch [DSW6] is ON | 02H | 2 |
| 2 | Dip switch [DSW7] is OFF | 00H | 0 |
| | Dip switch [DSW7] is ON | 04H | 4 |
| 3 | Dip switch [DSW8] is OFF | 00H | 0 |
| | Dip switch [DSW8] is ON | 08H | 8 |
| 4 | Reserved | 00H | 0 |
| 5 | Reserved | 00H | 0 |
| 6 | Fixed | 40H | 64 |
| 7 | Fixed | 00H | 0 |

*only serial model

CT-S4000

| n | Type of Printer ID | Specification | Value (Hex.) |
|------|--------------------------|---|--------------|
| 1、49 | Model ID | CT-S4000 | 55H |
| 2、50 | Type ID | Refer to table "Type ID" below | |
| 3、51 | ROM version ID | Differs by ROM version. | |
| 4、52 | Black mark/ Label Length | Depends on Black mark paper/ Label paper (mm) | |

Type ID If n=2, 50 is specified:

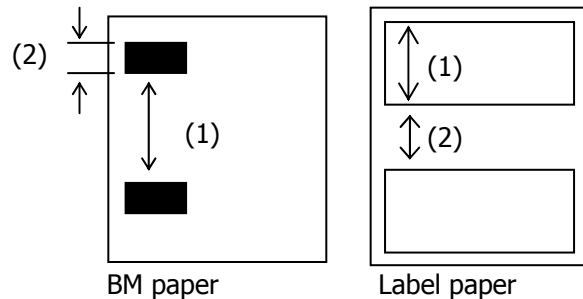
| Bit | Meaning | Hex. | Decimal |
|-----|---|------|---------|
| 0 | Equipped for 2 byte code support | 01H | 1 |
| 1 | Equipped with auto cutter | 02H | 2 |
| 2 | Thermal paper | 00H | 0 |
| | Black mark paper/ Label paper (when Black mark paper/ Label paper is selected) | 04H | 4 |
| 3 | Undefined | -- | -- |
| 4 | Unused | 00H | 0 |
| 5 | Undefined | -- | -- |
| 6 | Undefined | -- | -- |
| 7 | Unused | 00H | 0 |

n = 4, 52 specified (only for B.M/Label specs)

The Black mark length/label gap length and mark interval/label length currently used are returned in 4-byte code. All fractional parts in millimeters are rounded off.

Byte 1 + Byte 2 x256 = Black mark interval/label length

Byte 3 + Byte 4 x256 = Black mark length mm/label gap length



- Printer information configuration on and after transmitted n=65 is shown below.

| n | Kind of Printer Information | Information |
|-----|-------------------------------|--|
| 65 | Firmware version | Differs by firmware version. |
| 66 | Manufacturer name | CITIZEN |
| 67 | Model name | CT-S4000 |
| 69 | Kinds of multi-language fonts | Japanese Kanji specifications: KANJI Hangul specification:KOREA Chinese specifications:CHINA GB18030 |
| 112 | State of DSW | Refer to table "DSW" below (only serial model) |

- Sends printer information specified by n=65 or more.

| | Hex. | Number of Data |
|--------|------------|---------------------------------|
| Header | 5FH | 1 |
| Data | 20H to 7FH | Subject to item to be responded |
| NULL | 00H | 1 |

DSW If n=112 is specified:

| Bit | Function | Hex. | Decimal |
|-----|--------------------------|------|---------|
| 0 | Dip switch [DSW5] is OFF | 00H | 0 |
| | Dip switch [DSW5] is ON | 01H | 1 |
| 1 | Dip switch [DSW6] is OFF | 00H | 0 |
| | Dip switch [DSW6] is ON | 02H | 2 |
| 2 | Dip switch [DSW7] is OFF | 00H | 0 |
| | Dip switch [DSW7] is ON | 04H | 4 |
| 3 | Dip switch [DSW8] is OFF | 00H | 0 |
| | Dip switch [DSW8] is ON | 08H | 8 |
| 4 | Reserved | 00H | 0 |
| 5 | Reserved | 00H | 0 |
| 6 | Fixed | 40H | 64 |
| 7 | Fixed | 00H | 0 |

*only serial model

CT-S801/CT-S851/CT-S601/CT-S651

| n | Type of Printer ID | Specification | Value (Hex.) |
|------|--------------------------|---|--------------|
| 1、49 | Model ID | CT-S801/851 | 5DH |
| | | CT-S601/651 | 3DH |
| 2、50 | Type ID | Refer to table "Type ID" below | |
| 3、51 | ROM version ID | Differs by ROM version. | |
| 4、52 | Black mark/ Label Length | Depends on Black mark paper/ Label paper (mm) | |

Type ID If n=2, 50 is specified:

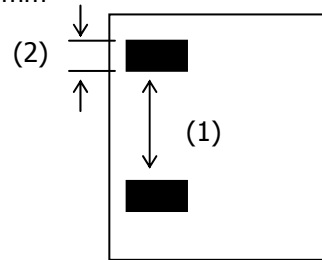
| Bit | Meaning | Hex. | Decimal |
|-----|---|------|---------|
| 0 | Equipped for 2 byte code support | 01H | 1 |
| 1 | Equipped with auto cutter | 02H | 2 |
| 2 | Thermal paper | 00H | 0 |
| | Black mark paper/ Label paper (when Black mark paper/ Label paper is selected) | 04H | 4 |
| 3 | Undefined | -- | -- |
| 4 | Unused | 00H | 0 |
| 5 | Undefined | -- | -- |
| 6 | Undefined | -- | -- |
| 7 | Unused | 00H | 0 |

n = 4, 52 specified (only for B.M/Label specs)

The Black mark length/label gap length and mark interval/label length currently used are returned in 4-byte code. All fractional parts in millimeters are rounded off.

Byte 1 + Byte 2 x256 = Black mark interval

Byte 3 + Byte 4 x256 = Black mark length mm



Black mark paper/Label paper

- Printer information configuration on and after transmitted n=65 is shown below.

| n | Kind of Printer Information | Information |
|-----|-------------------------------|--|
| 65 | Firmware version | Differs by firmware version. |
| 66 | Manufacturer name | CITIZEN |
| 67 | Model name | CT-S801 |
| | | CT-S851 |
| | | CT-S601 |
| | | CT-S651 |
| 69 | Kinds of multi-language fonts | Japanese Kanji specifications: KANJI Hangul specification: KOREA Chinese specifications: CHINA GB18030 |
| 112 | State of DSW | Refer to table "DSW" below (only serial model) |

- Sends printer information specified by n=65 or more.

| | Hex. | Number of Data |
|--------|------------|---------------------------------|
| Header | 5FH | 1 |
| Data | 20H to 7FH | Subject to item to be responded |
| NULL | 00H | 1 |

DSW If n=112 is specified:

| Bit | Function | Hex. | Decimal |
|-----|--------------------------|------|---------|
| 0 | Dip switch [DSW5] is OFF | 00H | 0 |
| | Dip switch [DSW5] is ON | 01H | 1 |
| 1 | Dip switch [DSW6] is OFF | 00H | 0 |
| | Dip switch [DSW6] is ON | 02H | 2 |
| 2 | Dip switch [DSW7] is OFF | 00H | 0 |
| | Dip switch [DSW7] is ON | 04H | 4 |
| 3 | Dip switch [DSW8] is OFF | 00H | 0 |
| | Dip switch [DSW8] is ON | 08H | 8 |
| 4 | Reserved | 00H | 0 |
| 5 | Reserved | 00H | 0 |
| 6 | Fixed | 40H | 64 |
| 7 | Fixed | 00H | 0 |

*only serial model

BD2-2220

| n | Type of Printer ID | Specification | Value (Hex.) |
|-------|--------------------|--------------------------------|--------------|
| 1, 49 | Model ID | BD2-2220 | 59H |
| 2, 50 | Type ID | Refer to table "Type ID" below | |
| 3, 51 | ROM version ID | Differs by ROM version. | |

Type ID If n=2, 50 is specified:

| Bit | Meaning | Hex. | Decimal |
|-----|--------------------------------------|------|---------|
| 0 | Not equipped for 2 byte code support | 00H | 0 |
| | Equipped for 2 byte code support | 01H | 1 |
| 1 | Fixed | 00H | 0 |
| 2 | Reserved | 00H | 0 |
| 3 | Reserved | 00H | 0 |
| 4 | Fixed | 00H | 0 |
| 5 | Reserved | 00H | 0 |
| 6 | Reserved | 00H | 0 |
| 7 | Fixed | 00H | 0 |

Sends the specified printer information.

| n | Kind of Printer Information | Information |
|-----|-------------------------------|--|
| 65 | Firmware version | Differs by firmware version. |
| 66 | Manufacturer name | CITIZEN |
| 67 | Model name | BD2-2220 |
| 69 | Kinds of multi-language fonts | Japanese Kanji specifications: KANJI |
| 112 | State of DSW | Refer to table "DSW" below (only serial model) |

• Sends printer information specified by n=65 or more.

| | Hex. | Number of Data |
|--------|------------|---------------------------------|
| Header | 5FH | 1 |
| Data | 20H to 7FH | Subject to item to be responded |
| NULL | 00H | 1 |

DSW If n=112 is specified:

| Bit | Function | Hex. | Decimal |
|-----|--------------------------|------|---------|
| 0 | Dip switch [DSW5] is OFF | 00H | 0 |
| | Dip switch [DSW5] is ON | 01H | 1 |
| 1 | Dip switch [DSW6] is OFF | 00H | 0 |
| | Dip switch [DSW6] is ON | 02H | 2 |
| 2 | Dip switch [DSW7] is OFF | 00H | 0 |
| | Dip switch [DSW7] is ON | 04H | 4 |
| 3 | Dip switch [DSW8] is OFF | 00H | 0 |
| | Dip switch [DSW8] is ON | 08H | 8 |
| 4 | Reserved | 00H | 0 |
| 5 | Reserved | 00H | 0 |
| 6 | Fixed | 40H | 64 |
| 7 | Fixed | 00H | 0 |

*only serial model

PMU2XXX/PMU2XXXII

| n | Type of Printer ID | Specification | Value (Hex.) |
|------|--------------------|----------------------------------|--------------|
| 1、49 | Model ID | PMU2XXX | 3DH |
| 2、50 | Type ID | Refer to table "Type ID" below | |
| 3、51 | ROM version ID | Differs by ROM version. | |
| 4、52 | Black mark Length | Depends on Black mark paper (mm) | |

Type ID If n=2, 50 is specified:

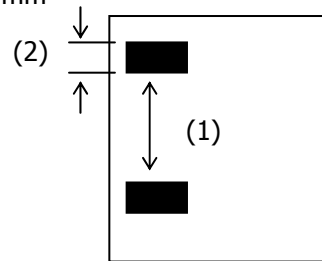
| Bit | Meaning | Hex. | Decimal |
|-----|---|------|---------|
| 0 | Not equipped for 2 byte code support | 00H | 0 |
| | Equipped for 2 byte code support | 01H | 1 |
| 1 | Fixed | 00H | 0 |
| 2 | Thermal paper | 00H | 0 |
| | Black mark paper (when Black mark paper is selected) | 04H | 4 |
| 3 | Reserved | 00H | 0 |
| 4 | Fixed | 00H | 0 |
| 5 | Reserved | 00H | 0 |
| 6 | Reserved | 00H | 0 |
| 7 | Fixed | 00H | 0 |

n = 4, 52 specified (only for B.M specs)

The Black mark length/label gap length and mark interval/label length currently used are returned in 4-byte code. All fractional parts in millimeters are rounded off.

Byte 1 + Byte 2 x256 = Black mark interval

Byte 3 + Byte 4 x256 = Black mark length mm



- Printer information configuration on and after transmitted n=65 is shown below.

| n | Kind of Printer Information | Information |
|-----|-------------------------------|--|
| 65 | Firmware version | Differs by firmware version. |
| 66 | Manufacturer name | CITIZEN |
| 67 | Model name | PMU2XXX |
| 69 | Kinds of multi-language fonts | Japanese Kanji specifications: KANJI |
| 112 | State of DSW | Refer to table "DSW" below (only serial model) |

- Sends printer information specified by n=65 or more.

| | Hex. | Number of Data |
|--------|------------|---------------------------------|
| Header | 5FH | 1 |
| Data | 20H to 7FH | Subject to item to be responded |
| NULL | 00H | 1 |

DSW If n=112 is specified:

| Bit | Function | Hex. | Decimal |
|-----|--------------------------|------|---------|
| 0 | Dip switch [DSW5] is OFF | 00H | 0 |
| | Dip switch [DSW5] is ON | 01H | 1 |
| 1 | Dip switch [DSW6] is OFF | 00H | 0 |
| | Dip switch [DSW6] is ON | 02H | 2 |
| 2 | Dip switch [DSW7] is OFF | 00H | 0 |
| | Dip switch [DSW7] is ON | 04H | 4 |
| 3 | Dip switch [DSW8] is OFF | 00H | 0 |
| | Dip switch [DSW8] is ON | 08H | 8 |
| 4 | Reserved | 00H | 0 |
| 5 | Reserved | 00H | 0 |
| 6 | Fixed | 40H | 64 |
| 7 | Fixed | 00H | 0 |

*only serial model

CT-P292/293

| n | Type of Printer ID | Specification | Value (Hex.) |
|-------|--------------------|--------------------------------|--------------|
| 1, 49 | Model ID | CT-P292/293 | 7DH |
| 2, 50 | Type ID | Refer to table "Type ID" below | |
| 3, 51 | ROM version ID | Differs by ROM version. | |

Type ID If n=2, 50 is specified:

| Bit | Meaning | Hex. | Decimal |
|-----|--------------------------------------|------|---------|
| 0 | Not equipped for 2 byte code support | 00H | 0 |
| | Equipped for 2 byte code support | 01H | 1 |
| 1 | Fixed | 00H | 0 |
| 2 | Thermal paper | 00H | 0 |
| 3 | Reserved | 00H | 0 |
| 4 | Fixed | 00H | 0 |
| 5 | Reserved | 00H | 0 |
| 6 | Reserved | 00H | 0 |
| 7 | Fixed | 00H | 0 |

Printer information configuration on and after transmitted n=65 is shown below.

| n | Kind of Printer Information | Information |
|-----|-------------------------------|--|
| 65 | Firmware version | Differs by firmware version. |
| 66 | Manufacturer name | CITIZEN |
| 67 | Model name | CT-P292/293 (Remark) |
| 69 | Kinds of multi-language fonts | Japanese Kanji specifications: KANJI |
| 112 | State of DSW | Refer to table "DSW" below (only serial model) |

(Remark) Model name depends on DSW setting (Refer to table "DSW")

- Sends printer information specified by n=65 or more.

| | Hex. | Number of Data |
|--------|------------|---------------------------------|
| Header | 5FH | 1 |
| Data | 20H to 7FH | Subject to item to be responded |
| NULL | 00H | 1 |

DSW If n = 112 is specified:

| Bit | Function | Hex. | Decimal |
|-----|--------------------------|------|---------|
| 0 | Dip switch [DSW8] is OFF | 00H | 0 |
| | Dip switch [DSW8] is ON | 01H | 1 |
| 1 | Dip switch [DSW7] is OFF | 00H | 0 |
| | Dip switch [DSW7] is ON | 02H | 2 |
| 2 | Dip switch [DSW6] is OFF | 00H | 0 |
| | Dip switch [DSW6] is ON | 04H | 4 |
| 3 | Dip switch [DSW5] is OFF | 00H | 0 |
| | Dip switch [DSW5] is ON | 08H | 8 |
| 4 | Dip switch [DSW4] is OFF | 00H | 0 |
| | Dip switch [DSW4] is ON | 10H | 16 |
| 5 | Dip switch [DSW3] is OFF | 00H | 0 |
| | Dip switch [DSW3] is ON | 20H | 32 |
| 6 | Dip switch [DSW2] is OFF | 00H | 0 |
| | Dip switch [DSW2] is ON | 40H | 64 |
| 7 | Dip switch [DSW1] is OFF | 00H | 0 |
| | Dip switch [DSW1] is ON | 80H | 128 |

*only serial model

GS P x y

| | | | | | | |
|---------------|---------|---------|-------------|-------------|-------------|-----------|
| Support model | CT-S280 | CT-S300 | CT-S2000 | CT-S4000 | BD2-2220 | PMU2XXX |
| | CT-S281 | CT-S310 | CT-S801/851 | CT-S601/651 | CT-P292/293 | PMU2XXXII |

[Function] Specifying the basic calculation pitch

[Code] <1D>H<50>H<x><y>

[Range] $0 \leq x \leq 255$, $0 \leq y \leq 255$

[Outline] **[The specification which is common to the model]**

- This command sets the horizontal basic calculation pitch to approx. 25.4/x mm (1/x inches), and the vertical basic calculation pitch to approx. 25.4/y mm (1/y inches).
- If x = 0, the horizontal basic calculation pitch is reverted to the default value.
- If y = 0, the vertical basic calculation pitch is reverted to the default value.

[Caution] **[The specification which is common to the model]**

- The horizontal direction is defined as the direction perpendicular to the paper feed, and the vertical direction is defined as the paper feed direction.
- In STANDARD MODE, the following parameters are used regardless of the character orientation (e.g. inverted or 90°-right-turned).
 - (1) Commands using x: ESC SP, ESC \$, ESC \, FS S, GS L, GS W
 - (2) Commands using y: ESC 3, ESC J
- In PAGE MODE, the parameters used depend on the character orientation, as follows:
 - (1) If the start point specified by ESC T is the top left or bottom right (The characters are mapped in the direction perpendicular to the paper feed):
 - Commands using x: ESC SP, ESC \$, ESC W, ESC \, FS S
 - Commands using y: ESC 3, ESC J, ESC W, GS \$, GS \
 - (2) If the start point specified by ESC T is the top right or bottom left (The characters are mapped in the paper feed direction):
 - Commands using x: ESC 3, ESC J, ESC W, GS \$, GS \
 - Commands using y: ESC SP, ESC \$, ESC W, ESC \, FS S
- This command does not affect any other values that are already set.
- If calculations made in combination with another command generate fractions, the fractions are corrected with the minimum pitch of the mechanism, and the remainder is omitted.

[Default] x=203, y=360

[See Also] [Appendix 5.1 "Explanation on PAGE MODE"](#)
[ESC SP](#), [ESC \\$](#), [ESC 3](#), [ESC J](#), [ESC W](#), [ESC \](#), [GS \\$](#), [GS L](#), [GS W](#)

ESC RS

| | | | | | | |
|---------------|---------|---------|-------------|-------------|-------------|-----------|
| Support model | CT-S280 | CT-S300 | CT-S2000 | CT-S4000 | BD2-2220 | PMU2XXX |
| | CT-S281 | CT-S310 | CT-S801/851 | CT-S601/651 | CT-P292/293 | PMU2XXXII |

[Function] Sound buzzer

[Code] <1B>H<1E>H

[Outline] [The specification which is common to the model]

- Sound the buzzer for 200 ms.

[Caution] [The specification which is common to the model]

- This command is buffered before execution.

[The specification which depend on the model]

CT-S310/CT-S2000/CT-S4000/CT-S801/CT-S851/CT-S601/CT-S651

- Sounds the buzzer when this command is entered even if buzzer is set to disabled with MSW5-1 OFF.

[Sample Program]

```
LPRINT CHR$(&H1B); CHR$(&H1E);
```

[Execution Result]

The buzzer sounds for approx. 200 ms.

3. CHARACTER CODE TABLE

3.1 Code Page

3.1.1 Codepage 00H to 7FH & PC437 (USA, Europe Standard)

| | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
|---|-----|------|----|---|---|---|---|---|---|----|----------|---|---|---|---|---|
| 0 | NUL | DLE | | 0 | @ | P | ` | p | Ç | É | á | ☒ | ⊥ | ⊥ | α | ≡ |
| 1 | | XON | ! | 1 | A | Q | a | q | ü | æ | í | ☒ | ⊥ | ⊥ | β | ± |
| 2 | | | ” | 2 | B | R | b | r | é | Æ | ó | ☒ | ⊥ | ⊥ | Γ | ≥ |
| 3 | | XOFF | # | 3 | C | S | c | s | â | ô | ú | | ⊥ | ⊥ | π | ≤ |
| 4 | EOT | DC4 | \$ | 4 | D | T | d | t | ä | ö | ñ | ⊥ | — | ⊥ | Σ | ∫ |
| 5 | ENQ | | % | 5 | E | U | e | u | à | ò | Ñ | ⊥ | + | ⊥ | σ | ∫ |
| 6 | | | & | 6 | F | V | f | v | â | û | <u>a</u> | ⊥ | ⊥ | ⊥ | μ | ÷ |
| 7 | | | ' | 7 | G | W | g | w | ç | ù | <u>o</u> | ⊥ | ⊥ | ⊥ | τ | ≈ |
| 8 | | CAN | (| 8 | H | X | h | x | ê | ÿ | ı | ⊥ | ⊥ | ⊥ | Φ | ◦ |
| 9 | HT | |) | 9 | I | Y | i | y | ë | ÿ | ı | ⊥ | ⊥ | ⊥ | θ | |
| A | LF | | * | : | J | Z | j | z | è | Ü | ı | | ⊥ | ⊥ | Ω | · |
| B | | ESC | + | ; | K | [| k | { | ï | œ | ½ | ⊥ | ⊥ | ■ | δ | √ |
| C | FF | FS | , | < | L | ¥ | ı | | î | £ | ¼ | ⊥ | ⊥ | ■ | ∞ | ⁿ |
| D | CR | GS | - | = | M |] | m | } | ì | ¥ | ı | ⊥ | — | ■ | ∅ | ² |
| E | | RS | . | > | N | ^ | n | ~ | Ä | Pt | « | ⊥ | ⊥ | ■ | € | ■ |
| F | | | / | ? | O | _ | o | . | Å | f | » | ⊥ | ⊥ | ■ | ∩ | |

3.1.2 Codepage 00H to 7FH & Katakana

| | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
|---|-----|------|----|---|---|---|---|---|---|---|----|---|---|---|---|----|
| 0 | NUL | DLE | | 0 | @ | P | ` | p | _ | ⊥ | SP | ー | タ | ミ | ＝ | × |
| 1 | | XON | ! | 1 | A | Q | a | q | ▬ | ⊥ | ° | ア | チ | ム | ト | 円 |
| 2 | | | ” | 2 | B | R | b | r | ■ | ⊥ | ⌒ | イ | ツ | メ | ト | 年 |
| 3 | | XOFF | # | 3 | C | S | c | s | ■ | ⊥ | ┘ | ウ | テ | モ | ト | 月 |
| 4 | EOT | DC4 | \$ | 4 | D | T | d | t | ■ | — | 、 | エ | ト | ヤ | ▲ | 日 |
| 5 | ENQ | | % | 5 | E | U | e | u | ■ | — | ・ | オ | ナ | ユ | ▶ | 時 |
| 6 | | | & | 6 | F | V | f | v | ■ | | ヲ | カ | ニ | ヨ | ▼ | 分 |
| 7 | | | ' | 7 | G | W | g | w | ■ | | ア | キ | ヌ | ラ | ▼ | 秒 |
| 8 | | CAN | (| 8 | H | X | h | x | | ⌒ | イ | ク | ネ | リ | ♠ | 〒 |
| 9 | HT | |) | 9 | I | Y | i | y | | ⌒ | ウ | ケ | ノ | ル | ♥ | 市 |
| A | LF | | * | : | J | Z | j | z | | ┘ | エ | コ | ハ | レ | ◆ | 区 |
| B | | ESC | + | ; | K | [| k | { | | ┘ | オ | サ | ヒ | ロ | ♣ | 町 |
| C | FF | FS | , | < | L | ¥ | l | | ■ | ⌒ | ヤ | シ | フ | ワ | ● | 村 |
| D | CR | GS | - | = | M |] | m | } | ■ | ⌒ | ユ | ス | ヘ | ン | ○ | 人 |
| E | | RS | . | > | N | ^ | n | ~ | ■ | ┘ | ヨ | セ | ホ | “ | / | ≡ |
| F | | | / | ? | O | _ | o | . | + | ┘ | ツ | ソ | マ | ° | \ | SP |

3.1.3 Codepage 00H to 7FH & PC850 (Multilingual)

| | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
|---|-----|------|----|---|---|---|---|---|---|---|----------|---|---|---|---|--------------|
| 0 | NUL | DLE | | 0 | @ | P | ` | p | Ç | É | á | ☒ | ⊥ | ð | ó | — |
| 1 | | XON | ! | 1 | A | Q | a | q | ü | æ | í | ☒ | ⊥ | Ð | β | ± |
| 2 | | | “ | 2 | B | R | b | r | é | Æ | ó | ☒ | ⊥ | Ê | ô | = |
| 3 | | XOFF | # | 3 | C | S | c | s | â | ô | ú | | ⊥ | Ë | ò | ¾ |
| 4 | EOT | DC4 | \$ | 4 | D | T | d | t | ä | ö | ñ | ⊥ | — | È | ö | ¶ |
| 5 | ENQ | | % | 5 | E | U | e | u | à | ò | Ñ | Á | ⊥ | · | Õ | § |
| 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 | î | þ | ↳ |
| 8 | | CAN | (| 8 | H | X | h | x | ê | ÿ | ¿ | © | ⊥ | ï | þ | ° |
| 9 | HT | |) | 9 | I | Y | i | y | ë | Ö | ® | ⊥ | ⊥ | ⊥ | Ú | ¨ |
| A | LF | | * | : | J | Z | j | z | è | Ü | ¬ | | ⊥ | ⊥ | Û | · |
| B | | ESC | + | ; | K | [| k | { | ï | ø | ½ | ⊥ | ⊥ | ■ | Ü | ' |
| C | FF | FS | , | < | L | ¥ | l | | î | £ | ¼ | ⊥ | ⊥ | ■ | Ý | ³ |
| D | CR | GS | - | = | M |] | m | } | ì | Ø | i | œ | = | ! | Ý | ₂ |
| E | | RS | . | > | N | ^ | n | ~ | Ä | × | « | ¥ | ⊥ | ì | — | ■ |
| F | | | / | ? | O | _ | o | . | Å | f | » | ⊥ | ☒ | ■ | ' | |

3.1.4 Codepage 00H to 7FH & PC860 (Portuguese)

| | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
|---|-----|------|----|---|---|---|---|---|---|----|----------|---|---|---|---|--------------|
| 0 | NUL | DLE | | 0 | @ | P | ` | p | Ç | É | á | ☒ | ⊥ | ⊥ | α | ≡ |
| 1 | | XON | ! | 1 | A | Q | a | q | ü | À | í | ☒ | ⊥ | ⊥ | β | ± |
| 2 | | | “ | 2 | B | R | b | r | é | È | ó | ☒ | ⊥ | ⊥ | Γ | ≥ |
| 3 | | XOFF | # | 3 | C | S | c | s | â | ô | ú | | ⊥ | ⊥ | π | ≤ |
| 4 | EOT | DC4 | \$ | 4 | D | T | d | t | ã | õ | ñ | ⊥ | — | ⊥ | Σ | ∫ |
| 5 | ENQ | | % | 5 | E | U | e | u | à | ò | Ñ | ⊥ | + | ⊥ | σ | ∫ |
| 6 | | | & | 6 | F | V | f | v | Á | Ú | <u>a</u> | ⊥ | ⊥ | ⊥ | μ | ÷ |
| 7 | | | ' | 7 | G | W | g | w | ç | ù | o | ⊥ | ⊥ | ⊥ | τ | ≈ |
| 8 | | CAN | (| 8 | H | X | h | x | ê | ì | ¿ | ⊥ | ⊥ | ⊥ | Φ | ° |
| 9 | HT | |) | 9 | I | Y | i | y | Ê | Õ | ò | ⊥ | ⊥ | ⊥ | θ | |
| A | LF | | * | : | J | Z | j | z | è | Ü | ¬ | | ⊥ | ⊥ | Ω | · |
| B | | ESC | + | ; | K | [| k | { | í | ø | ½ | ⊥ | ⊥ | ■ | δ | √ |
| C | FF | FS | , | < | L | ¥ | l | | ô | £ | ¼ | ⊥ | ⊥ | ■ | ∞ | ⁿ |
| D | CR | GS | - | = | M |] | m | } | ì | Ù | i | ⊥ | — | ■ | ∅ | ₂ |
| E | | RS | . | > | N | ^ | n | ~ | Ã | Pt | « | ⊥ | ⊥ | ■ | € | ■ |
| F | | | / | ? | O | _ | o | . | Â | Ó | » | ⊥ | ⊥ | ■ | ∩ | |

3.1.5 Codepage 00H to 7FH & PC863 (Canadian-French)

| | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
|---|-----|------|----|---|---|---|---|---|---|---|---|---|---|---|---|--------------|
| 0 | NUL | DLE | | 0 | @ | P | ` | p | Ç | É | ! | ☒ | ⊥ | ⊥ | α | ≡ |
| 1 | | XON | ! | 1 | A | Q | a | q | ü | È | ´ | ☒ | ⊥ | ⊥ | β | ± |
| 2 | | | “ | 2 | B | R | b | r | é | Ê | ô | ☒ | ⊥ | ⊥ | Γ | ≥ |
| 3 | | XOFF | # | 3 | C | S | c | s | â | ô | ú | | ⊥ | ⊥ | π | ≤ |
| 4 | EOT | DC4 | \$ | 4 | D | T | d | t | Â | Ë | ¨ | ⊥ | — | ⊥ | Σ | ∫ |
| 5 | ENQ | | % | 5 | E | U | e | u | à | ï | › | ⊥ | ⊥ | ⊥ | σ | ∫ |
| 6 | | | & | 6 | F | V | f | v | ¶ | û | ³ | ⊥ | ⊥ | ⊥ | μ | ÷ |
| 7 | | | ' | 7 | G | W | g | w | ç | ù | - | ⊥ | ⊥ | ⊥ | τ | ≈ |
| 8 | | CAN | (| 8 | H | X | h | x | ê | ø | î | ⊥ | ⊥ | ⊥ | Φ | ◦ |
| 9 | HT | |) | 9 | I | Y | i | y | ë | ô | ⊥ | ⊥ | ⊥ | ⊥ | θ | |
| A | LF | | * | : | J | Z | j | z | è | Ü | ⊥ | | ⊥ | ⊥ | Ω | · |
| B | | ESC | + | ; | K | [| k | { | ï | ø | ½ | ⊥ | ⊥ | ■ | δ | √ |
| C | FF | FS | , | < | L | ¥ | l | | î | £ | ¼ | ⊥ | ⊥ | ■ | ∞ | ⁿ |
| D | CR | GS | - | = | M |] | m | } | = | Ù | ¾ | ⊥ | — | ■ | ∅ | ² |
| E | | RS | . | > | N | ^ | n | ~ | À | Ù | « | ⊥ | ⊥ | ■ | € | ■ |
| F | | | / | ? | O | _ | o | . | š | f | » | ⊥ | ⊥ | ■ | ∩ | |

3.1.6 Codepage 00H to 7FH & PC865 (Nordic)

| | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
|---|-----|------|----|---|---|---|---|---|---|----|----------|---|---|---|---|--------------|
| 0 | NUL | DLE | | 0 | @ | P | ` | p | Ç | É | á | ☒ | ⊥ | ⊥ | α | ≡ |
| 1 | | XON | ! | 1 | A | Q | a | q | ü | æ | í | ☒ | ⊥ | ⊥ | β | ± |
| 2 | | | “ | 2 | B | R | b | r | é | Æ | ó | ☒ | ⊥ | ⊥ | Γ | ≥ |
| 3 | | XOFF | # | 3 | C | S | c | s | â | ô | ú | | ⊥ | ⊥ | π | ≤ |
| 4 | EOT | DC4 | \$ | 4 | D | T | d | t | ä | ö | ñ | ⊥ | — | ⊥ | Σ | ∫ |
| 5 | ENQ | | % | 5 | E | U | e | u | à | ò | Ñ | ⊥ | + | ⊥ | σ | ∫ |
| 6 | | | & | 6 | F | V | f | v | å | û | <u>a</u> | ⊥ | ⊥ | ⊥ | μ | ÷ |
| 7 | | | ' | 7 | G | W | g | w | ç | ù | o | ⊥ | ⊥ | ⊥ | τ | ≈ |
| 8 | | CAN | (| 8 | H | X | h | x | ê | ÿ | ı | ⊥ | ⊥ | ⊥ | Φ | ◦ |
| 9 | HT | |) | 9 | I | Y | i | y | ë | Ö | ⊥ | ⊥ | ⊥ | ⊥ | θ | |
| A | LF | | * | : | J | Z | j | z | è | Ü | ⊥ | | ⊥ | ⊥ | Ω | · |
| B | | ESC | + | ; | K | [| k | { | ï | ø | ½ | ⊥ | ⊥ | ■ | δ | √ |
| C | FF | FS | , | < | L | ¥ | l | | î | £ | ¼ | ⊥ | ⊥ | ■ | ∞ | ⁿ |
| D | CR | GS | - | = | M |] | m | } | ì | Ø | i | ⊥ | — | ■ | ∅ | ₂ |
| E | | RS | . | > | N | ^ | n | ~ | Ä | Pt | « | ⊥ | ⊥ | ■ | € | ■ |
| F | | | / | ? | O | _ | o | . | Å | f | ◊ | ⊥ | ⊥ | ■ | ∩ | |

3.1.7 Codepage 00H to 7FH & PC852 (Easern Europe)

| | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
|---|-----|------|----|---|---|---|---|---|---|---|---|---|---|---|---|----|
| 0 | NUL | DLE | | 0 | @ | P | ` | p | Ç | É | á | ☒ | ⊥ | đ | ó | - |
| 1 | | XON | ! | 1 | A | Q | a | q | ü | Í | í | ☒ | ⊥ | Đ | β | ” |
| 2 | | | “ | 2 | B | R | b | r | é | Í | ó | ☒ | ⊥ | Ď | ó | , |
| 3 | | XOFF | # | 3 | C | S | c | s | â | Ú | ú | | ⊥ | Ě | Ň | ˘ |
| 4 | EOT | DC4 | \$ | 4 | D | T | d | t | ä | Ö | À | ⊥ | — | đ | Ň | ˘ |
| 5 | ENQ | | % | 5 | E | U | e | u | û | Ĺ | ą | Á | + | Ň | Ň | š |
| 6 | | | & | 6 | F | V | f | v | ć | Ÿ | ž | Â | Ă | í | š | ÷ |
| 7 | | | ' | 7 | G | W | g | w | ç | Ś | ž | Ě | Ă | î | š | ↳ |
| 8 | | CAN | (| 8 | H | X | h | x | † | Ś | Ę | Ş | ⊥ | ě | Ŕ | ° |
| 9 | HT | |) | 9 | I | Y | i | y | ë | Ö | ę | ⊥ | ⊥ | ⊥ | Ú | “ |
| A | LF | | * | : | J | Z | j | z | ő | Ü | ť | | ⊥ | ⊥ | Ŕ | · |
| B | | ESC | + | ; | K | [| k | { | õ | ř | ž | ⊥ | ⊥ | ■ | Ů | ů |
| C | FF | FS | , | < | L | ¥ | l | | î | | č | ⊥ | ⊥ | ■ | Ý | Ř |
| D | CR | GS | - | = | M |] | m | } | ž | ł | ş | Ž | = | ⊥ | Ý | ř |
| E | | RS | . | > | N | ^ | n | ~ | Ä | × | « | Ž | + | Ů | ⊥ | ■ |
| F | | | / | ? | O | _ | o | . | Ć | Č | » | ⊥ | ☒ | ■ | ´ | SP |

3.1.8 Codepage 00H to 7FH & PC866 (Russian)

| | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
|---|-----|------|----|---|---|---|---|---|---|---|---|---|---|---|---|-----|
| 0 | NUL | DLE | | 0 | @ | P | ` | p | А | Р | а | ▒ | ┌ | ┐ | р | Ё |
| 1 | | XON | ! | 1 | A | Q | a | q | Б | С | б | ▓ | └ | ┘ | с | ё |
| 2 | | | “ | 2 | B | R | b | r | В | Т | в | ▒ | └ | ┘ | т | ε |
| 3 | | XOFF | # | 3 | C | S | c | s | Г | У | г | | ┘ | ┌ | у | ε |
| 4 | EOT | DC4 | \$ | 4 | D | T | d | t | Д | Ф | д | ┘ | — | ┌ | ф | ї |
| 5 | ENQ | | % | 5 | E | U | e | u | Е | Х | е | ┘ | ┘ | ┌ | ц | і |
| 6 | | | & | 6 | F | V | f | v | Ж | Ц | ж | ┘ | ┘ | ┌ | ц | ў |
| 7 | | | ' | 7 | G | W | g | w | З | Ч | з | ┘ | ┘ | ┘ | ч | |
| 8 | | CAN | (| 8 | H | X | h | x | И | Ш | и | ┘ | ┌ | ┘ | х | ° |
| 9 | HT | |) | 9 | I | Y | i | y | Й | Щ | й | ┘ | ┌ | ┘ | ш | · |
| A | LF | | * | : | J | Z | j | z | К | Ъ | к | | ┐ | ┌ | щ | · |
| B | | ESC | + | ; | K | [| k | { | Л | Ы | л | ┘ | ┘ | ▀ | ъ | ѐ |
| C | FF | FS | , | < | L | ¥ | l | | М | Ь | м | ┘ | ┘ | ▀ | ы | No. |
| D | CR | GS | - | = | M |] | m | } | Н | Э | н | ┘ | — | ┘ | э | ⊘ |
| E | | RS | . | > | N | ^ | n | ~ | О | Ю | о | ┘ | ┘ | ┘ | ю | ■ |
| F | | | / | ? | O | _ | o | . | П | Я | п | ┘ | ┘ | ▀ | я | |

3.1.9 Codepage 00H to 7FH & PC857 (Turkish)

| | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
|---|-----|------|----|---|---|---|---|---|---|---|---|---|---|---|---|--------------|
| 0 | NUL | DLE | | 0 | @ | P | ` | p | Ç | É | á | ☒ | ⌒ | o | ó | — |
| 1 | | XON | ! | 1 | A | Q | a | q | ü | æ | í | ☒ | ⊥ | a | β | ± |
| 2 | | | “ | 2 | B | R | b | r | é | Æ | ó | ☒ | ⊥ | Ê | ô | |
| 3 | | XOFF | # | 3 | C | S | c | s | â | ô | ú | | ⊥ | Ë | ò | ¾ |
| 4 | EOT | DC4 | \$ | 4 | D | T | d | t | à | ö | ñ | ⊥ | — | È | õ | ¶ |
| 5 | ENQ | | % | 5 | E | U | e | u | ä | ò | Ñ | Á | + | | Õ | § |
| 6 | | | & | 6 | F | V | f | v | å | û | Ê | Â | ã | í | μ | ÷ |
| 7 | | | ' | 7 | G | W | g | w | ç | ù | ê | À | Ã | î | | ↳ |
| 8 | | CAN | (| 8 | H | X | h | x | ê | í | ı | © | ⌒ | ï | × | ° |
| 9 | HT | |) | 9 | I | Y | i | y | ë | Ö | ® | ⊥ | ⌒ | ⌒ | Ú | “ |
| A | LF | | * | : | J | Z | j | z | è | Ü | ¬ | | ⊥ | ⌒ | Û | . |
| B | | ESC | + | ; | K | [| k | { | ï | ø | ½ | ⌒ | ⊥ | ■ | Ù | ' |
| C | FF | FS | , | < | L | ¥ | l | | î | £ | ¼ | ⌒ | ⊥ | ■ | Ì | ³ |
| D | CR | GS | - | = | M |] | m | } | ı | Ø | i | œ | = | ı | ÿ | ² |
| E | | RS | . | > | N | ^ | n | ~ | Ä | Ş | « | ¥ | + | ì | - | ■ |
| F | | | / | ? | O | _ | o | . | Å | ş | » | ⌒ | ☒ | ■ | ' | SP |

3.1.10 Codepage 00H to 7FH & PC864 (ArabiC)

| | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
|---|-----|------|----|---|---|---|---|---|---|----|-------|---|---|---|---|----|
| 0 | NUL | DLE | | 0 | @ | P | ` | p | ◦ | β | (RSP) | • | ϕ | ذ | ـ | ﻩ |
| 1 | | XON | ! | 1 | A | Q | a | q | • | ∞ | (SHY) | ۱ | ۶ | ر | ف | س |
| 2 | | | ” | 2 | B | R | b | r | • | φ | آ | ۲ | آ | ز | ق | ن |
| 3 | | XOFF | # | 3 | C | S | c | s | √ | ± | £ | ۳ | أ | س | ك | ه |
| 4 | EOT | DC4 | \$ | 4 | D | T | d | t | ■ | ½ | ⊗ | ۴ | ؤ | ش | ل | ف |
| 5 | ENQ | | % | 5 | E | U | e | u | ▬ | ¼ | ل | ۵ | ع | ط | م | و |
| 6 | | | & | 6 | F | V | f | v | ▬ | ≈ | | ۶ | ك | ظ | ن | ي |
| 7 | | | ' | 7 | G | W | g | w | ▬ | « | | ۷ | ا | ط | ه | غ |
| 8 | | CAN | (| 8 | H | X | h | x | ▬ | » | ا | ۸ | ب | ظ | و | ق |
| 9 | HT | |) | 9 | I | Y | i | y | ▬ | لأ | ب | ۹ | ة | ع | ي | لأ |
| A | LF | | * | : | J | Z | j | z | ▬ | لأ | ت | ف | ت | ظ | ي | لأ |
| B | | ESC | + | ; | K | [| k | { | ▬ | | ث | : | ث | ا | ض | ل |
| C | FF | FS | , | < | L | \ | l | | ▬ | | ، | س | ج | ع | ك | ل |
| D | CR | GS | - | = | M |] | m | } | ▬ | لا | ج | ش | ج | ÷ | غ | ي |
| E | | RS | . | > | N | ^ | n | ~ | ▬ | لا | ح | ص | ذ | × | غ | ■ |
| F | | | / | ? | O | _ | o | | ▬ | ، | خ | ؟ | د | ع | م | |

3.1.11 Codepage 00H to 7FH & Windows Codepage

| | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
|---|-----|------|----|---|---|---|---|---|-----|---|---|---|---|---|---|---|
| 0 | NUL | DLE | | 0 | @ | P | ` | p | | | | ° | À | Ð | à | ð |
| 1 | | XON | ! | 1 | A | Q | a | q | | ' | i | ± | Á | Ñ | á | ñ |
| 2 | | | “ | 2 | B | R | b | r | , | ' | œ | ² | Â | Ò | â | ò |
| 3 | | XOFF | # | 3 | C | S | c | s | f | “ | £ | ³ | Ã | Ó | ã | ó |
| 4 | EOT | DC4 | \$ | 4 | D | T | d | t | ,, | ” | ⊠ | ´ | Ä | Ô | ä | ô |
| 5 | ENQ | | % | 5 | E | U | e | u | ... | · | ¥ | μ | Å | Õ | å | õ |
| 6 | | | & | 6 | F | V | f | v | | - | | ¶ | Æ | Ö | æ | ö |
| 7 | | | ' | 7 | G | W | g | w | | - | § | · | Ç | × | ç | ÷ |
| 8 | | CAN | (| 8 | H | X | h | x | | ~ | ¨ | , | È | Ø | è | ø |
| 9 | HT | |) | 9 | I | Y | i | y | %o | ™ | © | ¹ | É | Ù | é | ù |
| A | LF | | * | : | J | Z | j | z | Š | š | ª | º | Ê | Ú | ê | ú |
| B | | ESC | + | ; | K | [| k | { | < | > | « | » | Ë | Û | ë | û |
| C | FF | FS | , | < | L | ¥ | l | | Œ | œ | ¬ | ¼ | Ì | Ü | ì | ü |
| D | CR | GS | - | = | M |] | m | } | | | - | ½ | Í | Ý | í | ý |
| E | | RS | . | > | N | ^ | n | ~ | | | ® | ¾ | Î | Þ | î | þ |
| F | | | / | ? | O | _ | o | . | | ÿ | — | ¿ | Ï | ß | ï | ÿ |

3.1.12 Codepage 00H to 7FH & Thai code 18

| | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
|---|-----|------|----|---|---|---|---|---|---|----|---|---|---|----|---|----|
| 0 | NUL | DLE | | 0 | @ | P | ` | p | Г | ๙ | | ฐ | ภ | ๕ | เ | ๐ |
| 1 | | XON | ! | 1 | A | Q | a | q | ๓ | ๑ | ก | ท | ม | ๘ | แ | ๑ |
| 2 | | | " | 2 | B | R | b | r | L | ๖ | ข | ฒ | ย | ๓ | โ | ๓ |
| 3 | | XOFF | # | 3 | C | S | c | s | J | ๕ | ช | ฒ | ร | ๓ | ใ | ๓ |
| 4 | EOT | DC4 | \$ | 4 | D | T | d | t | | ๕ | ค | ค | ถ | ๖ | ไ | ๕ |
| 5 | ENQ | | % | 5 | E | U | e | u | - | ๕+ | ค | ต | ฒ | ๖ | ๓ | ๕ |
| 6 | | | & | 6 | F | V | f | v | ๓ | ๖- | ฆ | ถ | ภ | ๖ | ๓ | ๖ |
| 7 | | | ' | 7 | G | W | g | w | ๓ | ๖๕ | ง | ท | ว | ๖ | ๕ | ๗ |
| 8 | | CAN | (| 8 | H | X | h | x | ๓ | ๖๕ | จ | ฏ | ค | ๖ | ๓ | ๕ |
| 9 | HT | |) | 9 | I | Y | i | y | T | ๖+ | ฉ | น | ช | ๖ | ๖ | ๕ |
| A | LF | | * | : | J | Z | j | z | ๓ | ๖๙ | ช | บ | ฒ | ๖ | ๗ | ๕ |
| B | | ESC | + | ; | K | [| k | { | ■ | ๖- | ช | ป | ท | ๖- | + | ๖- |
| C | FF | FS | , | < | L | \ | l | | ← | ๖๕ | ฒ | ฝ | พ | ๖๕ | ๙ | ๖๕ |
| D | CR | GS | - | = | M |] | m | } | ↑ | ๖๕ | ญ | ฝ | อ | ๖๕ | ๖ | ๖๕ |
| E | | RS | . | > | N | ^ | n | ~ | → | ๖+ | ฉ | พ | อ | ๖+ | ๖ | ๖+ |
| F | | | / | ? | O | _ | o | | ↓ | ๖ | ฉ | พ | ๓ | ๖ | ๖ | |

3.2 Internatinal Character Code Table

| | Country | 23 | 24 | 40 | 5B | 5C | 5D | 5E | 60 | 7B | 7C | 7D | 7E |
|----|---------------|----|----|----|----|----|----|----|----|----|----|----|----|
| 0 | U.S.A | # | \$ | @ | [| \ |] | ^ | ' | { | | } | ~ |
| 1 | France | # | \$ | à | ° | ç | § | ^ | ' | é | ù | è | ¨ |
| 2 | Germany | # | \$ | § | Ä | Ö | Ü | ^ | ' | ä | ö | ü | β |
| 3 | U.K. | & | \$ | @ | [| \ |] | ^ | ' | { | | } | ~ |
| 4 | Denmark I | # | \$ | @ | Æ | Ø | Å | ^ | ' | æ | ø | å | ~ |
| 5 | Sweden | # | ☐ | É | Ä | Ö | Å | Ü | é | ä | ö | å | ü |
| 6 | Italy | # | \$ | @ | ° | \ | é | ^ | ù | à | ò | è | ì |
| 7 | Spain I | Pt | \$ | @ | í | Ñ | ¿ | ^ | ' | ¨ | ñ | } | ~ |
| 8 | Japan | # | \$ | @ | [| ¥ |] | ^ | ' | { | | } | ~ |
| 9 | Norway | # | ☐ | É | Æ | Ø | Å | Ü | é | æ | ø | å | ü |
| 10 | Denmark II | # | \$ | É | Æ | Ø | Å | Ü | é | æ | ø | å | ü |
| 11 | Spain II | # | \$ | á | í | Ñ | ¿ | é | ' | ì | ñ | ó | ú |
| 12 | Latin America | # | \$ | á | í | Ñ | ¿ | é | ü | ì | ñ | ó | ú |
| 13 | Korea | # | \$ | @ | [| ₩ |] | ^ | ' | { | | } | ~ |
| 14 | Croatia | # | \$ | Ž | Š | Đ | Ć | Č | Ž | š | đ | ć | č |
| 15 | China | # | ¥ | @ | [| \ |] | ^ | ' | { | | } | ~ |

3.3 Kanji Code Table

3.3.1 JIS non-Kanji

| S-JIS | JIS | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
|-------|------|----|---|---|----|---|----|---|---|---|---|---|---|---|---|----|----|
| 813F | 2120 | | | 、 | 。, | 、 | ・ | ： | ； | ？ | ！ | “ | ° | ´ | 、 | 、 | .. |
| 814F | 2130 | ^ | — | — | 、 | ゞ | ゞ | ゞ | ” | 全 | 々 | ○ | ○ | — | — | - | / |
| 815F | 2140 | 、 | ～ | ∥ | | … | .. | ‘ | ’ | “ | ” | (|) | [|] | [|] |
| 816F | 2150 | { | } | < | > | 《 | 》 | 「 | 」 | 『 | 』 | 【 | 】 | + | - | ± | × |
| 8180 | 2160 | ÷ | = | ≠ | < | > | ≦ | ≧ | ∞ | ∴ | ♂ | ♀ | ° | ´ | ” | °C | ¥ |
| 8190 | 2170 | \$ | ¢ | £ | % | # | & | * | @ | § | ☆ | ★ | ○ | ● | ◎ | ◇ | |
| 819E | 2220 | | ◆ | □ | ■ | △ | ▲ | ▽ | ▼ | ※ | 〒 | → | ← | ↑ | ↓ | = | |
| 81AE | 2230 | | | | | | | | | | | ε | ≡ | ⊆ | ⊇ | ⊂ | ⊃ |
| 81BE | 2240 | U | ∩ | | | | | | | | | ∧ | ∨ | ¬ | ⇒ | ⇔ | ∇ |
| 81CE | 2250 | ∃ | | | | | | | | | | | | ∠ | ⊥ | ∧ | ∅ |
| 81DE | 2260 | ∇ | ≡ | ≠ | ≪ | ≫ | √ | ∞ | ∞ | ∴ | ∫ | ∫ | | | | | |
| 81EE | 2270 | | | Å | % | # | b | ♪ | † | ‡ | ¶ | | | | | | ○ |
| 823F | 2320 | | | | | | | | | | | | | | | | |
| 824F | 2330 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | | | | | | |
| 825F | 2340 | | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O |
| 826F | 2350 | P | Q | R | S | T | U | V | W | X | Y | Z | | | | | |
| 8280 | 2360 | | a | b | c | d | e | f | g | h | i | j | k | l | m | n | o |
| 8290 | 2370 | p | q | r | s | t | u | v | w | x | y | z | | | | | |
| 829E | 2420 | | あ | あ | い | い | う | う | え | え | お | お | か | が | き | ぎ | く |
| 82AE | 2430 | ぐ | け | げ | こ | ご | さ | ざ | し | じ | す | ず | せ | ぜ | そ | ぞ | た |
| 82BE | 2440 | だ | ち | ぢ | っ | つ | づ | て | で | と | ど | な | に | ぬ | ね | の | は |
| 82CE | 2450 | ば | ぱ | ひ | び | ぴ | ふ | ぶ | ぶ | へ | べ | ぺ | ほ | ぼ | ぽ | ま | み |
| 82DE | 2460 | む | め | も | や | や | ゆ | ゆ | よ | よ | ら | り | る | れ | ろ | わ | わ |
| 82EE | 2470 | ゐ | ゑ | を | ん | | | | | | | | | | | | |
| 833F | 2520 | | ア | ア | イ | イ | ウ | ウ | エ | エ | オ | オ | カ | ガ | キ | ギ | ク |
| 834F | 2530 | グ | ケ | ゲ | コ | ゴ | サ | ザ | シ | ジ | ス | ズ | セ | ゼ | ソ | ゾ | タ |
| 835F | 2540 | ダ | チ | ヂ | ツ | ツ | ヅ | テ | デ | ト | ド | ナ | ニ | ヌ | ネ | ノ | ハ |
| 836F | 2550 | バ | パ | ヒ | ビ | ピ | フ | ブ | プ | ヘ | ベ | ペ | ホ | ボ | ポ | マ | ミ |
| 8380 | 2560 | ム | メ | モ | ヤ | ヤ | ユ | ユ | ヨ | ヨ | ラ | リ | ル | レ | ロ | ワ | ワ |
| 8390 | 2570 | キ | エ | ヲ | ン | ヴ | カ | ケ | | | | | | | | | |
| 839E | 2620 | | A | B | Γ | Δ | E | Z | H | Θ | I | K | Λ | M | N | Ξ | O |
| 83AE | 2630 | Π | P | Σ | T | Υ | Φ | X | Ψ | Ω | | | | | | | |
| 83BE | 2640 | | α | β | γ | δ | ε | ζ | η | θ | ι | κ | λ | μ | ν | ξ | ο |
| 83CE | 2650 | π | ρ | σ | τ | υ | φ | χ | ψ | ω | | | | | | | |
| 83DE | 2660 | | | | | | | | | | | | | | | | |
| 83EE | 2670 | | | | | | | | | | | | | | | | |

| S-JIS | JIS | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
|-------|------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 843F | 2720 | | А | Б | В | Г | Д | Е | Ё | Ж | З | И | Й | К | Л | М | Н |
| 844F | 2730 | О | П | Р | С | Т | У | Ф | Х | Ц | Ч | Ш | Щ | Ъ | Ы | Ь | Э |
| 845F | 2740 | Ю | Я | | | | | | | | | | | | | | |
| 846F | 2750 | | а | б | в | г | д | е | ё | ж | з | и | й | к | л | м | н |
| 8480 | 2760 | о | п | р | с | т | у | ф | х | ц | ч | ш | щ | ъ | ы | ь | э |
| 8490 | 2770 | ю | я | | | | | | | | | | | | | | |
| 849E | 2820 | | — | | Г | Г | ┘ | ┘ | ┘ | ┘ | ┘ | ┘ | ┘ | — | | Г | Г |
| 84AE | 2830 | ┘ | ┘ | ┘ | ┘ | ┘ | ┘ | ┘ | ┘ | ┘ | ┘ | ┘ | ┘ | ┘ | ┘ | ┘ | ┘ |
| 84BE | 2840 | ┘ | | | | | | | | | | | | | | | |
| 84CE | 2850 | | | | | | | | | | | | | | | | |
| 84DE | 2860 | | | | | | | | | | | | | | | | |
| 84EE | 2870 | | | | | | | | | | | | | | | | |

3.3.2 JIS Kanji Level 1

| S-JIS | JIS | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
|-------|------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 889E | 3020 | | 啞 | 啞 | 娃 | 阿 | 哀 | 愛 | 挨 | 始 | 逢 | 葵 | 茜 | 穉 | 惡 | 握 | 渥 |
| 88AE | 3030 | 旭 | 葦 | 芦 | 鱒 | 梓 | 庄 | 幹 | 扱 | 宛 | 姐 | 虻 | 飴 | 絢 | 綾 | 鮎 | 或 |
| 88BE | 3040 | 粟 | 裕 | 安 | 庵 | 按 | 暗 | 案 | 闇 | 鞍 | 杏 | 以 | 伊 | 位 | 依 | 偉 | 困 |
| 88CE | 3050 | 夷 | 委 | 威 | 尉 | 惟 | 意 | 慰 | 易 | 椅 | 為 | 畏 | 異 | 移 | 維 | 緯 | 胃 |
| 88DE | 3060 | 萎 | 衣 | 謂 | 違 | 遺 | 医 | 井 | 亥 | 域 | 育 | 郁 | 磯 | 一 | 舌 | 溢 | 逸 |
| 88EE | 3070 | 稻 | 茨 | 芋 | 鯛 | 允 | 印 | 咽 | 員 | 因 | 姻 | 引 | 飲 | 淫 | 胤 | 蔭 | |
| 893F | 3120 | | 院 | 陰 | 隱 | 韻 | 吋 | 右 | 宇 | 烏 | 羽 | 迂 | 雨 | 卯 | 鵝 | 窺 | 丑 |
| 894F | 3130 | 碓 | 臼 | 渦 | 噓 | 唄 | 鬱 | 蔚 | 鰻 | 姥 | 既 | 浦 | 瓜 | 閏 | 噂 | 云 | 運 |
| 895F | 3140 | 雲 | 荏 | 餌 | 叡 | 營 | 嬰 | 影 | 映 | 曳 | 采 | 永 | 泳 | 洩 | 瑛 | 盈 | 穎 |
| 896F | 3150 | 顛 | 英 | 衛 | 詠 | 銳 | 液 | 疫 | 益 | 馱 | 悅 | 謁 | 越 | 閱 | 榎 | 厭 | 円 |
| 8980 | 3160 | 園 | 堰 | 奄 | 宴 | 延 | 怨 | 掩 | 援 | 沿 | 演 | 炎 | 焰 | 煙 | 燕 | 猿 | 緣 |
| 8990 | 3170 | 艷 | 苑 | 菌 | 遠 | 鉛 | 鴛 | 塩 | 於 | 汚 | 甥 | 凹 | 央 | 奧 | 往 | 応 | |
| 899E | 3220 | | 押 | 旺 | 橫 | 欧 | 殴 | 王 | 翁 | 襖 | 鶯 | 鷗 | 黄 | 岡 | 沖 | 荻 | 億 |
| 89AE | 3230 | 屋 | 憶 | 臆 | 桶 | 牡 | 乙 | 俺 | 卸 | 恩 | 温 | 穩 | 音 | 下 | 化 | 仮 | 何 |
| 89BE | 3240 | 伽 | 伽 | 佳 | 加 | 可 | 嘉 | 夏 | 嫁 | 家 | 寡 | 科 | 暇 | 果 | 架 | 歌 | 河 |
| 89CE | 3250 | 火 | 珂 | 禍 | 禾 | 稼 | 箇 | 花 | 苛 | 茄 | 荷 | 華 | 菓 | 蝦 | 課 | 嘩 | 貨 |
| 89DE | 3260 | 迦 | 過 | 霞 | 蚊 | 俄 | 峨 | 我 | 牙 | 画 | 臥 | 芽 | 蛾 | 賀 | 雅 | 餓 | 駕 |
| 89EE | 3270 | 介 | 会 | 解 | 回 | 塊 | 壞 | 廻 | 快 | 怪 | 悔 | 恢 | 懷 | 戒 | 拐 | 改 | |
| 8A3F | 3320 | | 魁 | 晦 | 械 | 海 | 灰 | 界 | 皆 | 繪 | 芥 | 蟹 | 開 | 階 | 貝 | 凱 | 効 |
| 8A4F | 3330 | 外 | 咳 | 害 | 崖 | 慨 | 概 | 涯 | 碍 | 蓋 | 街 | 該 | 鎧 | 骸 | 湮 | 馨 | 蛙 |
| 8A5F | 3340 | 垣 | 柿 | 蛎 | 鈎 | 劃 | 嚇 | 各 | 廓 | 拈 | 攪 | 格 | 核 | 殼 | 獲 | 確 | 穫 |
| 8A6F | 3350 | 覺 | 角 | 赫 | 較 | 郭 | 閣 | 隔 | 革 | 学 | 岳 | 樂 | 額 | 顎 | 掛 | 笠 | 檉 |
| 8A80 | 3360 | 檀 | 梶 | 鰍 | 渴 | 割 | 喝 | 恰 | 括 | 活 | 渴 | 滑 | 葛 | 褐 | 轄 | 且 | 鯉 |
| 8A90 | 3370 | 叶 | 柁 | 樺 | 鞆 | 株 | 兜 | 竈 | 蒲 | 釜 | 鎌 | 嚙 | 鴨 | 栢 | 茅 | 萱 | |
| 8A9E | 3420 | | 粥 | 刈 | 苜 | 瓦 | 乾 | 侃 | 冠 | 寒 | 刊 | 勘 | 勸 | 卷 | 喚 | 堪 | 姦 |
| 8AAE | 3430 | 完 | 官 | 寬 | 干 | 幹 | 患 | 感 | 慣 | 憾 | 換 | 敢 | 柑 | 桓 | 棺 | 款 | 歡 |
| 8ABE | 3440 | 汗 | 漢 | 澗 | 灌 | 環 | 甘 | 監 | 看 | 竿 | 管 | 簡 | 緩 | 缶 | 翰 | 肝 | 艦 |
| 8ACE | 3450 | 莞 | 觀 | 諫 | 貫 | 還 | 鑑 | 間 | 閑 | 閑 | 陷 | 韓 | 館 | 館 | 丸 | 含 | 岸 |
| 8ADE | 3460 | 巖 | 玩 | 癌 | 眼 | 岩 | 翫 | 贗 | 雁 | 頑 | 顏 | 願 | 企 | 伎 | 危 | 喜 | 器 |
| 8AEE | 3470 | 基 | 奇 | 嬉 | 寄 | 岐 | 希 | 幾 | 忌 | 揮 | 机 | 旗 | 既 | 期 | 棋 | 棄 | |
| 8B3F | 3520 | | 機 | 婦 | 毅 | 氣 | 汽 | 畿 | 祈 | 季 | 稀 | 紀 | 徽 | 規 | 記 | 貴 | 起 |
| 8B4F | 3530 | 軌 | 輝 | 飢 | 騎 | 鬼 | 龜 | 偽 | 儀 | 妓 | 宜 | 戲 | 技 | 擬 | 欺 | 犧 | 疑 |
| 8B5F | 3540 | 祇 | 義 | 蟻 | 誼 | 議 | 掬 | 菊 | 鞠 | 吉 | 吃 | 喫 | 桔 | 橘 | 詰 | 砧 | 杵 |
| 8B6F | 3550 | 黍 | 却 | 客 | 脚 | 虐 | 逆 | 丘 | 久 | 仇 | 休 | 及 | 吸 | 宮 | 弓 | 急 | 救 |
| 8B80 | 3560 | 朽 | 求 | 汲 | 泣 | 灸 | 球 | 究 | 窮 | 笈 | 級 | 糾 | 給 | 旧 | 牛 | 去 | 居 |
| 8B90 | 3570 | 巨 | 拒 | 拋 | 拳 | 渠 | 虛 | 許 | 距 | 鋸 | 漁 | 禦 | 魚 | 亨 | 享 | 京 | |

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| 8B9E | 3620 | | 供 | 俠 | 僑 | 兇 | 競 | 共 | 凶 | 協 | 匡 | 卿 | 叫 | 喬 | 境 | 峽 | 強 |
| 8BAE | 3630 | 疆 | 怯 | 恐 | 恭 | 挾 | 教 | 橋 | 況 | 狂 | 狹 | 矯 | 胸 | 脅 | 興 | 蕎 | 鄉 |
| 8BBE | 3640 | 鏡 | 響 | 饗 | 驚 | 仰 | 凝 | 堯 | 曉 | 業 | 局 | 曲 | 極 | 玉 | 桐 | 籽 | 僅 |
| 8BCE | 3650 | 勤 | 均 | 巾 | 錦 | 斤 | 欣 | 欽 | 琴 | 禁 | 禽 | 筋 | 緊 | 芹 | 菌 | 衿 | 襟 |
| 8BDE | 3660 | 謹 | 近 | 金 | 吟 | 銀 | 九 | 俱 | 句 | 区 | 狗 | 玖 | 矩 | 苦 | 軀 | 驅 | 駟 |
| 8BEE | 3670 | 駒 | 具 | 愚 | 虞 | 喰 | 空 | 偶 | 寓 | 遇 | 隅 | 串 | 櫛 | 釧 | 屑 | 屈 | |
| 8C3F | 3720 | | 掘 | 窟 | 沓 | 靴 | 轡 | 窪 | 熊 | 隈 | 彙 | 栗 | 縲 | 桑 | 鋏 | 勳 | 君 |
| 8C4F | 3730 | 薰 | 訓 | 群 | 軍 | 郡 | 卦 | 袈 | 祁 | 係 | 傾 | 刑 | 兄 | 啓 | 圭 | 珪 | 型 |
| 8C5F | 3740 | 契 | 形 | 徑 | 惠 | 慶 | 慧 | 憩 | 揭 | 携 | 敬 | 景 | 桂 | 溪 | 畦 | 稽 | 系 |
| 8C6F | 3750 | 經 | 繼 | 繫 | 罴 | 荃 | 荊 | 蚩 | 計 | 詣 | 警 | 輕 | 頸 | 鷄 | 芸 | 迎 | 鯨 |
| 8C80 | 3760 | 劇 | 戟 | 擊 | 激 | 隙 | 析 | 傑 | 欠 | 決 | 潔 | 穴 | 結 | 血 | 訣 | 月 | 件 |
| 8C90 | 3770 | 儉 | 倦 | 健 | 兼 | 券 | 劍 | 喧 | 圈 | 堅 | 嫌 | 建 | 憲 | 懸 | 拳 | 捲 | |
| C89E | 3820 | | 檢 | 權 | 牽 | 犬 | 獻 | 研 | 硯 | 絹 | 梟 | 肩 | 見 | 謙 | 賢 | 軒 | 遣 |
| 8CAE | 3830 | 鍵 | 險 | 顯 | 驗 | 齟 | 元 | 原 | 蔽 | 幻 | 弦 | 減 | 源 | 玄 | 現 | 絃 | 舷 |
| 8CBE | 3840 | 言 | 諺 | 限 | 乎 | 個 | 古 | 呼 | 固 | 姑 | 孤 | 己 | 庫 | 弧 | 戶 | 故 | 枯 |
| 8CCE | 3850 | 湖 | 狐 | 糊 | 袴 | 股 | 胡 | 菰 | 虎 | 誇 | 跨 | 鈷 | 雇 | 顧 | 鼓 | 五 | 互 |
| 8CDE | 3860 | 伍 | 午 | 吳 | 吾 | 娛 | 後 | 御 | 悟 | 梧 | 檣 | 瑚 | 碁 | 語 | 誤 | 護 | 酬 |
| 8CEE | 3870 | 乞 | 鯉 | 交 | 佼 | 侯 | 候 | 倖 | 光 | 公 | 功 | 効 | 勾 | 厚 | 口 | 向 | |
| 8D3F | 3920 | | 后 | 喉 | 坑 | 垢 | 好 | 孔 | 孝 | 宏 | 工 | 巧 | 巷 | 幸 | 広 | 庚 | 康 |
| 8D4F | 3930 | 弘 | 恒 | 慌 | 抗 | 拘 | 控 | 攻 | 昂 | 晃 | 更 | 杭 | 校 | 梗 | 構 | 江 | 洪 |
| 8D5F | 3940 | 浩 | 港 | 溝 | 甲 | 皇 | 硬 | 稿 | 糠 | 紅 | 紘 | 絞 | 綱 | 耕 | 考 | 肯 | 肱 |
| 8D6F | 3950 | 腔 | 膏 | 航 | 荒 | 行 | 衡 | 講 | 貢 | 購 | 郊 | 醉 | 鈇 | 砒 | 鋼 | 閤 | 降 |
| 8D80 | 3960 | 項 | 香 | 高 | 鴻 | 剛 | 劫 | 号 | 合 | 壕 | 拷 | 濠 | 豪 | 轟 | 趨 | 克 | 刻 |
| 8D90 | 3970 | 告 | 国 | 穀 | 酷 | 鵠 | 黑 | 獄 | 漉 | 腰 | 甌 | 忽 | 惚 | 骨 | 狛 | 込 | |
| 8D9E | 3A20 | | 此 | 頃 | 今 | 困 | 坤 | 墾 | 婚 | 恨 | 懇 | 昏 | 昆 | 根 | 梱 | 混 | 痕 |
| 8DAE | 3A30 | 紺 | 艮 | 魂 | 些 | 佐 | 又 | 唆 | 嵯 | 左 | 差 | 查 | 沙 | 磋 | 砂 | 詐 | 鎖 |
| 8DBE | 3A40 | 袞 | 坐 | 座 | 挫 | 債 | 催 | 再 | 最 | 哉 | 塞 | 妻 | 宰 | 彩 | 才 | 採 | 栽 |
| 8DCE | 3A50 | 歲 | 濟 | 災 | 采 | 犀 | 碎 | 砦 | 祭 | 齋 | 細 | 崎 | 裁 | 載 | 際 | 劑 | 在 |
| 8DDE | 3A60 | 材 | 罪 | 財 | 冚 | 坂 | 阪 | 堺 | 柵 | 肴 | 咲 | 崎 | 埼 | 碕 | 鷺 | 作 | 削 |
| 8DEE | 3A70 | 咋 | 搾 | 昨 | 朔 | 柵 | 窄 | 策 | 索 | 錯 | 桜 | 鮭 | 笹 | 匙 | 冊 | 刷 | |
| 8E3F | 3B20 | | 察 | 拶 | 撮 | 擦 | 札 | 殺 | 薩 | 雜 | 阜 | 鯖 | 捌 | 鑄 | 鮫 | 皿 | 晒 |
| 8E4F | 3B30 | 三 | 傘 | 參 | 山 | 慘 | 撒 | 散 | 棧 | 燦 | 珊 | 產 | 算 | 纂 | 蚕 | 讚 | 贊 |
| 8E5F | 3B40 | 酸 | 餐 | 斬 | 暫 | 殘 | 仕 | 仔 | 伺 | 使 | 刺 | 司 | 史 | 嗣 | 四 | 士 | 始 |
| 8E6F | 3B50 | 姉 | 姿 | 子 | 屍 | 市 | 師 | 志 | 思 | 指 | 支 | 孜 | 斯 | 施 | 旨 | 枝 | 止 |
| 8E80 | 3B60 | 死 | 氏 | 獅 | 祉 | 私 | 糸 | 紙 | 紫 | 肢 | 脂 | 至 | 視 | 詞 | 詩 | 試 | 誌 |
| 8E90 | 3B70 | 諮 | 資 | 賜 | 雌 | 飼 | 齒 | 事 | 似 | 侍 | 兒 | 字 | 寺 | 慈 | 持 | 時 | |

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| 8E9E | 3C20 | | 次 | 滋 | 治 | 爾 | 璽 | 痔 | 磁 | 示 | 而 | 耳 | 自 | 蒔 | 辞 | 汐 | 鹿 |
| 8EAE | 3C30 | 式 | 識 | 鳴 | 竺 | 軸 | 穴 | 霏 | 七 | 叱 | 執 | 失 | 嫉 | 室 | 悉 | 湿 | 漆 |
| 8EBE | 3C40 | 疾 | 質 | 実 | 蔀 | 篠 | 偲 | 柴 | 芝 | 屢 | 蕊 | 縞 | 舍 | 写 | 射 | 捨 | 赦 |
| 8ECE | 3C50 | 斜 | 煮 | 社 | 紗 | 者 | 謝 | 車 | 遮 | 蛇 | 邪 | 借 | 勺 | 尺 | 杓 | 灼 | 爵 |
| 8EDE | 3C60 | 酌 | 积 | 錫 | 若 | 寂 | 弱 | 惹 | 主 | 取 | 守 | 手 | 朱 | 殊 | 狩 | 珠 | 種 |
| 8EEE | 3C70 | 腫 | 趣 | 酒 | 首 | 儒 | 受 | 呪 | 寿 | 授 | 樹 | 綬 | 需 | 囚 | 収 | 周 | |
| 8F3F | 3D20 | | 宗 | 就 | 州 | 修 | 愁 | 拾 | 洲 | 秀 | 秋 | 終 | 繡 | 習 | 臭 | 舟 | 蒐 |
| 8F4F | 3D30 | 衆 | 襲 | 讐 | 蹴 | 輯 | 週 | 酋 | 酬 | 集 | 醜 | 什 | 住 | 充 | 十 | 從 | 戎 |
| 8F5F | 3D40 | 柔 | 汁 | 洪 | 獸 | 縱 | 重 | 銃 | 叔 | 夙 | 宿 | 淑 | 祝 | 縮 | 肅 | 塾 | 熟 |
| 8F6F | 3D50 | 出 | 術 | 述 | 俊 | 峻 | 春 | 瞬 | 竣 | 舜 | 駿 | 准 | 循 | 旬 | 楯 | 殉 | 淳 |
| 8F80 | 3D60 | 準 | 潤 | 盾 | 純 | 巡 | 遵 | 醇 | 順 | 処 | 初 | 所 | 暑 | 曙 | 渚 | 庶 | 緒 |
| 8F90 | 3D70 | 署 | 書 | 薯 | 諸 | 諸 | 助 | 叙 | 女 | 序 | 徐 | 恕 | 鋤 | 除 | 傷 | 償 | |
| 8F9E | 3E20 | | 勝 | 匠 | 升 | 召 | 哨 | 商 | 唱 | 嘗 | 獎 | 妾 | 娼 | 宵 | 將 | 小 | 少 |
| 8FAE | 3E30 | 尚 | 庄 | 床 | 廠 | 彰 | 承 | 抄 | 招 | 掌 | 捷 | 昇 | 昌 | 昭 | 晶 | 松 | 梢 |
| 8FBE | 3E40 | 樟 | 樵 | 沼 | 消 | 涉 | 湘 | 燒 | 焦 | 照 | 症 | 省 | 硝 | 礁 | 祥 | 称 | 章 |
| 8FCE | 3E50 | 笑 | 粧 | 紹 | 肖 | 苜 | 蔣 | 蕉 | 衝 | 裳 | 訟 | 証 | 詔 | 詳 | 象 | 賞 | 醬 |
| 8FDE | 3E60 | 鉦 | 鍾 | 鐘 | 障 | 鞘 | 上 | 丈 | 丞 | 乘 | 冗 | 剩 | 城 | 場 | 壤 | 孃 | 常 |
| 8FEE | 3E70 | 情 | 擾 | 条 | 杖 | 淨 | 状 | 置 | 穰 | 蒸 | 讓 | 釀 | 錠 | 囑 | 埴 | 飾 | |
| 903F | 3F20 | | 拭 | 植 | 殖 | 燭 | 織 | 職 | 色 | 触 | 食 | 蝕 | 辱 | 尻 | 伸 | 信 | 侵 |
| 904F | 3F30 | 唇 | 娠 | 寢 | 審 | 心 | 慎 | 振 | 新 | 晋 | 森 | 榛 | 浸 | 深 | 申 | 疹 | 真 |
| 905F | 3F40 | 神 | 秦 | 紳 | 臣 | 芯 | 薪 | 親 | 診 | 身 | 辛 | 進 | 針 | 震 | 人 | 仁 | 刃 |
| 906F | 3F50 | 塵 | 壬 | 尋 | 甚 | 尽 | 腎 | 訊 | 迅 | 陣 | 韌 | 筭 | 諏 | 須 | 酢 | 囟 | 厨 |
| 9080 | 3F60 | 逗 | 吹 | 垂 | 帥 | 推 | 水 | 炊 | 睡 | 粹 | 翠 | 衰 | 遂 | 醉 | 錐 | 錘 | 随 |
| 9090 | 3F70 | 瑞 | 髓 | 崇 | 嵩 | 数 | 枢 | 趨 | 雛 | 据 | 杉 | 相 | 菅 | 頗 | 雀 | 裾 | |
| 909E | 4020 | | 澄 | 摺 | 寸 | 世 | 瀨 | 畝 | 是 | 淒 | 制 | 勢 | 姓 | 征 | 性 | 成 | 政 |
| 90AE | 4030 | 整 | 星 | 晴 | 棲 | 栖 | 正 | 清 | 牲 | 生 | 盛 | 精 | 聖 | 声 | 製 | 西 | 誠 |
| 90BE | 4040 | 誓 | 請 | 逝 | 醒 | 青 | 静 | 齐 | 稅 | 脆 | 隻 | 席 | 惜 | 戚 | 斥 | 昔 | 析 |
| 90CE | 4050 | 石 | 積 | 籍 | 績 | 脊 | 責 | 赤 | 跡 | 蹟 | 碩 | 切 | 拙 | 接 | 摺 | 折 | 設 |
| 90DE | 4060 | 窃 | 節 | 說 | 雪 | 絶 | 舌 | 蟬 | 仙 | 先 | 千 | 占 | 宣 | 專 | 尖 | 川 | 戰 |
| 90EE | 4070 | 扇 | 撰 | 栓 | 梅 | 泉 | 淺 | 洗 | 染 | 潜 | 煎 | 煽 | 旋 | 穿 | 箭 | 線 | |
| 913F | 4120 | | 織 | 羨 | 腺 | 舛 | 船 | 薦 | 詮 | 賤 | 踐 | 選 | 遷 | 錢 | 銑 | 閃 | 鮮 |
| 914F | 4130 | 前 | 善 | 漸 | 然 | 全 | 禪 | 繕 | 膳 | 糲 | 噌 | 塑 | 岨 | 措 | 曾 | 曾 | 楚 |
| 915F | 4140 | 狙 | 疏 | 疎 | 礎 | 祖 | 租 | 粗 | 素 | 組 | 蘇 | 訴 | 阻 | 遡 | 鼠 | 僧 | 創 |
| 916F | 4150 | 双 | 叢 | 倉 | 喪 | 壯 | 奏 | 爽 | 宋 | 層 | 匝 | 惣 | 想 | 搜 | 掃 | 挿 | 搔 |
| 9180 | 4160 | 操 | 早 | 曹 | 巢 | 槍 | 槽 | 漕 | 燥 | 争 | 瘦 | 相 | 窓 | 糟 | 総 | 綜 | 聡 |
| 9190 | 4170 | 草 | 莊 | 葬 | 蒼 | 藻 | 装 | 走 | 送 | 遭 | 鎗 | 霜 | 騷 | 像 | 增 | 憎 | |

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| 919E | 4220 | | 臟 | 藏 | 贈 | 造 | 促 | 側 | 則 | 即 | 息 | 捉 | 束 | 測 | 足 | 速 | 俗 |
| 91AE | 4230 | 屬 | 賊 | 族 | 統 | 卒 | 袖 | 其 | 揃 | 存 | 孫 | 尊 | 損 | 村 | 遜 | 他 | 多 |
| 91BE | 4240 | 太 | 汰 | 訖 | 唾 | 墮 | 妥 | 惰 | 打 | 柁 | 舵 | 梢 | 陀 | 馱 | 驛 | 休 | 堆 |
| 91CE | 4250 | 對 | 耐 | 岱 | 帶 | 待 | 怠 | 態 | 戴 | 替 | 泰 | 滯 | 胎 | 腿 | 苔 | 袋 | 貸 |
| 91DE | 4260 | 退 | 逮 | 隊 | 黛 | 鯛 | 代 | 台 | 大 | 第 | 醜 | 題 | 鷹 | 淹 | 瀧 | 卓 | 啄 |
| 91EE | 4270 | 宅 | 托 | 扞 | 拓 | 沢 | 濯 | 琢 | 託 | 鐸 | 濁 | 諾 | 茸 | 胤 | 蛸 | 只 | |
| 923F | 4320 | | 叩 | 但 | 達 | 辰 | 奪 | 脫 | 巽 | 豎 | 辿 | 棚 | 谷 | 狸 | 鱈 | 樽 | 誰 |
| 924F | 4330 | 丹 | 單 | 嘆 | 坦 | 担 | 探 | 旦 | 歎 | 淡 | 湛 | 炭 | 短 | 端 | 筭 | 綻 | 耽 |
| 925F | 4340 | 胆 | 蛋 | 誕 | 鍛 | 団 | 壇 | 彈 | 斷 | 暖 | 檀 | 段 | 男 | 談 | 值 | 知 | 地 |
| 926F | 4350 | 弛 | 恥 | 智 | 池 | 痴 | 稚 | 置 | 致 | 蜘 | 遲 | 馳 | 築 | 畜 | 竹 | 筑 | 蓄 |
| 9280 | 4360 | 逐 | 秩 | 窒 | 茶 | 嫡 | 着 | 中 | 仲 | 宙 | 忠 | 抽 | 昼 | 柱 | 注 | 虫 | 衷 |
| 9290 | 4370 | 註 | 酎 | 鑄 | 駐 | 擣 | 瀦 | 猪 | 苧 | 著 | 貯 | 丁 | 兆 | 凋 | 喋 | 寵 | |
| 929E | 4420 | | 帖 | 帳 | 庁 | 弔 | 張 | 彫 | 徵 | 懲 | 挑 | 暢 | 朝 | 潮 | 牒 | 町 | 眺 |
| 92AE | 4430 | 聽 | 脹 | 腸 | 蝶 | 調 | 謀 | 超 | 跳 | 鈹 | 長 | 頂 | 鳥 | 勅 | 抄 | 直 | 朕 |
| 92BE | 4440 | 沈 | 珍 | 賃 | 鎮 | 陳 | 津 | 墜 | 椎 | 槌 | 追 | 鎚 | 痛 | 通 | 塚 | 柁 | 捆 |
| 92CE | 4450 | 槻 | 佃 | 漬 | 柘 | 辻 | 蔦 | 綴 | 鍔 | 椿 | 漬 | 坪 | 壺 | 孀 | 紬 | 爪 | 吊 |
| 92DE | 4460 | 釣 | 鶴 | 亭 | 低 | 停 | 偵 | 刺 | 貞 | 呈 | 堤 | 定 | 帝 | 底 | 庭 | 廷 | 弟 |
| 92EE | 4470 | 悌 | 抵 | 挺 | 提 | 梯 | 汀 | 碇 | 禎 | 程 | 締 | 艇 | 訂 | 諦 | 蹄 | 遞 | |
| 933F | 4520 | | 邸 | 鄭 | 釘 | 鼎 | 泥 | 摘 | 擢 | 敵 | 滴 | 的 | 笛 | 適 | 鎬 | 溺 | 哲 |
| 934F | 4530 | 徹 | 撤 | 轍 | 迭 | 鉄 | 典 | 填 | 天 | 展 | 店 | 添 | 纏 | 甜 | 貼 | 轉 | 顛 |
| 935F | 4540 | 点 | 伝 | 殿 | 澱 | 田 | 電 | 兎 | 吐 | 堵 | 塗 | 妬 | 屠 | 徒 | 斗 | 杜 | 渡 |
| 936F | 4550 | 登 | 菟 | 賭 | 途 | 都 | 鍍 | 砥 | 砺 | 努 | 度 | 土 | 奴 | 怒 | 倒 | 党 | 冬 |
| 9380 | 4560 | 凍 | 刀 | 唐 | 塔 | 塘 | 套 | 宕 | 島 | 嶋 | 悼 | 投 | 搭 | 東 | 桃 | 棣 | 棟 |
| 9390 | 4570 | 盜 | 淘 | 湯 | 涛 | 灯 | 燈 | 当 | 痘 | 禱 | 等 | 答 | 筒 | 糖 | 統 | 到 | |
| 939E | 4620 | | 董 | 蕩 | 藤 | 討 | 騰 | 豆 | 踏 | 逃 | 透 | 鎧 | 陶 | 頭 | 騰 | 鬪 | 働 |
| 93AE | 4630 | 動 | 同 | 堂 | 導 | 懂 | 撞 | 洞 | 瞳 | 童 | 胴 | 苟 | 道 | 銅 | 峠 | 鴉 | 匿 |
| 93BE | 4640 | 得 | 德 | 澆 | 特 | 督 | 禿 | 篤 | 毒 | 独 | 読 | 析 | 橡 | 凸 | 突 | 椀 | 届 |
| 93CE | 4650 | 鳶 | 苦 | 寅 | 酉 | 滯 | 噸 | 屯 | 惇 | 敦 | 沌 | 豚 | 遁 | 頓 | 吞 | 曇 | 鈍 |
| 93DE | 4660 | 奈 | 那 | 内 | 乍 | 凧 | 薙 | 謎 | 灘 | 捺 | 鍋 | 槽 | 馴 | 繩 | 啜 | 南 | 楠 |
| 93EE | 4670 | 軟 | 難 | 汝 | 二 | 尼 | 弑 | 迹 | 匂 | 賑 | 肉 | 虹 | 廿 | 日 | 乳 | 入 | |
| 943F | 4720 | | 如 | 尿 | 菲 | 任 | 妊 | 忍 | 認 | 濡 | 襦 | 衤 | 寧 | 葱 | 猫 | 熱 | 年 |
| 944F | 4730 | 念 | 捻 | 撚 | 燃 | 粘 | 乃 | 迺 | 之 | 埜 | 囊 | 惱 | 濃 | 納 | 能 | 腦 | 膿 |
| 945F | 4740 | 農 | 睨 | 蚤 | 巴 | 把 | 播 | 霸 | 杷 | 波 | 派 | 琶 | 破 | 婆 | 罵 | 芭 | 馬 |
| 946F | 4750 | 俳 | 廢 | 拝 | 排 | 敗 | 杯 | 盃 | 牌 | 背 | 肺 | 輩 | 配 | 倍 | 培 | 媒 | 梅 |
| 9480 | 4760 | 煤 | 煤 | 狽 | 賈 | 壳 | 賠 | 陪 | 這 | 蠅 | 秤 | 矧 | 菽 | 伯 | 剥 | 博 | 拍 |
| 9490 | 4770 | 柏 | 泊 | 白 | 箔 | 粕 | 舶 | 薄 | 迫 | 曝 | 漠 | 爆 | 縛 | 莫 | 駁 | 麥 | |

| S-JIS | JIS | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
|-------|------|---|---|---|---|---|---|---|---|---|---|---|---|----|---|---|---|
| 949E | 4820 | | 函 | 箱 | 裕 | 箸 | 肇 | 筈 | 櫨 | 幡 | 肌 | 畑 | 畠 | 八 | 鉢 | 澆 | 堯 |
| 94AE | 4830 | 醜 | 髮 | 伐 | 罰 | 拔 | 筏 | 闕 | 鳩 | 嘶 | 塙 | 蛤 | 隼 | 伴 | 判 | 半 | 反 |
| 94BE | 4840 | 叛 | 帆 | 搬 | 斑 | 板 | 汜 | 汎 | 版 | 犯 | 班 | 畔 | 繁 | 般 | 藩 | 販 | 範 |
| 94CE | 4850 | 采 | 煩 | 頒 | 飯 | 挽 | 晚 | 番 | 盤 | 磐 | 蕃 | 蚤 | 匪 | 卑 | 否 | 妃 | 庇 |
| 94DE | 4860 | 彼 | 悲 | 扉 | 批 | 披 | 斐 | 比 | 泌 | 疲 | 皮 | 碑 | 秘 | 緋 | 罷 | 肥 | 被 |
| 94EE | 4870 | 誹 | 費 | 避 | 非 | 飛 | 樋 | 簸 | 備 | 尾 | 微 | 枇 | 毘 | 琵琶 | 眉 | 美 | |
| 953F | 4920 | | 鼻 | 柶 | 稗 | 匹 | 疋 | 髭 | 彥 | 膝 | 菱 | 肘 | 弼 | 必 | 畢 | 筆 | 逼 |
| 954F | 4930 | 桧 | 姬 | 媛 | 紐 | 百 | 謬 | 俵 | 彪 | 標 | 氷 | 漂 | 瓢 | 票 | 表 | 評 | 豹 |
| 955F | 4940 | 廟 | 描 | 病 | 秒 | 苗 | 鈎 | 蒜 | 蛭 | 鰭 | 品 | 彬 | 斌 | 浜 | 瀕 | 貧 | |
| 956F | 4950 | 賓 | 頻 | 敏 | 瓶 | 不 | 付 | 埠 | 夫 | 婦 | 富 | 富 | 布 | 府 | 怖 | 扶 | 敷 |
| 9580 | 4960 | 斧 | 普 | 浮 | 父 | 符 | 腐 | 膚 | 芙 | 譜 | 負 | 賦 | 赴 | 阜 | 附 | 侮 | 撫 |
| 9590 | 4970 | 武 | 舞 | 葡 | 蕪 | 部 | 封 | 楓 | 風 | 葺 | 落 | 伏 | 副 | 復 | 幅 | 服 | |
| 959E | 4A20 | | 福 | 腹 | 複 | 覆 | 淵 | 弗 | 弘 | 沸 | 仏 | 物 | 鮒 | 分 | 吻 | 噴 | 墳 |
| 95AE | 4A30 | 憤 | 扮 | 焚 | 奮 | 粉 | 糞 | 紛 | 雰 | 文 | 聞 | 丙 | 併 | 兵 | 摒 | 幣 | 平 |
| 95BE | 4A40 | 弊 | 柄 | 並 | 蔽 | 閉 | 陛 | 米 | 頁 | 僻 | 壁 | 癖 | 碧 | 別 | 瞥 | 蔑 | 篋 |
| 95CE | 4A50 | 偏 | 變 | 片 | 篇 | 編 | 辺 | 返 | 遍 | 便 | 勉 | 婉 | 弁 | 鞭 | 保 | 舖 | 鋪 |
| 95DE | 4A60 | 圃 | 捕 | 步 | 甫 | 補 | 輔 | 穗 | 募 | 墓 | 慕 | 戊 | 暮 | 母 | 簿 | 菩 | 倣 |
| 95EE | 4A70 | 俸 | 包 | 呆 | 報 | 奉 | 宝 | 峰 | 峯 | 崩 | 庖 | 抱 | 捧 | 放 | 方 | 朋 | |
| 963F | 4B20 | | 法 | 泡 | 烹 | 砲 | 縫 | 胞 | 芳 | 萌 | 蓬 | 蜂 | 褒 | 訪 | 豐 | 邦 | 鋒 |
| 964F | 4B30 | 飽 | 鳳 | 鵬 | 乏 | 亡 | 傍 | 剖 | 坊 | 妨 | 帽 | 忘 | 忙 | 房 | 暴 | 望 | 某 |
| 965F | 4B40 | 棒 | 冒 | 紡 | 肪 | 膨 | 謀 | 貌 | 貿 | 鉞 | 防 | 吠 | 頰 | 北 | 僕 | 卜 | 墨 |
| 966F | 4B50 | 撲 | 朴 | 牧 | 睦 | 穆 | 鈞 | 勃 | 沒 | 殆 | 堀 | 幌 | 奔 | 本 | 翻 | 凡 | 盆 |
| 9680 | 4B60 | 摩 | 磨 | 魔 | 麻 | 埋 | 妹 | 昧 | 枚 | 每 | 哩 | 楨 | 幕 | 膜 | 枕 | 鮪 | 枉 |
| 9690 | 4B70 | 鱒 | 桫 | 亦 | 俣 | 又 | 抹 | 末 | 沫 | 迄 | 俛 | 繭 | 磨 | 万 | 慢 | 滿 | |
| 969E | 4C20 | | 漫 | 蔓 | 味 | 未 | 魅 | 巳 | 箕 | 岬 | 密 | 蜜 | 湊 | 蓑 | 稔 | 脈 | 妙 |
| 96AE | 4C30 | 耗 | 民 | 眠 | 務 | 夢 | 無 | 牟 | 矛 | 霧 | 鷓 | 棕 | 媚 | 娘 | 冥 | 名 | 命 |
| 96BE | 4C40 | 明 | 盟 | 迷 | 銘 | 鳴 | 姪 | 牝 | 滅 | 免 | 棉 | 綿 | 緬 | 面 | 麵 | 摸 | 模 |
| 96CE | 4C50 | 茂 | 妄 | 孟 | 毛 | 猛 | 盲 | 網 | 耗 | 蒙 | 儲 | 木 | 默 | 目 | 杳 | 勿 | 餅 |
| 96DE | 4C60 | 尤 | 戾 | 勑 | 貰 | 問 | 悶 | 紋 | 門 | 匆 | 也 | 冶 | 夜 | 爺 | 耶 | 野 | 弥 |
| 96EE | 4C70 | 矢 | 厄 | 役 | 約 | 葉 | 訖 | 躍 | 靖 | 柳 | 藪 | 鎚 | 愉 | 愈 | 油 | 癒 | |
| 973F | 4D20 | | 諭 | 輸 | 唯 | 佑 | 優 | 勇 | 友 | 宥 | 幽 | 悠 | 憂 | 揖 | 有 | 柚 | 湧 |
| 974F | 4D30 | 涌 | 猶 | 猷 | 由 | 祐 | 裕 | 誘 | 遊 | 邑 | 郵 | 雄 | 融 | 夕 | 予 | 余 | 与 |
| 975F | 4D40 | 譽 | 輿 | 預 | 傭 | 幼 | 妖 | 容 | 庸 | 揚 | 搖 | 擁 | 曜 | 楊 | 樣 | 洋 | 溶 |
| 976F | 4D50 | 熔 | 用 | 窯 | 羊 | 耀 | 葉 | 蓉 | 要 | 謠 | 踊 | 遙 | 陽 | 養 | 慾 | 抑 | 欲 |
| 9780 | 4D60 | 沃 | 浴 | 翌 | 翼 | 淀 | 羅 | 螺 | 裸 | 來 | 萊 | 賴 | 雷 | 洛 | 絡 | 落 | 酪 |
| 9790 | 4D70 | 乱 | 卵 | 嵐 | 欄 | 濫 | 藍 | 蘭 | 覽 | 利 | 吏 | 履 | 李 | 梨 | 理 | 璃 | |

| S-JIS | JIS | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
|-------|------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 979E | 4E20 | | 痢 | 裏 | 裡 | 里 | 離 | 陸 | 律 | 率 | 立 | 葎 | 掠 | 略 | 劉 | 流 | 溜 |
| 97AE | 4E30 | 琉 | 留 | 硫 | 粒 | 隆 | 竜 | 龍 | 侶 | 慮 | 旅 | 虜 | 了 | 亮 | 僚 | 兩 | 凌 |
| 97BE | 4E40 | 寮 | 料 | 梁 | 涼 | 獵 | 療 | 瞭 | 稜 | 糧 | 良 | 諒 | 遼 | 量 | 陵 | 領 | 力 |
| 97CE | 4E50 | 綠 | 倫 | 厘 | 林 | 淋 | 熐 | 琳 | 臨 | 輪 | 隣 | 鱗 | 麟 | 瑠 | 壘 | 淚 | 累 |
| 97DE | 4E60 | 類 | 令 | 伶 | 例 | 冷 | 勵 | 嶺 | 伶 | 玲 | 礼 | 苓 | 鈴 | 隸 | 零 | 靈 | 麗 |
| 97EE | 4E70 | 齡 | 曆 | 歷 | 列 | 劣 | 烈 | 裂 | 廉 | 恋 | 憐 | 漣 | 煉 | 簾 | 練 | 聯 | |
| 983F | 4F20 | | 蓮 | 連 | 鍊 | 呂 | 魯 | 櫓 | 炉 | 賂 | 路 | 露 | 勞 | 婁 | 廊 | 弄 | 朗 |
| 984F | 4F30 | 樓 | 榔 | 浪 | 漏 | 牢 | 狼 | 籠 | 老 | 聾 | 蠟 | 郎 | 六 | 麓 | 祿 | 肋 | 錄 |
| 985F | 4F40 | 論 | 倭 | 和 | 話 | 歪 | 賄 | 脇 | 惑 | 杵 | 鷺 | 互 | 巨 | 鱒 | 詫 | 藁 | 蔽 |
| 986F | 4F50 | 椀 | 灣 | 碗 | 腕 | | | | | | | | | | | | |
| 9880 | 4F60 | | | | | | | | | | | | | | | | |
| 9890 | 4F70 | | | | | | | | | | | | | | | | |

3.3.3 JIS Kanji Level 2

| S-JIS | JIS | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
|-------|------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 989E | 5020 | | 弑 | 丐 | 丕 | 个 | 卍 | 丿 | 井 | 丿 | 乂 | 乖 | 乘 | 亂 | 丿 | 豫 | 事 |
| 98AE | 5030 | 舒 | 式 | 于 | 亞 | 亟 | 一 | 亢 | 京 | 毫 | 亶 | 从 | 仍 | 仄 | 仆 | 仃 | 仗 |
| 98BE | 5040 | 仞 | 仞 | 仟 | 价 | 伉 | 佚 | 估 | 佛 | 佝 | 佗 | 佇 | 佶 | 侈 | 侏 | 侘 | 佻 |
| 98CE | 5050 | 佩 | 佰 | 侑 | 伴 | 來 | 侖 | 儘 | 倪 | 俟 | 俎 | 俘 | 俛 | 俑 | 俚 | 俐 | 倂 |
| 98DE | 5060 | 俚 | 倚 | 倨 | 倔 | 倪 | 倥 | 倅 | 倅 | 倝 | 倡 | 倩 | 倬 | 倭 | 俯 | 們 | 倆 |
| 98EE | 5070 | 偃 | 假 | 會 | 借 | 修 | 偈 | 做 | 偕 | 偈 | 偷 | 傀 | 倣 | 傅 | 偃 | 傲 | |
| 993F | 5120 | | 僉 | 僊 | 傳 | 僂 | 僖 | 僞 | 僇 | 僈 | 僉 | 僊 | 價 | 僵 | 儉 | 僇 | 儂 |
| 994F | 5130 | 儼 | 儕 | 儖 | 儗 | 儘 | 儙 | 儚 | 儛 | 儜 | 儿 | 兀 | 兒 | 兌 | 免 | 兢 | 競 |
| 995F | 5140 | 兩 | 兪 | 兮 | 冀 | 冂 | 回 | 册 | 冉 | 冏 | 冑 | 菁 | 冕 | 冂 | 冤 | 冢 | 冢 |
| 996F | 5150 | 寫 | 冪 | 冫 | 决 | 冫 | 冲 | 冰 | 况 | 冽 | 涸 | 凉 | 凜 | 几 | 處 | 凵 | 凭 |
| 9980 | 5160 | 凰 | 凵 | 函 | 又 | 刊 | 刂 | 刂 | 刂 | 刂 | 刂 | 刂 | 刂 | 刂 | 刂 | 刂 | 刂 |
| 9990 | 5170 | 劓 | 剔 | 剪 | 剗 | 剩 | 剗 | 剗 | 剗 | 剗 | 剗 | 剗 | 剗 | 剗 | 剗 | 剗 | 剗 |
| 999E | 5220 | | 劓 | 劓 | 劓 | 劓 | 劓 | 劓 | 劓 | 劓 | 劓 | 劓 | 劓 | 劓 | 劓 | 劓 | 劓 |
| 99AE | 5230 | 勸 | 勸 | 勸 | 勸 | 勸 | 勸 | 勸 | 勸 | 勸 | 勸 | 勸 | 勸 | 勸 | 勸 | 勸 | 勸 |
| 99BE | 5240 | 卒 | 卅 | 卅 | 卉 | 己 | 準 | 卞 | 卞 | 卞 | 卞 | 卞 | 卞 | 卞 | 卞 | 卞 | 卞 |
| 99CE | 5250 | 厥 | 厥 | 厥 | 厶 | 參 | 篡 | 雙 | 叟 | 曼 | 變 | 叮 | 叨 | 叭 | 叭 | 吁 | 吽 |
| 99DE | 5260 | 呀 | 听 | 吭 | 吼 | 吮 | 吮 | 吮 | 吮 | 吮 | 咏 | 呵 | 咎 | 咎 | 呱 | 呷 | 咭 |
| 99EE | 5270 | 咒 | 呻 | 咀 | 呶 | 咄 | 咐 | 咆 | 哇 | 号 | 咸 | 啞 | 咬 | 哄 | 哈 | 咨 | |
| 9A3F | 5320 | | 咫 | 晒 | 咤 | 咤 | 尙 | 忻 | 哥 | 哦 | 唏 | 唔 | 哽 | 哮 | 哭 | 哺 | 哧 |
| 9A4F | 5330 | 嗽 | 唾 | 啣 | 啞 | 售 | 啜 | 啜 | 啜 | 啜 | 啜 | 啜 | 啜 | 啜 | 啜 | 啜 | 啜 |
| 9A5F | 5340 | 啜 | 啜 | 啜 | 啜 | 啜 | 啜 | 啜 | 啜 | 啜 | 啜 | 啜 | 啜 | 啜 | 啜 | 啜 | 啜 |
| 9A6F | 5350 | 啜 | 啜 | 啜 | 啜 | 啜 | 啜 | 啜 | 啜 | 啜 | 啜 | 啜 | 啜 | 啜 | 啜 | 啜 | 啜 |
| 9A80 | 5360 | 噫 | 噤 | 嘯 | 噬 | 噪 | 噤 | 噤 | 噤 | 噤 | 噤 | 噤 | 噤 | 噤 | 噤 | 噤 | 噤 |
| 9A90 | 5370 | 噤 | 噤 | 噤 | 噤 | 噤 | 噤 | 噤 | 噤 | 噤 | 噤 | 噤 | 噤 | 噤 | 噤 | 噤 | 噤 |
| 9A9E | 5420 | | 圉 | 國 | 圍 | 圓 | 團 | 圖 | 喬 | 圓 | 圉 | 坏 | 圉 | 圉 | 圉 | 圉 | 圉 |
| 9AAE | 5430 | 坩 | 垂 | 垆 | 坡 | 坩 | 坩 | 垓 | 垓 | 垓 | 垓 | 垓 | 垓 | 垓 | 垓 | 垓 | 垓 |
| 9ABE | 5440 | 埤 | 埤 | 埤 | 埤 | 埤 | 埤 | 埤 | 埤 | 埤 | 埤 | 埤 | 埤 | 埤 | 埤 | 埤 | 埤 |
| 9ACE | 5450 | 墅 | 塢 | 墟 | 墩 | 塢 | 壞 | 墻 | 墻 | 墻 | 墻 | 墻 | 墻 | 墻 | 墻 | 墻 | 墻 |
| 9ADE | 5460 | 壘 | 壤 | 壘 | 壯 | 壺 | 壹 | 壻 | 壺 | 壽 | 久 | 久 | 夂 | 夂 | 夂 | 夥 | 夫 |
| 9AEE | 5470 | 夭 | 夂 | 夸 | 夾 | 奇 | 奕 | 奂 | 奎 | 奚 | 奘 | 奢 | 奠 | 奧 | 獎 | 奘 | |
| 9B3F | 5520 | | 奸 | 妁 | 妝 | 佞 | 佞 | 妣 | 妣 | 姆 | 姨 | 姜 | 妍 | 妊 | 姚 | 娥 | 娟 |
| 9B4F | 5530 | 娑 | 娜 | 娉 | 娉 | 娉 | 姪 | 婉 | 姪 | 娶 | 婢 | 婪 | 媚 | 媪 | 媪 | 媪 | 媪 |
| 9B5F | 5540 | 媽 | 媽 | 媪 | 娉 | 嫩 | 嫖 | 嫖 | 嫖 | 嬌 | 嬋 | 嬋 | 嬋 | 嬋 | 嬋 | 嬋 | 嬋 |
| 9B6F | 5550 | 孃 | 孃 | 孃 | 子 | 孕 | 孚 | 孛 | 孛 | 孩 | 孰 | 孛 | 瞬 | 學 | 孛 | 孛 | 孛 |
| 9B80 | 5560 | 它 | 宦 | 宸 | 冤 | 寇 | 霍 | 寔 | 寐 | 寤 | 實 | 寢 | 寢 | 寥 | 寫 | 寰 | 寶 |
| 9B90 | 5570 | 寶 | 尅 | 將 | 專 | 對 | 尔 | 尅 | 尅 | 尅 | 尸 | 尹 | 屁 | 屆 | 屎 | 屐 | |

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| 9B9E | 5620 | | 屐 | 屛 | 屛 | 屬 | 屮 | 屮 | 岾 | 屹 | 岾 | 岑 | 岔 | 岾 | 岫 | 岷 | 岫 |
| 9BAE | 5630 | 岬 | 岷 | 岷 | 岫 | 岾 | 岾 | 岾 | 岾 | 岾 | 岾 | 岾 | 岾 | 岾 | 岾 | 岾 | 岾 |
| 9BBE | 5640 | 岾 | 岾 | 岾 | 岾 | 岾 | 岾 | 岾 | 岾 | 岾 | 岾 | 岾 | 岾 | 岾 | 岾 | 岾 | 岾 |
| 9BCE | 5650 | 岾 | 岾 | 岾 | 岾 | 岾 | 岾 | 岾 | 岾 | 岾 | 岾 | 岾 | 岾 | 岾 | 岾 | 岾 | 岾 |
| 9BDE | 5660 | 巫 | 巳 | 卮 | 帀 | 帀 | 帀 | 帀 | 帀 | 帀 | 帀 | 帀 | 帀 | 帀 | 帀 | 帀 | 帀 |
| 9BEE | 5670 | 幟 | 幢 | 幣 | 幫 | 幵 | 幵 | 幵 | 幵 | 幵 | 幵 | 幵 | 幵 | 幵 | 幵 | 幵 | 幵 |
| 9C3F | 5720 | | 廖 | 廣 | 廡 | 廚 | 廛 | 廢 | 廡 | 廡 | 廡 | 廡 | 廡 | 廡 | 廡 | 廡 | 廡 |
| 9C4F | 5730 | 卅 | 弃 | 莽 | 莽 | 弋 | 弋 | 弋 | 弋 | 弋 | 弋 | 弋 | 弋 | 弋 | 弋 | 弋 | 弋 |
| 9C5F | 5740 | 彑 | 彑 | 彑 | 彑 | 彑 | 彑 | 彑 | 彑 | 彑 | 彑 | 彑 | 彑 | 彑 | 彑 | 彑 | 彑 |
| 9C6F | 5750 | 徙 | 徙 | 徙 | 徙 | 徙 | 徙 | 徙 | 徙 | 徙 | 徙 | 徙 | 徙 | 徙 | 徙 | 徙 | 徙 |
| 9C80 | 5760 | 怙 | 恂 | 怙 | 恂 | 恂 | 恂 | 恂 | 恂 | 恂 | 恂 | 恂 | 恂 | 恂 | 恂 | 恂 | 恂 |
| 9C90 | 5770 | 協 | 恆 | 恍 | 恣 | 恃 | 恤 | 恂 | 恂 | 恂 | 恂 | 恂 | 恂 | 恂 | 恂 | 恂 | 恂 |
| 9C9E | 5820 | | 悄 | 悛 | 悖 | 悖 | 悖 | 悖 | 悖 | 悖 | 悖 | 悖 | 悖 | 悖 | 悖 | 悖 | 悖 |
| 9CAE | 5830 | 悵 | 惘 | 愠 | 愕 | 愆 | 惶 | 愆 | 愆 | 愆 | 愆 | 愆 | 愆 | 愆 | 愆 | 愆 | 愆 |
| 9CBE | 5840 | 慙 | 慙 | 慙 | 愧 | 慙 | 慙 | 慙 | 慙 | 慙 | 慙 | 慙 | 慙 | 慙 | 慙 | 慙 | 慙 |
| 9CCE | 5850 | 慚 | 慚 | 慚 | 傷 | 慚 | 慚 | 慚 | 慚 | 慚 | 慚 | 慚 | 慚 | 慚 | 慚 | 慚 | 慚 |
| 9CDE | 5860 | 億 | 憑 | 憫 | 憫 | 憫 | 憫 | 憫 | 憫 | 憫 | 憫 | 憫 | 憫 | 憫 | 憫 | 憫 | 憫 |
| 9CEE | 5870 | 懣 | 懶 | 懣 | 懣 | 認 | 懣 | 懣 | 懣 | 懣 | 懣 | 懣 | 懣 | 懣 | 懣 | 懣 | 懣 |
| 9D3F | 5920 | | 戛 | 戛 | 戛 | 戮 | 戰 | 戲 | 戮 | 扁 | 扎 | 扞 | 扣 | 扛 | 扞 | 扞 | 扞 |
| 9D4F | 5930 | 扞 | 抉 | 找 | 抒 | 抓 | 抖 | 拔 | 扞 | 扞 | 扞 | 扞 | 扞 | 扞 | 扞 | 扞 | 扞 |
| 9D5F | 5940 | 拈 | 拜 | 拌 | 拊 | 拂 | 拇 | 拋 | 拉 | 拈 | 拈 | 拈 | 拈 | 拈 | 拈 | 拈 | 拈 |
| 9D6F | 5950 | 捐 | 挾 | 捍 | 搜 | 捏 | 掖 | 揶 | 揶 | 揶 | 揶 | 揶 | 揶 | 揶 | 揶 | 揶 | 揶 |
| 9D80 | 5960 | 扞 | 掾 | 措 | 揀 | 揆 | 揣 | 揉 | 插 | 擲 | 揄 | 搖 | 拳 | 搆 | 搆 | 搆 | 搆 |
| 9D90 | 5970 | 攝 | 搗 | 搗 | 搏 | 摧 | 摯 | 搏 | 摯 | 摯 | 摯 | 摯 | 摯 | 摯 | 摯 | 摯 | 摯 |
| 9D9E | 5A20 | | 據 | 擒 | 擅 | 擇 | 撻 | 擘 | 搯 | 搯 | 舉 | 舉 | 擠 | 擡 | 抬 | 擣 | 擣 |
| 9DAE | 5A30 | 攬 | 擗 | 擴 | 擲 | 擺 | 攀 | 攪 | 攪 | 攪 | 攪 | 攪 | 攪 | 攪 | 攪 | 攪 | 攪 |
| 9DBE | 5A40 | 收 | 攸 | 斂 | 效 | 敖 | 敕 | 敍 | 敍 | 敍 | 敍 | 敍 | 敍 | 敍 | 敍 | 敍 | 敍 |
| 9DCE | 5A50 | 斟 | 斫 | 斷 | 旃 | 旃 | 旁 | 旃 | 旃 | 旃 | 旃 | 旃 | 旃 | 旃 | 旃 | 旃 | 旃 |
| 9DDE | 5A60 | 昃 | 旻 | 杏 | 昵 | 昃 | 昃 | 昃 | 昃 | 昃 | 昃 | 昃 | 昃 | 昃 | 昃 | 昃 | 昃 |
| 9DEE | 5A70 | 晟 | 晝 | 晰 | 罪 | 暈 | 暎 | 暎 | 暎 | 暎 | 暎 | 暎 | 暎 | 暎 | 暎 | 暎 | 暎 |
| 9E3F | 5B20 | | 曄 | 瞭 | 曖 | 矇 | 曠 | 眈 | 曦 | 曩 | 日 | 曳 | 曷 | 眈 | 眈 | 眈 | 眈 |
| 9E4F | 5B30 | 隴 | 霸 | 朮 | 束 | 朮 | 朮 | 朮 | 朮 | 朮 | 朮 | 朮 | 朮 | 朮 | 朮 | 朮 | 朮 |
| 9E5F | 5B40 | 忞 | 杼 | 杪 | 粉 | 枋 | 枋 | 枋 | 枋 | 枋 | 枋 | 枋 | 枋 | 枋 | 枋 | 枋 | 枋 |
| 9E6F | 5B50 | 柞 | 柞 | 柞 | 柞 | 柞 | 柞 | 柞 | 柞 | 柞 | 柞 | 柞 | 柞 | 柞 | 柞 | 柞 | 柞 |
| 9E80 | 5B60 | 梳 | 柞 | 柞 | 柞 | 柞 | 柞 | 柞 | 柞 | 柞 | 柞 | 柞 | 柞 | 柞 | 柞 | 柞 | 柞 |
| 9E90 | 5B70 | 梵 | 柞 | 柞 | 柞 | 柞 | 柞 | 柞 | 柞 | 柞 | 柞 | 柞 | 柞 | 柞 | 柞 | 柞 | 柞 |

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| 9E9E | 5C20 | | 楮 | 棧 | 棕 | 櫻 | 椒 | 接 | 棗 | 棗 | 楸 | 棹 | 棠 | 楡 | 楸 | 楸 | |
| 9EAE | 5C30 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 |
| 9EBE | 5C40 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 |
| 9ECE | 5C50 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 |
| 9EDE | 5C60 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 |
| 9EEE | 5C70 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 |
| 9F3F | 5D20 | | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 |
| 9F4F | 5D30 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 |
| 9F5F | 5D40 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 |
| 9F6F | 5D50 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 |
| 9F80 | 5D60 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 |
| 9F90 | 5D70 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 |
| 9F9E | 5E20 | | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 |
| 9FAE | 5E30 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 |
| 9FBE | 5E40 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 |
| 9FCE | 5E50 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 |
| 9FDE | 5E60 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 |
| 9FEE | 5E70 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 |
| E03F | 5F20 | | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 |
| E04F | 5F30 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 |
| E05F | 5F40 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 |
| E06F | 5F50 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 |
| E080 | 5F60 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 |
| E090 | 5F70 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 |
| E09E | 6020 | | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 |
| E0AE | 6030 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 |
| E0BE | 6040 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 |
| E0CE | 6050 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 |
| E0DE | 6060 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 |
| E0EE | 6070 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 |
| E13F | 6120 | | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 |
| E14F | 6130 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 |
| E15F | 6140 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 |
| E16F | 6150 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 |
| E180 | 6160 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 |
| E190 | 6170 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 | 楸 |

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| E19E | 6220 | | 癩 | 𤑔 | 癸 | 發 | 皂 | 兒 | 𦵏 | 皐 | 皎 | 皖 | 皓 | 皙 | 皚 | 皑 | 皛 |
| E1AE | 6230 | 鞞 | 輝 | 皛 | 孟 | 盍 | 盖 | 盒 | 盞 | 盞 | 盥 | 盧 | 盪 | 盪 | 盪 | 盪 | 眇 |
| E1BE | 6240 | 眇 | 眩 | 昵 | 眞 | 皆 | 眦 | 昧 | 眷 | 眸 | 睇 | 睚 | 睚 | 睚 | 睚 | 睚 | 睿 |
| E1CE | 6250 | 睚 | 睚 | 睚 | 睚 | 睚 | 睚 | 睚 | 睚 | 睚 | 睚 | 睚 | 睚 | 睚 | 睚 | 睚 | 睚 |
| E1DE | 6260 | 矗 | 矚 | 矚 | 矣 | 矮 | 缸 | 砌 | 砒 | 礦 | 砒 | 礪 | 硅 | 碎 | 砒 | 砒 | 砒 |
| E1EE | 6270 | 砒 | 碌 | 碣 | 碩 | 礎 | 礎 | 礎 | 礎 | 礎 | 礎 | 礎 | 礎 | 礎 | 礎 | 礎 | 礎 |
| E23F | 6320 | | 磧 | 磚 | 磽 | 磽 | 磽 | 磽 | 磽 | 磽 | 磽 | 磽 | 磽 | 磽 | 磽 | 磽 | 磽 |
| E24F | 6330 | 祕 | 祓 | 祺 | 祿 | 禊 | 禊 | 禊 | 禊 | 禊 | 禊 | 禊 | 禊 | 禊 | 禊 | 禊 | 禊 |
| E25F | 6340 | 秬 | 秬 | 秬 | 秬 | 秬 | 秬 | 秬 | 秬 | 秬 | 秬 | 秬 | 秬 | 秬 | 秬 | 秬 | 秬 |
| E26F | 6350 | 穉 | 穉 | 穉 | 穉 | 穉 | 穉 | 穉 | 穉 | 穉 | 穉 | 穉 | 穉 | 穉 | 穉 | 穉 | 穉 |
| E280 | 6360 | 窶 | 窶 | 窶 | 窶 | 窶 | 窶 | 窶 | 窶 | 窶 | 窶 | 窶 | 窶 | 窶 | 窶 | 窶 | 窶 |
| E290 | 6370 | 竦 | 竭 | 婭 | 笄 | 笄 | 笄 | 笄 | 笄 | 笄 | 笄 | 笄 | 笄 | 笄 | 笄 | 笄 | 笄 |
| E29E | 6420 | | 筐 | 笄 | 筍 | 筍 | 筍 | 筍 | 筍 | 筍 | 筍 | 筍 | 筍 | 筍 | 筍 | 筍 | 筍 |
| E2AE | 6430 | 箇 | 篋 | 箠 | 箠 | 箠 | 箠 | 箠 | 箠 | 箠 | 箠 | 箠 | 箠 | 箠 | 箠 | 箠 | 箠 |
| E2BE | 6440 | 箠 | 箠 | 箠 | 箠 | 箠 | 箠 | 箠 | 箠 | 箠 | 箠 | 箠 | 箠 | 箠 | 箠 | 箠 | 箠 |
| E2CE | 6450 | 簧 | 簪 | 簪 | 簪 | 簪 | 簪 | 簪 | 簪 | 簪 | 簪 | 簪 | 簪 | 簪 | 簪 | 簪 | 簪 |
| E2DE | 6460 | 籥 | 籥 | 籥 | 籥 | 籥 | 籥 | 籥 | 籥 | 籥 | 籥 | 籥 | 籥 | 籥 | 籥 | 籥 | 籥 |
| E2EE | 6470 | 粽 | 糝 | 糝 | 糝 | 糝 | 糝 | 糝 | 糝 | 糝 | 糝 | 糝 | 糝 | 糝 | 糝 | 糝 | 糝 |
| E33F | 6520 | | 紉 | 紉 | 紉 | 紉 | 紉 | 紉 | 紉 | 紉 | 紉 | 紉 | 紉 | 紉 | 紉 | 紉 | 紉 |
| E34F | 6530 | 絨 | 絮 | 絳 | 絳 | 絳 | 絳 | 絳 | 絳 | 絳 | 絳 | 絳 | 絳 | 絳 | 絳 | 絳 | 絳 |
| E35F | 6540 | 綫 | 總 | 綢 | 綢 | 綢 | 綢 | 綢 | 綢 | 綢 | 綢 | 綢 | 綢 | 綢 | 綢 | 綢 | 綢 |
| E36F | 6550 | 縊 | 縣 | 縊 | 縊 | 縊 | 縊 | 縊 | 縊 | 縊 | 縊 | 縊 | 縊 | 縊 | 縊 | 縊 | 縊 |
| E380 | 6560 | 縲 | 縲 | 縲 | 縲 | 縲 | 縲 | 縲 | 縲 | 縲 | 縲 | 縲 | 縲 | 縲 | 縲 | 縲 | 縲 |
| E390 | 6570 | 辨 | 縲 | 縲 | 縲 | 縲 | 縲 | 縲 | 縲 | 縲 | 縲 | 縲 | 縲 | 縲 | 縲 | 縲 | 縲 |
| E39E | 6620 | | 罇 | 罇 | 罇 | 罇 | 罇 | 罇 | 罇 | 罇 | 罇 | 罇 | 罇 | 罇 | 罇 | 罇 | 罇 |
| E3AE | 6630 | 羈 | 羈 | 羈 | 羈 | 羈 | 羈 | 羈 | 羈 | 羈 | 羈 | 羈 | 羈 | 羈 | 羈 | 羈 | 羈 |
| E3BE | 6640 | 羈 | 羈 | 羈 | 羈 | 羈 | 羈 | 羈 | 羈 | 羈 | 羈 | 羈 | 羈 | 羈 | 羈 | 羈 | 羈 |
| E3CE | 6650 | 耒 | 耘 | 耜 | 耜 | 耜 | 耜 | 耜 | 耜 | 耜 | 耜 | 耜 | 耜 | 耜 | 耜 | 耜 | 耜 |
| E3DE | 6660 | 聳 | 聳 | 聳 | 聳 | 聳 | 聳 | 聳 | 聳 | 聳 | 聳 | 聳 | 聳 | 聳 | 聳 | 聳 | 聳 |
| E3EE | 6670 | 胛 | 胛 | 胛 | 胛 | 胛 | 胛 | 胛 | 胛 | 胛 | 胛 | 胛 | 胛 | 胛 | 胛 | 胛 | 胛 |
| E43F | 6720 | | 脍 | 脍 | 脍 | 脍 | 脍 | 脍 | 脍 | 脍 | 脍 | 脍 | 脍 | 脍 | 脍 | 脍 | 脍 |
| E44F | 6730 | 脍 | 脍 | 脍 | 脍 | 脍 | 脍 | 脍 | 脍 | 脍 | 脍 | 脍 | 脍 | 脍 | 脍 | 脍 | 脍 |
| E45F | 6740 | 脍 | 脍 | 脍 | 脍 | 脍 | 脍 | 脍 | 脍 | 脍 | 脍 | 脍 | 脍 | 脍 | 脍 | 脍 | 脍 |
| E46F | 6750 | 與 | 舊 | 舍 | 舐 | 舖 | 舩 | 舩 | 舩 | 舩 | 舩 | 舩 | 舩 | 舩 | 舩 | 舩 | 舩 |
| E480 | 6760 | 艦 | 艦 | 艦 | 艦 | 艦 | 艦 | 艦 | 艦 | 艦 | 艦 | 艦 | 艦 | 艦 | 艦 | 艦 | 艦 |
| E490 | 6770 | 苴 | 苟 | 苒 | 苴 | 苴 | 苴 | 苴 | 苴 | 苴 | 苴 | 苴 | 苴 | 苴 | 苴 | 苴 | 苴 |

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|-------|------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| E49E | 6820 | | 茵 | 茴 | 茗 | 茲 | 茱 | 荀 | 茹 | 苻 | 苔 | 茯 | 茫 | 茗 | 荔 | 莅 | 莖 |
| E4AE | 6830 | 莪 | 苔 | 莢 | 莖 | 莫 | 莎 | 苳 | 莊 | 荼 | 菟 | 荳 | 葱 | 莠 | 莉 | 苳 | 菴 |
| E4BE | 6840 | 萱 | 董 | 莧 | 菽 | 萃 | 崧 | 萋 | 菁 | 葶 | 萇 | 菠 | 菲 | 萍 | 范 | 萌 | 莽 |
| E4CE | 6850 | 莢 | 菱 | 苽 | 葭 | 菽 | 萇 | 萇 | 葶 | 葶 | 胡 | 葛 | 葭 | 蒂 | 葩 | 葆 | 萬 |
| E4DE | 6860 | 葯 | 施 | 蒿 | 蓀 | 葢 | 兼 | 蒿 | 蒟 | 蒞 | 著 | 蕝 | 蓐 | 蓐 | 藜 | 蓆 | 蕘 |
| E4EE | 6870 | 莠 | 蔡 | 蓍 | 蓐 | 蔗 | 蔘 | 蔬 | 蔴 | 蔴 | 荀 | 蔘 | 蔴 | 蔴 | 蕘 | 蕘 | |
| E53F | 6920 | | 蓐 | 藥 | 葢 | 蔞 | 蔞 | 薈 | 薈 | 薈 | 薈 | 薈 | 薈 | 薈 | 薈 | 薈 | 薈 |
| E54F | 6930 | 薈 | 薈 | 薈 | 薈 | 薈 | 薈 | 薈 | 薈 | 薈 | 薈 | 薈 | 薈 | 薈 | 薈 | 薈 | 薈 |
| E55F | 6940 | 薈 | 薈 | 薈 | 薈 | 薈 | 薈 | 薈 | 薈 | 薈 | 薈 | 薈 | 薈 | 薈 | 薈 | 薈 | 薈 |
| E56F | 6950 | 蚩 | 蚪 | 蚩 | 蚪 | 蚩 | 蚪 | 蚩 | 蚪 | 蚩 | 蚪 | 蚩 | 蚪 | 蚩 | 蚪 | 蚩 | 蚪 |
| E580 | 6960 | 蛟 | 蛛 | 蛭 | 蛭 | 蛭 | 蛭 | 蛭 | 蛭 | 蛭 | 蛭 | 蛭 | 蛭 | 蛭 | 蛭 | 蛭 | 蛭 |
| E590 | 6970 | 蝮 | 蜻 | 蜥 | 蜥 | 蜥 | 蜥 | 蜥 | 蜥 | 蜥 | 蜥 | 蜥 | 蜥 | 蜥 | 蜥 | 蜥 | 蜥 |
| E59E | 6A20 | | 蝮 | 蝮 | 蝮 | 蝮 | 蝮 | 蝮 | 蝮 | 蝮 | 蝮 | 蝮 | 蝮 | 蝮 | 蝮 | 蝮 | 蝮 |
| E5AE | 6A30 | 蝮 | 蝮 | 蝮 | 蝮 | 蝮 | 蝮 | 蝮 | 蝮 | 蝮 | 蝮 | 蝮 | 蝮 | 蝮 | 蝮 | 蝮 | 蝮 |
| E5BE | 6A40 | 蠕 | 蠶 | 蠶 | 蠶 | 蠶 | 蠶 | 蠶 | 蠶 | 蠶 | 蠶 | 蠶 | 蠶 | 蠶 | 蠶 | 蠶 | 蠶 |
| E5CE | 6A50 | 衾 | 衾 | 衾 | 衾 | 衾 | 衾 | 衾 | 衾 | 衾 | 衾 | 衾 | 衾 | 衾 | 衾 | 衾 | 衾 |
| E5DE | 6A60 | 袂 | 袂 | 袂 | 袂 | 袂 | 袂 | 袂 | 袂 | 袂 | 袂 | 袂 | 袂 | 袂 | 袂 | 袂 | 袂 |
| E5EE | 6A70 | 袂 | 袂 | 袂 | 袂 | 袂 | 袂 | 袂 | 袂 | 袂 | 袂 | 袂 | 袂 | 袂 | 袂 | 袂 | 袂 |
| E63F | 6B20 | | 襦 | 襦 | 襦 | 襦 | 襦 | 襦 | 襦 | 襦 | 襦 | 襦 | 襦 | 襦 | 襦 | 襦 | 襦 |
| E64F | 6B30 | 覲 | 覲 | 覲 | 覲 | 覲 | 覲 | 覲 | 覲 | 覲 | 覲 | 覲 | 覲 | 覲 | 覲 | 覲 | 覲 |
| E65F | 6B40 | 訐 | 訐 | 訐 | 訐 | 訐 | 訐 | 訐 | 訐 | 訐 | 訐 | 訐 | 訐 | 訐 | 訐 | 訐 | 訐 |
| E66F | 6B50 | 詭 | 詭 | 詭 | 詭 | 詭 | 詭 | 詭 | 詭 | 詭 | 詭 | 詭 | 詭 | 詭 | 詭 | 詭 | 詭 |
| E680 | 6B60 | 諤 | 諤 | 諤 | 諤 | 諤 | 諤 | 諤 | 諤 | 諤 | 諤 | 諤 | 諤 | 諤 | 諤 | 諤 | 諤 |
| E690 | 6B70 | 謳 | 謳 | 謳 | 謳 | 謳 | 謳 | 謳 | 謳 | 謳 | 謳 | 謳 | 謳 | 謳 | 謳 | 謳 | 謳 |
| E69E | 6C20 | | 譟 | 譟 | 譟 | 譟 | 譟 | 譟 | 譟 | 譟 | 譟 | 譟 | 譟 | 譟 | 譟 | 譟 | 譟 |
| E6AE | 6C30 | 谿 | 豈 | 豈 | 豈 | 豈 | 豈 | 豈 | 豈 | 豈 | 豈 | 豈 | 豈 | 豈 | 豈 | 豈 | 豈 |
| E6BE | 6C40 | 貌 | 貌 | 貌 | 貌 | 貌 | 貌 | 貌 | 貌 | 貌 | 貌 | 貌 | 貌 | 貌 | 貌 | 貌 | 貌 |
| E6CE | 6C50 | 賽 | 賺 | 賺 | 賺 | 賺 | 賺 | 賺 | 賺 | 賺 | 賺 | 賺 | 賺 | 賺 | 賺 | 賺 | 賺 |
| E6DE | 6C60 | 赅 | 赅 | 赅 | 赅 | 赅 | 赅 | 赅 | 赅 | 赅 | 赅 | 赅 | 赅 | 赅 | 赅 | 赅 | 赅 |
| E6EE | 6C70 | 跟 | 跟 | 跟 | 跟 | 跟 | 跟 | 跟 | 跟 | 跟 | 跟 | 跟 | 跟 | 跟 | 跟 | 跟 | 跟 |
| E73F | 6D20 | | 蹇 | 蹇 | 蹇 | 蹇 | 蹇 | 蹇 | 蹇 | 蹇 | 蹇 | 蹇 | 蹇 | 蹇 | 蹇 | 蹇 | 蹇 |
| E74F | 6D30 | 蹇 | 蹇 | 蹇 | 蹇 | 蹇 | 蹇 | 蹇 | 蹇 | 蹇 | 蹇 | 蹇 | 蹇 | 蹇 | 蹇 | 蹇 | 蹇 |
| E75F | 6D40 | 輿 | 輿 | 輿 | 輿 | 輿 | 輿 | 輿 | 輿 | 輿 | 輿 | 輿 | 輿 | 輿 | 輿 | 輿 | 輿 |
| E76F | 6D50 | 輿 | 輿 | 輿 | 輿 | 輿 | 輿 | 輿 | 輿 | 輿 | 輿 | 輿 | 輿 | 輿 | 輿 | 輿 | 輿 |
| E780 | 6D60 | 輿 | 輿 | 輿 | 輿 | 輿 | 輿 | 輿 | 輿 | 輿 | 輿 | 輿 | 輿 | 輿 | 輿 | 輿 | 輿 |
| E790 | 6D70 | 迓 | 迹 | 迹 | 迹 | 迹 | 迹 | 迹 | 迹 | 迹 | 迹 | 迹 | 迹 | 迹 | 迹 | 迹 | 迹 |

| S-JIS | JIS | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
|-------|------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| E79E | 6E20 | | 遏 | 遐 | 遑 | 迢 | 迢 | 逾 | 適 | 邁 | 邁 | 邁 | 邁 | 邁 | 隨 | 遲 | |
| E7AE | 6E30 | 邈 | 邈 | 邁 | 邀 | 邊 | 邊 | 邈 | 邈 | 邈 | 邈 | 邈 | 邈 | 邈 | 邈 | 邈 | 邈 |
| E7BE | 6E40 | 鄒 | 鄒 | 鄒 | 鄰 | 酏 | 酏 | 酏 | 酏 | 酏 | 酏 | 酏 | 酏 | 酏 | 酏 | 酏 | 酏 |
| E7CE | 6E50 | 醫 | 醯 | 醯 | 醯 | 醴 | 醴 | 醴 | 醴 | 醴 | 醴 | 醴 | 醴 | 醴 | 醴 | 醴 | 醴 |
| E7DE | 6E60 | 釵 | 鈹 | 鈞 | 釵 | 鈔 | 鈔 | 鈔 | 鈔 | 鈔 | 鈔 | 鈔 | 鈔 | 鈔 | 鈔 | 鈔 | 鈔 |
| E7EE | 6E70 | 鈔 | 鈔 | 銜 | 銖 | 銓 | 銓 | 銓 | 銓 | 銓 | 銓 | 銓 | 銓 | 銓 | 銓 | 銓 | 銓 |
| E83F | 6F20 | | 鎰 | 錢 | 錚 | 鋸 | 鋸 | 鋸 | 鋸 | 鋸 | 鋸 | 鋸 | 鋸 | 鋸 | 鋸 | 鋸 | 鋸 |
| E84F | 6F30 | 鎔 | 鎔 | 鑿 | 鏗 | 鑿 | 鑿 | 鏘 | 鏘 | 鏘 | 鏘 | 鏘 | 鏘 | 鏘 | 鏘 | 鏘 | 鏘 |
| E85F | 6F40 | 鑄 | 鑄 | 鑄 | 鑄 | 鑄 | 鑄 | 鑄 | 鑄 | 鑄 | 鑄 | 鑄 | 鑄 | 鑄 | 鑄 | 鑄 | 鑄 |
| E86F | 6F50 | 鑰 | 鑰 | 鑰 | 鑰 | 鑰 | 鑰 | 鑰 | 鑰 | 鑰 | 鑰 | 鑰 | 鑰 | 鑰 | 鑰 | 鑰 | 鑰 |
| E880 | 6F60 | 閏 | 閏 | 閏 | 閏 | 閏 | 閏 | 閏 | 閏 | 閏 | 閏 | 閏 | 閏 | 閏 | 閏 | 閏 | 閏 |
| E890 | 6F70 | 關 | 關 | 關 | 關 | 關 | 關 | 關 | 關 | 關 | 關 | 關 | 關 | 關 | 關 | 關 | 關 |
| E89E | 7020 | | 陝 | 陟 | 陟 | 陟 | 陟 | 陟 | 陟 | 陟 | 陟 | 陟 | 陟 | 陟 | 陟 | 陟 | 陟 |
| E8AE | 7030 | 隸 | 隸 | 隸 | 隸 | 隸 | 隸 | 隸 | 隸 | 隸 | 隸 | 隸 | 隸 | 隸 | 隸 | 隸 | 隸 |
| E8BE | 7040 | 霏 | 霏 | 霏 | 霏 | 霏 | 霏 | 霏 | 霏 | 霏 | 霏 | 霏 | 霏 | 霏 | 霏 | 霏 | 霏 |
| E8CE | 7050 | 靜 | 靠 | 靠 | 靠 | 靠 | 靠 | 靠 | 靠 | 靠 | 靠 | 靠 | 靠 | 靠 | 靠 | 靠 | 靠 |
| E8DE | 7060 | 鞅 | 鞅 | 鞅 | 鞅 | 鞅 | 鞅 | 鞅 | 鞅 | 鞅 | 鞅 | 鞅 | 鞅 | 鞅 | 鞅 | 鞅 | 鞅 |
| E8EE | 7070 | 韶 | 韻 | 韻 | 韻 | 韻 | 韻 | 韻 | 韻 | 韻 | 韻 | 韻 | 韻 | 韻 | 韻 | 韻 | 韻 |
| E93F | 7220 | | 顛 | 顛 | 顛 | 顛 | 顛 | 顛 | 顛 | 顛 | 顛 | 顛 | 顛 | 顛 | 顛 | 顛 | 顛 |
| E94F | 7230 | 餽 | 餽 | 餽 | 餽 | 餽 | 餽 | 餽 | 餽 | 餽 | 餽 | 餽 | 餽 | 餽 | 餽 | 餽 | 餽 |
| E95F | 7240 | 饑 | 饒 | 饒 | 饒 | 饒 | 饒 | 馭 | 馭 | 馭 | 馭 | 馭 | 馭 | 馭 | 馭 | 馭 | 馭 |
| E96F | 7250 | 駁 | 駱 | 駱 | 駱 | 駱 | 駱 | 駱 | 駱 | 駱 | 駱 | 駱 | 駱 | 駱 | 駱 | 駱 | 駱 |
| E980 | 7260 | 騾 | 驕 | 驕 | 驕 | 驕 | 驕 | 驕 | 驕 | 驕 | 驕 | 驕 | 驕 | 驕 | 驕 | 驕 | 驕 |
| E990 | 7270 | 髀 | 髀 | 髀 | 髀 | 髀 | 髀 | 髀 | 髀 | 髀 | 髀 | 髀 | 髀 | 髀 | 髀 | 髀 | 髀 |
| E99E | 7220 | | 髻 | 髻 | 髻 | 髻 | 髻 | 髻 | 髻 | 髻 | 髻 | 髻 | 髻 | 髻 | 髻 | 髻 | 髻 |
| E9AE | 7230 | 魄 | 魃 | 魏 | 魃 | 魃 | 魃 | 魃 | 魃 | 魃 | 魃 | 魃 | 魃 | 魃 | 魃 | 魃 | 魃 |
| E9BE | 7240 | 魃 | 魃 | 魃 | 魃 | 魃 | 魃 | 魃 | 魃 | 魃 | 魃 | 魃 | 魃 | 魃 | 魃 | 魃 | 魃 |
| E9CE | 7250 | 魃 | 魃 | 魃 | 魃 | 魃 | 魃 | 魃 | 魃 | 魃 | 魃 | 魃 | 魃 | 魃 | 魃 | 魃 | 魃 |
| E9DE | 7260 | 魃 | 魃 | 魃 | 魃 | 魃 | 魃 | 魃 | 魃 | 魃 | 魃 | 魃 | 魃 | 魃 | 魃 | 魃 | 魃 |
| E9EE | 7270 | 魃 | 魃 | 魃 | 魃 | 魃 | 魃 | 魃 | 魃 | 魃 | 魃 | 魃 | 魃 | 魃 | 魃 | 魃 | 魃 |
| EA3F | 7320 | | 鵠 | 鵠 | 鵠 | 鵠 | 鵠 | 鵠 | 鵠 | 鵠 | 鵠 | 鵠 | 鵠 | 鵠 | 鵠 | 鵠 | 鵠 |
| EA4F | 7330 | 鵠 | 鵠 | 鵠 | 鵠 | 鵠 | 鵠 | 鵠 | 鵠 | 鵠 | 鵠 | 鵠 | 鵠 | 鵠 | 鵠 | 鵠 | 鵠 |
| EA5F | 7340 | 鸚 | 鸚 | 鸚 | 鹵 | 鹵 | 鹵 | 鹿 | 鹿 | 鹿 | 鹿 | 鹿 | 鹿 | 鹿 | 鹿 | 鹿 | 鹿 |
| EA6F | 7350 | 麩 | 麩 | 麩 | 麩 | 麩 | 麩 | 麩 | 麩 | 麩 | 麩 | 麩 | 麩 | 麩 | 麩 | 麩 | 麩 |
| EA80 | 7360 | 黴 | 麩 | 麩 | 麩 | 麩 | 麩 | 麩 | 麩 | 麩 | 麩 | 麩 | 麩 | 麩 | 麩 | 麩 | 麩 |
| EA90 | 7370 | 齧 | 齧 | 齧 | 齧 | 齧 | 齧 | 齧 | 齧 | 齧 | 齧 | 齧 | 齧 | 齧 | 齧 | 齧 | 齧 |

4. Memory Switch

Memory switch is a function to save the user selected settings into NV memory, where memory switch setting will be held unless memory switch is changed.

Memory switch is changed by manual setting or by command in the memory switch change mode.

* Hereafter, memory switch is referred to as MSW.

4.1 Memory Switches

4.1.1 CT-S280

| No. | Setting | OFF | ON |
|--------|-----------------|------------|-------------|
| MSW1-1 | Power ON Info | ● Send | Not send |
| MSW1-2 | Buffer Size | ● 4K bytes | 45 bytes |
| MSW1-3 | Busy Condition | ● Full/Err | Full |
| MSW1-4 | Receive Error | ● Print ? | No Print |
| MSW1-5 | CR mode | ● Ignored | LF |
| MSW1-6 | Reserved | ● Fixed | — |
| MSW1-7 | DSR Signal | ● Invalid | Valid |
| MSW1-8 | Reserved | ● Fixed | — |
| MSW2-1 | Reserved | — | ● Fixed |
| MSW2-2 | Reserved | ● Fixed | — |
| MSW2-3 | Spool Print | ● Invalid | Valid |
| MSW2-4 | Full Col Print | ● LineFeed | WaitData |
| MSW2-5 | Resume aft PE | ● Next | Top |
| MSW2-6 | Reserved | — | ● Fixed |
| MSW2-7 | Reserved | ● Fixed | — |
| MSW2-8 | PNE Sensor | ● Valid | Invalid |
| MSW3-1 | Reserved | ● Fixed | — |
| MSW3-2 | Reserved | ● Fixed | — |
| MSW3-3 | Parallel 31 Pin | ● Valid | Invalid |
| MSW3-4 | Reserved | ● Fixed | — |
| MSW3-5 | Reserved | ● Fixed | — |
| MSW3-6 | Reserved | ● Fixed | — |
| MSW3-7 | CBM-270 Mode | Invalid | ● Valid |
| MSW3-8 | Resum Open Err | ● Close | Command |
| MSW4-1 | Reserved | ● Fixed | — |
| MSW4-2 | Reserved | ● Fixed | — |
| MSW4-3 | Reserved | ● Fixed | — |
| MSW4-4 | Reserved | ● Fixed | — |
| MSW4-5 | Reserved | ● Fixed | — |
| MSW4-6 | Reserved | ● Fixed | — |
| MSW4-7 | DC3 Function | ● 2 Color | B/W Reverse |
| MSW4-8 | Reserved | ● Fixed | — |

●: Factory setting

| No. | Setting | Default | Set Values |
|---------|---------------|----------|---|
| MSW7-1 | Baud Rate | 9600bps | 1200bps, 2400bps, 4800bps, 9600bps, 19200bps, 38400bps, 57600bps, 115200bps |
| MSW7-2 | Data Length | 8bits | 7bits, 8bits |
| MSW7-3 | Stop Bit | 1bit | 1bit, 2bits |
| MSW7-4 | Parity | None | None, Odd, Even |
| MSW7-5 | Flow Control | Xon/Xoff | DTR/DSR, Xon/Xoff |
| MSW7-6 | Reserved | — | — |
| MSW7-7 | Reserved | — | — |
| MSW8-1 | Reserved | — | — |
| MSW8-2 | Paper Type | 1 Color | 1 Color, 2 Color |
| MSW9-1 | Code Page | PC437 | PC437, Katakana, PC850, PC858, PC860, PC863, PC865, PC852, PC866, PC857, WindowsCode, Space page, PC864, ThaiCode18 |
| MSW9-2 | Int'Char Set | USA | USA, France, Germany, England, Denmark, Sweden, Italy, Spain, Japan, Norway, Denmark 2, Spain 2, Latin America, Korea |
| MSW9-3 | Kanji | OFF | ON, OFF |
| MSW9-4 | JIS/Shift JIS | JIS | JIS, Shift JIS |
| MSW10-1 | Print Density | 100% | 70%,75%,80%,85%,90%,95%,100%,105%,110%,115%,120%,125%,130%,135%,140% |
| MSW10-2 | Print Speed | Level9 | Level1,Level2,Level3,Level4,Level5,Level6,Level7,Level8,Level9 |
| MSW10-3 | Reserved | — | — |
| MSW10-4 | Reserved | — | — |

4.1.2 CT-S281

| No. | Setting | OFF | ON |
|--------|-------------------|----------------|-----------------|
| MSW1-1 | Power ON Info | ● Valid | Not send |
| MSW1-2 | Buffer Size | ● 4K bytes | 45 bytes |
| MSW1-3 | Busy Condition | ● Full/Err | Full |
| MSW1-4 | Receive Error | ● Print "?" | No Print |
| MSW1-5 | CR mode | ● Ignored | LF |
| MSW1-6 | Reserved | ● Fixed | — |
| MSW1-7 | DSR Signal | ● Invalid | Valid |
| MSW1-8 | Reserved | ● Fixed | — |
| MSW2-1 | Reserved | — | ● Fixed |
| MSW2-2 | Auto Cutter | Invalid | ● Valid |
| MSW2-3 | Spool Print | ● Invalid | Valid |
| MSW2-4 | Full Col Print | LineFeed | ● WaitData |
| MSW2-5 | Resume aft PE | ● Next | Top |
| MSW2-6 | Reserved | — | ● Fixed |
| MSW2-7 | Reserved | ● Fixed | — |
| MSW2-8 | PNE Sensor | Valid | ● Invalid |
| MSW3-1 | Resum Ctrr Err | ● Valid | Invalid |
| MSW3-2 | Reserved | ● Fixed | — |
| MSW3-3 | Reserved | — | ● Fixed |
| MSW3-4 | Reserved | ● Fixed | — |
| MSW3-5 | Reserved | ● Fixed | — |
| MSW3-6 | Reserved | ● Fixed | — |
| MSW3-7 | CBM270 Mode | Invalid | ● Valid |
| MSW3-8 | Resum Open Err | ● Close | Command |
| MSW4-1 | P. Length Set | ● Auto Measure | Command |
| MSW4-2 | Power on TOF | ● Invalid | Valid |
| MSW4-3 | FEED&CUT at TOF | Invalid | ● Valid |
| MSW4-4 | Paper Select | ● Thermal Roll | BM.P / Lbl.P |
| MSW4-5 | Position detect | ● Black Mark | Label |
| MSW4-6 | C.Close Action | ● Find TOF | Auto Measure |
| MSW4-7 | Auto Paper Select | ● Invalid | Valid |
| MSW4-8 | Partial only | Invalid | ● Valid |
| MSW5-1 | Reserved | ● Fixed | — |
| MSW5-2 | Reserved | ● Fixed | — |
| MSW5-3 | USB Mode | Virtual COM | ● Printer Class |
| MSW5-4 | Reserved | ● Fixed | — |
| MSW5-5 | Reserved | ● Fixed | — |
| MSW5-6 | Reserved | ● Fixed | — |
| MSW5-7 | Clear PNE LED | ● Auto | Paper set |
| MSW5-8 | Reserved | ● Fixed | — |

●: Factory setting

| No. | Setting | Default | Set Values |
|---------|---------------|------------|---|
| MSW7-1 | Baud Rate | 9600bps | 1200bps, 2400bps, 4800bps, 9600bps, 19200bps, 38400bps |
| MSW7-2 | Data Length | 8bits | 7bits, 8bits |
| MSW7-3 | Stop Bit | 1bit | 1bit, 2bits |
| MSW7-4 | Parity | None | None, Odd, Even |
| MSW7-5 | Flow Control | Xon/Xoff | DTR/DSR, Xon/Xoff |
| MSW7-6 | Reserved | — | — |
| MSW7-7 | VCom Protocol | PC setting | PC setting, DTR/DSR, XON/XOFF |
| MSW8-1 | Reserved | — | — |
| MSW8-2 | Paper Type | 1 Color | 1 Color, 2 Color |
| MSW9-1 | Code Page | PC437 | PC437, Katakana, PC850, PC858, PC860, PC863, PC865, PC852, PC866, PC857, WindowsCode, Space page, PC864, ThaiCode18 |
| MSW9-2 | Int'Char Set | USA | USA, France, Germany, England, Denmark, Sweden, Italy, Spain, Japan, Norway, Denmark 2, Spain 2, Latin America, Korea, Croatia, China |
| MSW9-3 | Kanji | OFF | ON, OFF |
| MSW9-4 | JIS/Shift JIS | JIS | JIS, Shift JIS |
| MSW10-1 | Print Density | 100% | 70%,75%,80%,85%,90%,95%,100%,105%,110%,115%,120%,125%,130%,135%,140% |
| MSW10-2 | Print Speed | Level9 | Level1,Level2,Level3,Level4,Level5,Level6,Level7,Level8,Level9 |

<<Difference of MSW by the model>>

MSW4-4 and MSW4-5 are different by the model as follows.

| Model | Standard | | Black mark model | | Label model | |
|--------|----------|----------------------|------------------|----------------------------------|-------------|----------------------------------|
| MSW4-4 | OFF | Thermal paper | ON | Black mark paper/ Label paper | ON | Black mark paper/ Label paper |
| MSW4-5 | OFF | Black mark detection | OFF | Black mark detection | ON | Label detection |

4.1.3 CT-S300

| No. | Setting | OFF | ON |
|--------|-----------------|-------------|------------|
| MSW1-1 | Power ON Info | ● Valid | Not send |
| MSW1-2 | Buffer Size | ● 4K bytes | 45 bytes |
| MSW1-3 | Busy Condition | ● Full/Err | Full |
| MSW1-4 | Receive Error | ● Print ? | No Print |
| MSW1-5 | CR mode | ● Ignored | LF |
| MSW1-6 | Reserved | ● Fixed | — |
| MSW1-7 | DSR Signal | ● Invalid | Valid |
| MSW1-8 | Init Signal | ● Invalid | Valid |
| MSW2-1 | Reserved | — | ● Fixed |
| MSW2-2 | Auto Cutter | Invalid | ● Valid |
| MSW2-3 | Spool Print | ● Invalid | Valid |
| MSW2-4 | Full Col Print | LineFeed | ● WaitData |
| MSW2-5 | Resume aft PE | ● Next | Top |
| MSW2-6 | Paper width | ● 80mm | 58mm |
| MSW2-7 | Reserved | ● Fixed | — |
| MSW2-8 | PNE Sensor | ● Valid | Invalid |
| MSW3-1 | Resum Ctrr Err | ● Valid | Invalid |
| MSW3-2 | Resum Open Err | ● close | command |
| MSW3-3 | Parallel 31 Pin | ● Valid | Invalid |
| MSW3-4 | Paper Select | ● Thermal | Black MK |
| MSW3-5 | Column Number | ● 48/32 col | 42/30 col |
| MSW3-6 | Reserved | ● Fixed | — |
| MSW3-7 | CBM1000 Mode | ● Invalid | Valid |
| MSW3-8 | Resum Open Err | ● Close | command |
| MSW4-1 | BM Measure | ● Invalid | Valid |
| MSW4-2 | BM Sensor | ● surface | Back |
| MSW4-3 | Reserved | ● Fixed | — |
| MSW4-4 | Reserved | ● Fixed | — |
| MSW4-5 | Reserved | ● Fixed | — |
| MSW4-6 | Reserved | ● Fixed | — |
| MSW4-7 | Reserved | ● Fixed | — |
| MSW4-8 | Partial only | Invalid | ● Valid |

●: Factory setting

<<Difference of MSW by the model>>

MSW3-4 and MSW4-2 are different by the model as follows.

| Model | Standard model | | Black mark model (Sensor at front side of paper) | | Black mark model (Sensor at back side of paper) | |
|--------|----------------|---------------|--|---------------|---|-----------|
| | MSW3-4 | OFF | Thermal paper | ON | Black mark | ON |
| MSW4-2 | OFF | Front surface | OFF | Front surface | ON | Back side |

4.1.4 CT-S310

| No. | Setting | OFF | ON |
|--------|-----------------|----------------|-----------------|
| MSW1-1 | Power ON Info | ● Valid | Not send |
| MSW1-2 | Buffer Size | ● 4K bytes | 45 bytes |
| MSW1-3 | Busy Condition | ● Full/Err | Full |
| MSW1-4 | Receive Error | ● Print "?" | No Print |
| MSW1-5 | CR mode | ● Ignored | LF |
| MSW1-6 | Reserved | ● Fixed | — |
| MSW1-7 | DSR Signal | ● Invalid | Valid |
| MSW1-8 | Init Signal | ● Invalid | Valid |
| MSW2-1 | Reserved | — | ● Fixed |
| MSW2-2 | Auto Cutter | Invalid | ● Valid |
| MSW2-3 | Spool Print | ● Invalid | Valid |
| MSW2-4 | Full Col Print | LineFeed | ● WaitData |
| MSW2-5 | Resume aft PE | ● Next | Top |
| MSW2-6 | Paper Width | ● 80mm | 58mm |
| MSW2-7 | Reserved | ● Fixed | — |
| MSW2-8 | PNE Sensor | ● Valid | Invalid |
| MSW3-1 | Resum Ctrr Err | ● Valid | Invalid |
| MSW3-2 | Reserved | ● Fixed | — |
| MSW3-3 | Parallel 31 Pin | ● Valid | Invalid |
| MSW3-4 | Paper Select | ● Thermal | Black MK |
| MSW3-5 | Column Number | ● 48/32Col | 42/30Col |
| MSW3-6 | Reserved | ● Fixed | — |
| MSW3-7 | CBM1000 Mode | ● Invalid | Valid |
| MSW3-8 | Resum Open Err | ● Close | Command |
| MSW4-1 | Auto Length | ● Invalid | Auto |
| MSW4-2 | BM sensor | ● Surface | Back |
| MSW4-3 | FEED&CUT at TOF | Invalid | ● Valid |
| MSW4-4 | Reserved | ● Fixed | — |
| MSW4-5 | Reserved | ● Fixed | — |
| MSW4-6 | Reserved | ● Fixed | — |
| MSW4-7 | Reserved | ● Fixed | — |
| MSW4-8 | Partial only | Invalid | ● Valid |
| MSW5-1 | Buzzer | ● Auto | Invalid |
| MSW5-2 | Reserved | ● Fixed | — |
| MSW5-3 | USB Mode | Virtual COM | ● Printer Class |
| MSW5-4 | Reserved | ● Fixed | — |
| MSW5-5 | Power OFF Info | ● Valid | Invalid |
| MSW5-6 | Reserved | ● Fixed | — |
| MSW5-7 | Clear PNE LED | ● Auto | Paper set |
| MSW5-8 | FAULT Output | ● PE, PNE, Err | PE, Err |

●: Factory setting

| No. | Setting | Default | Set Values |
|---------|---------------|------------|---|
| MSW7-1 | Baud Rate | 9600bps | 1200bps, 2400bps, 4800bps, 9600bps, 19200bps, 38400bps |
| MSW7-2 | Data Length | 8bits | 7bits, 8bits |
| MSW7-3 | Stop Bit | 1bit | 1bit, 2bits |
| MSW7-4 | Parity | None | None, Odd, Even |
| MSW7-5 | Flow Control | Xon/Xoff | DTR/DSR, Xon/Xoff |
| MSW7-6 | Reserved | — | — |
| MSW7-7 | VCom Protocol | PC setting | PC setting, DTR/DSR, XON/XOFF |
| MSW8-1 | Reserved | — | — |
| MSW8-2 | Paper Type | 1 Color | 1 Color, 2 Color |
| MSW9-1 | Code Page | PC437 | PC437, Katakana, PC850, PC858, PC860, PC863, PC865, PC852, PC866, PC857, WindowsCode, Space page, PC864, ThaiCode18 |
| MSW9-2 | Int'Char Set | USA | USA, France, Germany, England, Denmark, Sweden, Italy, Spain, Japan, Norway, Denmark 2, Spain 2, Latin America, Korea, Croatia, China |
| MSW9-3 | Kanji | OFF | ON, OFF |
| MSW9-4 | JIS/Shift JIS | JIS | JIS, Shift JIS |
| MSW10-1 | Print Density | 100% | 70%, 75%, 80%, 85%, 90%, 95%, 100%, 105%, 110%, 115%, 120%, 125%, 130%, 135%, 140% |
| MSW10-2 | Print Speed | Level9 | Level1, Level2, Level3, Level4, Level5, Level6, Level7, Level8, Level9 |

<<Difference of MSW by the model>>

MSW3-4 and MSW4-2 are different by the model as follows.

| Model | Standard model | | Black mark model (Sensor at front side of paper) | | Black mark model (Sensor at back side of paper) | |
|--------|----------------|---------------|--|---------------|---|-----------|
| | MSW3-4 | OFF | Thermal paper | ON | Black mark | ON |
| MSW4-2 | OFF | Front surface | OFF | Front surface | ON | Back side |

4.1.5 CT-S2000

| No. | Setting | OFF | ON |
|--------|-----------------|-------------|-----------------|
| MSW1-1 | Power ON Info | ● Valid | Not send |
| MSW1-2 | Buffer Size | ● 4K bytes | 45 bytes |
| MSW1-3 | Busy Condition | ● Full/Err | Full |
| MSW1-4 | Receive Error | ● Print ? | No Print |
| MSW1-5 | CR mode | ● Ignored | LF |
| MSW1-6 | Reserved | ● Fixed | — |
| MSW1-7 | DSR Signal | ● Invalid | Valid |
| MSW1-8 | Init Signal | ● Invalid | Valid |
| MSW2-1 | Reserved | — | ● Fixed |
| MSW2-2 | Auto Cutter | Invalid | ● Valid |
| MSW2-3 | Spool Print | ● Invalid | Valid |
| MSW2-4 | Full Col Print | ● LineFeed | WaitData |
| MSW2-5 | Resume aft PE | ● Next | Top |
| MSW2-6 | Reserved | ● Fixed | — |
| MSW2-7 | Reserved | ● Fixed | — |
| MSW2-8 | PNE Sensor | ● Valid | Invalid |
| MSW3-1 | Resum Ctrr Err | ● Valid | Invalid |
| MSW3-2 | Reserved | ● Fixed | — |
| MSW3-3 | Parallel 31 Pin | ● Valid | Invalid |
| MSW3-4 | Reserved | ● Fixed | — |
| MSW3-5 | Reserved | ● Fixed | — |
| MSW3-6 | Reserved | ● Fixed | — |
| MSW3-7 | CBM1000 Mode | Invalid | ● Valid |
| MSW3-8 | Resum Open Err | ● Close | Command |
| MSW4-1 | BM Measure | ● Invalid | Valid |
| MSW4-2 | Reserved | ● Fixed | — |
| MSW4-3 | Feed&Cut at TOF | Invalid | ● Valid |
| MSW4-4 | Reserved | ● Fixed | — |
| MSW4-5 | Reserved | ● Fixed | — |
| MSW4-6 | Reserved | ● Fixed | — |
| MSW4-7 | Reserved | ● Fixed | — |
| MSW4-8 | Partial only | Invalid | ● Valid |
| MSW5-1 | Buzzer | ● Valid | Invalid |
| MSW5-2 | Line Pitch | ● 360 | 406 |
| MSW5-3 | USB Mode | Virtual COM | ● Printer Class |
| MSW5-4 | Reserved | ● Fixed | — |
| MSW5-5 | No use | ● Fixed | — |
| MSW5-6 | No use | ● Fixed | — |
| MSW5-7 | No use | ● Fixed | — |
| MSW5-8 | No use | ● Fixed | — |

●: Factory setting

| No. | Setting | Default | Set Values |
|---------|---------------|----------------|---|
| MSW7-1 | Baud Rate | 19200bps | 1200 bps, 2400bps, 4800bps, 9600bps, 19200bps, 38400bps, 57600bps, 115200bps |
| MSW7-2 | Data Length | 8bits | 7bits, 8bits |
| MSW7-3 | Stop Bit | 1bit | 1bit, 2bits |
| MSW7-4 | Parity | None | None, Odd, Even |
| MSW7-5 | Flow Control | DTR/DSR | DTR/DSR, Xon/Xoff |
| MSW7-6 | DMA control | Valid | Valid, Invalid |
| MSW7-7 | VCom Protocol | PC setting | PC setting, DTR/DSR, XON/XOFF |
| MSW8-1 | Print Width | 576dots | 640dots, 576dots, 512dots, 436dots, 432dots, 420dots, 384dots, 360dots |
| MSW8-2 | Paper Type | 1 Color Normal | 1 Color Normal, 1 Color BM, 1 Color Label, 2 Color Normal, 2 Color BM |
| MSW9-1 | Code Page | PC437 | PC437, Katakana, PC850, PC858, PC860, PC863, PC865, PC852, PC866, PC857, WindowsCode, Space page, PC864, ThaiCode18 |
| MSW9-2 | Int'Char Set | America | America, France, Germany, England, Denmark, Sweden, Italy, Spain, Japan, Norway, Denmark 2, Spain 2, Latin America, Korea, Croatia, China |
| MSW9-3 | Kanji | OFF | ON, OFF |
| MSW9-4 | JIS/Shift JIS | JIS | JIS, Shift JIS |
| MSW10-1 | Print Density | 100% | 70%, 75%, 80%, 85%, 90%, 95%, 100%, 105%, 110%, 115%, 120%, 125%, 130%, 135%, 140% |
| MSW10-2 | Print Speed | Level9 | Level1, Level2, Level3, Level4, Level5, Level6, Level7, Level8, Level9 |
| MSW10-3 | ACK Timing | Before BUSY | Before Busy, Same Period, After Busy |

<<Difference of MSW by the model>>

MSW4-4 and MSW4-5 are different by the model as follows.

| Model | Standard | | Black mark model | | Label model | |
|--------|----------|----------------------|------------------|----------------------------------|-------------|----------------------------------|
| MSW4-4 | OFF | Thermal paper | ON | Black mark paper/ Label paper | ON | Black mark paper/ Label paper |
| MSW4-5 | OFF | Black mark detection | OFF | Black mark detection | ON | Label detection |

4.1.6 CT-S4000

| No. | Setting | OFF | ON |
|------------|---------------------|----------------|-----------------|
| MSW1-1 | Power ON Info | ● Valid | Not send |
| MSW1-2 | Buffer Size | ● 4K bytes | 45 bytes |
| MSW1-3 | Busy Condition | ● Full/Err | Full |
| MSW1-4 | Receive Error | ● Print "?" | No Print |
| MSW1-5 | CR mode | ● Ignored | LF |
| MSW1-6 | Reserved | ● Fixed | — |
| MSW1-7 | DSR Signal | ● Invalid | Valid |
| MSW1-8 | Init Signal | ● Invalid | Valid |
| MSW2-1 | Reserved | — | ● Fixed |
| MSW2-2 | Auto Cutter | Invalid | ● Valid |
| MSW2-3 | Spool Print | ● Invalid | Valid |
| MSW2-4 | Full Col Print | ● LineFeed | WaitData |
| MSW2-5 | Resume aft PE | ● Next | Top |
| MSW2-6 | Reserved | ● Fixed | — |
| MSW2-7 | Reserved | ● Fixed | — |
| MSW2-8 | PNE Sensor | ● Valid | Invalid |
| MSW3-1 | Resum Ctrr Err | ● Valid | Invalid |
| MSW3-2 | Reserved | ● Fixed | — |
| MSW3-3 | Parallel 31 Pin | ● Valid | Invalid |
| MSW3-4 | Reserved | ● Fixed | — |
| MSW3-5 | Reserved | ● Fixed | — |
| MSW3-6 | Reserved | ● Fixed | — |
| MSW3-7 | CBM1000 Mode | ● Invalid | Valid |
| MSW3-8 | Resum Open Err | ● Close | Command |
| MSW4-1 | P.Length Set | Auto Measure | Command |
| MSW4-2 | Power on TOF | ● Invalid | Valid |
| MSW4-3 | FEED&CUT at TOF | Invalid | ● Valid |
| MSW4-4 | Paper Select(*1) | Thermal Roll | BM.P/Lbl.P |
| MSW4-5(*3) | Position Detect(*2) | Black Mark | Label |
| MSW4-6 | Reserved | ● Fixed | — |
| MSW4-7 | Reserved | ● Fixed | — |
| MSW4-8 | Partial only | Invalid | ● Valid |
| MSW5-1 | Buzzer | Valid | ● Invalid |
| MSW5-2 | Line Pitch | ● 1/360 | 1/406 |
| MSW5-3 | USB Mode | Virtual COM | ● Printer Class |
| MSW5-4 | Reserved | ● Fixed | — |
| MSW5-5 | Power OFF Info | ● Invalid | Valid |
| MSW5-6 | Reserved | ● Fixed | — |
| MSW5-7 | Reserved | ● Fixed | — |
| MSW5-8 | FAULT Output | ● PE, PNE, Err | PE, Err |

●: Factory setting

*1)Default for paper selection depends on the model selected.

*2)Invalid when thermal rolled paper is selected by MSW4-4.

Black mark option product is fixed at black mark detection.

*3)Valid only with black mark or label-support model.

Black mark is optional.

| No. | Setting | Default | Set Values |
|---------|---------------|-------------|---|
| MSW7-1 | Baud Rate | 19200bps | 1200bps, 2400bps, 4800bps, 9600bps, 19200bps, 38400bps, 57600bps, 115200bps |
| MSW7-2 | Data Length | 8bits | 7bits, 8bits |
| MSW7-3 | Stop Bit | 1bit | 1bit, 2bits |
| MSW7-4 | Parity | None | None, Odd, Even |
| MSW7-5 | Flow Control | DTR/DSR | DTR/DSR, Xon/Xoff |
| MSW7-6 | DMA control | Valid | Valid, Invalid |
| MSW7-7 | VCom Protocol | PC setting | PC setting, DTR/DSR, XON/XOFF |
| MSW8-1 | Print Width | 832dots | 832dots, 720dots, 660dots, 576dots, 512dots |
| MSW8-2 | Paper Type | 1 Color | 1 Color, 2 Color |
| MSW9-1 | Code Page | PC437 | PC437, Katakana, PC850, PC858, PC860, PC863, PC865, PC852, PC866, PC857, WindowsCode, Space page, PC864, ThaiCode18 |
| MSW9-2 | Int'Char Set | America | America, France, Germany, England, Denmark, Sweden, Italy, Spain, Japan, Norway, Denmark 2, Spain 2, Latin America, Korea, Croatia, China |
| MSW9-3 | Kanji | OFF | ON, OFF |
| MSW9-4 | JIS/Shift JIS | JIS | JIS, Shift JIS |
| MSW10-1 | Print Density | 100% | 70%, 75%, 80%, 85%, 90%, 95%, 100%, 105%, 110%, 115%, 120%, 125%, 130%, 135%, 140% |
| MSW10-2 | Print Speed | Level9 | Level1, Level2, Level3, Level4, Level5, Level6, Level7, Level8, Level9 |
| MSW10-3 | ACK Timing | Before BUSY | Before Busy, Same Period, After Busy |
| MSW10-4 | NV User | 192Kbytes | 1Kbytes, 64Kbytes, 128Kbytes, 192Kbytes |
| MSW10-5 | NV Graphic | 384Kbytes | 0byte, 64Kbytes, 128Kbytes, 192Kbytes, 256Kbytes, 320Kbytes, 384Kbytes |

<<Difference of MSW by the model>>

MSW4-4 and MSW4-5 are different by the model as follows.

| Model | Standard | | Black mark model | | Label model | |
|--------|----------|----------------------|------------------|----------------------------------|-------------|----------------------------------|
| MSW4-4 | OFF | Thermal paper | ON | Black mark paper/ Label paper | ON | Black mark paper/ Label paper |
| MSW4-5 | OFF | Black mark detection | OFF | Black mark detection | ON | Label detection |

4.1.7 CT-S801/851

| No. | Setting | OFF | ON |
|--------|------------------|-------------|-----------------|
| MSW1-1 | Power ON Info | ● Valid | Not send |
| MSW1-2 | Buffer Size | ● 4K bytes | 45 bytes |
| MSW1-3 | Busy Condition | ● Full/Err | Full |
| MSW1-4 | Receive Error | ● Print ? | No Print |
| MSW1-5 | CR mode | ● Ignored | LF |
| MSW1-6 | Reserved | ● Fixed | — |
| MSW1-7 | DSR Signal | ● Invalid | Valid |
| MSW1-8 | Init Signal | ● Invalid | Valid |
| MSW2-1 | Reserved | — | ● Fixed |
| MSW2-2 | Auto Cutter | Invalid | ● Valid |
| MSW2-3 | Spool Print | ● Invalid | Valid |
| MSW2-4 | Full Col Print | ● LineFeed | WaitData |
| MSW2-5 | Resume aft PE | ● Next | Top |
| MSW2-6 | Reserved | ● Fixed | — |
| MSW2-7 | Reserved | ● Fixed | — |
| MSW2-8 | PNE Sensor | ● Valid | Invalid |
| MSW3-1 | Resum Ctrr Err | ● Valid | Invalid |
| MSW3-2 | PE signal by PNE | ● Fixed | — |
| MSW3-3 | Parallel 31 Pin | ● Valid | Invalid |
| MSW3-4 | Reserved | ● Fixed | — |
| MSW3-5 | Reserved | ● Fixed | — |
| MSW3-6 | Reserved | ● Fixed | — |
| MSW3-7 | CBM1000 Mode | Invalid | ● Valid |
| MSW3-8 | Resum Open Err | ● Close | Command |
| MSW4-1 | Reserved | ● Fixed | — |
| MSW4-2 | Reserved | ● Fixed | — |
| MSW4-3 | Feed&Cut at TOF | Invalid | ● Valid |
| MSW4-4 | Reserved | ● Fixed | — |
| MSW4-5 | Reserved | ● Fixed | — |
| MSW4-6 | Reserved | ● Fixed | — |
| MSW4-7 | Reserved | ● Fixed | — |
| MSW4-8 | Partial only | Invalid | ● Valid |
| MSW5-1 | Buzzer | ● Valid | Invalid |
| MSW5-2 | Line Pitch | ● 360 | 406 |
| MSW5-3 | USB Mode | Virtual COM | ● Printer Class |
| MSW5-4 | Reserved | ● Fixed | — |
| MSW5-5 | Reserved | ● Fixed | — |
| MSW5-6 | Reserved | ● Fixed | — |
| MSW5-7 | Reserved | ● Fixed | — |
| MSW5-8 | Reserved | ● Fixed | — |
| MSW6-1 | Act. For Driver | ● Invalid | Valid |
| MSW6-2 | Character space | Invalid | ● Valid |
| MSW6-3 | Reserved | ● Fixed | — |
| MSW6-4 | Reserved | ● Fixed | — |
| MSW6-5 | Reserved | ● Fixed | — |
| MSW6-6 | Reserved | ● Fixed | — |
| MSW6-7 | Reserved | ● Fixed | — |
| MSW6-8 | Reserved | ● Fixed | — |

●: Factory setting

| No. | Setting | Default | Set Values |
|---------|------------------|----------------|---|
| MSW7-1 | Baud Rate | 19200bps | 1200 bps, 2400bps, 4800bps, 9600bps, 19200bps, 38400bps, 57600bps, 115200bps |
| MSW7-2 | Data Length | 8bits | 7bits, 8bits |
| MSW7-3 | Stop Bit | 1bit | 1bit, 2bits |
| MSW7-4 | Parity | None | None, Odd, Even |
| MSW7-5 | Flow Control | DTR/DSR | DTR/DSR, Xon/Xoff |
| MSW7-6 | DMA control | Valid | Valid, Invalid |
| MSW7-7 | VCom Protocol | PC setting | PC setting, DTR/DSR, XON/XOFF |
| MSW8-1 | Print Width | 576dots | 640dots, 576dots, 512dots, 436dots, 432dots, 420dots, 384dots, 360dots |
| MSW8-2 | Paper Type | 1 Color Normal | 1 Color Normal, 2 Color Normal |
| MSW9-1 | Code Page | PC437 | PC437, Katakana, PC850, PC858, PC860, PC863, PC865, PC852, PC866, PC857, WindowsCode, Space page, PC864, ThaiCode18 |
| MSW9-2 | Int'Char Set | America | America, France, Germany, England, Denmark, Sweden, Italy, Spain, Japan, Norway, Denmark 2, Spain 2, Latin America, Korea, Croatia, China |
| MSW9-3 | Kanji | OFF | ON, OFF |
| MSW9-4 | JIS/Shift JIS | JIS | JIS, Shift JIS |
| MSW9-6 | LCD Char Set | English | English, Français, Deutsch, Italiano, Español, Japanese, Chinese |
| MSW9-7 | LCD Ext Char | Invalid | Invalid, Valid |
| MSW9-8 | Bklight Auto Off | Never | Never, 30seconds, 5munites |
| MSW10-1 | Print Density | 100% | 70%, 75%, 80%, 85%, 90%, 95%, 100%, 105%, 110%, 115%, 120%, 125%, 130%, 135%, 140% |
| MSW10-2 | Print Speed | Level9 | Level1, Level2, Level3, Level4, Level5, Level6, Level7, Level8, Level9 |
| MSW10-3 | ACK Timing | Before BUSY | Before Busy, Same Period, After Busy |
| MSW10-6 | Buzzer Volume | Level2 | Level 1, Level 2, Level 3, Level 4 |
| MSW10-7 | Key Lock | Invalid | Invalid, Valid |
| MSW10-8 | LCD Direction | Normal | Normal, Inverted |

<<Difference of MSW by the model>>

MSW4-4 and MSW4-5 are different by the model as follows.

| Model | Standard | | Black mark model | | Label model | |
|--------|----------|----------------------|------------------|----------------------------------|-------------|----------------------------------|
| MSW4-4 | OFF | Thermal paper | ON | Black mark paper/ Label paper | ON | Black mark paper/ Label paper |
| MSW4-5 | OFF | Black mark detection | OFF | Black mark detection | ON | Label detection |

4.1.8 CT-S601/651

| No. | Setting | OFF | ON |
|--------|------------------|-------------|-----------------|
| MSW1-1 | Power ON Info | ● Valid | Not send |
| MSW1-2 | Buffer Size | ● 4K bytes | 45 bytes |
| MSW1-3 | Busy Condition | ● Full/Err | Full |
| MSW1-4 | Receive Error | ● Print ? | No Print |
| MSW1-5 | CR mode | ● Ignored | LF |
| MSW1-6 | Reserved | ● Fixed | — |
| MSW1-7 | DSR Signal | ● Invalid | Valid |
| MSW1-8 | Init Signal | ● Invalid | Valid |
| MSW2-1 | Reserved | — | ● Fixed |
| MSW2-2 | Auto Cutter | Invalid | ● Valid |
| MSW2-3 | Spool Print | ● Invalid | Valid |
| MSW2-4 | Full Col Print | ● LineFeed | WaitData |
| MSW2-5 | Resume aft PE | ● Next | Top |
| MSW2-6 | Reserved | ● Fixed | — |
| MSW2-7 | Reserved | ● Fixed | — |
| MSW2-8 | PNE Sensor | ● Valid | Invalid |
| MSW3-1 | Resum Ctrr Err | ● Valid | Invalid |
| MSW3-2 | PE signal by PNE | ● Fixed | — |
| MSW3-3 | Parallel 31 Pin | ● Valid | Invalid |
| MSW3-4 | Reserved | ● Fixed | — |
| MSW3-5 | Reserved | ● Fixed | — |
| MSW3-6 | Reserved | ● Fixed | — |
| MSW3-7 | CBM1000 Mode | Invalid | ● Valid |
| MSW3-8 | Resum Open Err | ● Close | Command |
| MSW4-1 | Reserved | ● Fixed | — |
| MSW4-2 | Reserved | ● Fixed | — |
| MSW4-3 | Feed&Cut at TOF | Invalid | ● Valid |
| MSW4-4 | Reserved | ● Fixed | — |
| MSW4-5 | Reserved | ● Fixed | — |
| MSW4-6 | Reserved | ● Fixed | — |
| MSW4-7 | Reserved | ● Fixed | — |
| MSW4-8 | Partial only | Invalid | ● Valid |
| MSW5-1 | Buzzer | ● Valid | Invalid |
| MSW5-2 | Line Pitch | ● 360 | 406 |
| MSW5-3 | USB Mode | Virtual COM | ● Printer Class |
| MSW5-4 | Reserved | ● Fixed | — |
| MSW5-5 | Reserved | ● Fixed | — |
| MSW5-6 | Reserved | ● Fixed | — |
| MSW5-7 | Reserved | ● Fixed | — |
| MSW5-8 | Reserved | ● Fixed | — |
| MSW6-1 | Act. For Driver | ● Invalid | Valid |
| MSW6-2 | Character space | Invalid | ● Valid |
| MSW6-3 | Reserved | ● Fixed | — |
| MSW6-4 | Reserved | ● Fixed | — |
| MSW6-5 | Reserved | ● Fixed | — |
| MSW6-6 | Reserved | ● Fixed | — |
| MSW6-7 | Reserved | ● Fixed | — |
| MSW6-8 | Reserved | ● Fixed | — |

●: Factory setting

| No. | Setting | Default | Set Values |
|---------|---------------|----------------|---|
| MSW7-1 | Baud Rate | 19200bps | 1200 bps, 2400bps, 4800bps, 9600bps, 19200bps, 38400bps, 57600bps, 115200bps |
| MSW7-2 | Data Length | 8bits | 7bits, 8bits |
| MSW7-3 | Stop Bit | 1bit | 1bit, 2bits |
| MSW7-4 | Parity | None | None, Odd, Even |
| MSW7-5 | Flow Control | DTR/DSR | DTR/DSR, Xon/Xoff |
| MSW7-6 | DMA control | Valid | Valid, Invalid |
| MSW7-7 | VCom Protocol | PC setting | PC setting, DTR/DSR, XON/XOFF |
| MSW8-1 | Print Width | 576dots | 640dots, 576dots, 512dots, 436dots, 432dots, 420dots, 384dots, 360dots |
| MSW8-2 | Paper Type | 1 Color Normal | 1 Color Normal, 2 Color Normal |
| MSW9-1 | Code Page | PC437 | PC437, Katakana, PC850, PC858, PC860, PC863, PC865, PC852, PC866, PC857, WindowsCode, Space page, PC864, ThaiCode18 |
| MSW9-2 | Int'Char Set | America | America, France, Germany, England, Denmark, Sweden, Italy, Spain, Japan, Norway, Denmark 2, Spain 2, Latin America, Korea, Croatia, China |
| MSW9-3 | Kanji | OFF | ON, OFF |
| MSW9-4 | JIS/Shift JIS | JIS | JIS, Shift JIS |
| MSW10-1 | Print Density | 100% | 70%, 75%, 80%, 85%, 90%, 95%, 100%, 105%, 110%, 115%, 120%, 125%, 130%, 135%, 140% |
| MSW10-2 | Print Speed | Level9 | Level1, Level2, Level3, Level4, Level5, Level6, Level7, Level8, Level9 |
| MSW10-3 | ACK Timing | Before BUSY | Before Busy, Same Period, After Busy |
| MSW10-6 | Buzzer Volume | Level2 | Level 1, Level 2, Level 3, Level 4 |

<<Difference of MSW by the model>>

MSW4-4 and MSW4-5 are different by the model as follows.

| Model | Standard | | Black mark model | | Label model | |
|--------|----------|----------------------|------------------|----------------------------------|-------------|----------------------------------|
| MSW4-4 | OFF | Thermal paper | ON | Black mark paper/ Label paper | ON | Black mark paper/ Label paper |
| MSW4-5 | OFF | Black mark detection | OFF | Black mark detection | ON | Label detection |

4.1.9 BD2-2220

| No. | Setting | OFF | ON |
|--------|-------------------|------------|-----------|
| MSW1-1 | Power ON Info | ● Valid | Not send |
| MSW1-2 | Buffer Size | ● 4K bytes | 45 bytes |
| MSW1-3 | Busy Condition | ● Full/Err | Full |
| MSW1-4 | Receive Error | ● Print ? | No Print |
| MSW1-5 | CR mode | ● Ignored | LF |
| MSW1-6 | Reserved | ● Fixed | — |
| MSW1-7 | DSR Signal | ● Invalid | Valid |
| MSW1-8 | Reserved | ● Fixed | — |
| MSW2-1 | Reserved | — | ● Fixed |
| MSW2-2 | Reserved | — | ● Fixed |
| MSW2-3 | Spool Print | ● Invalid | Valid |
| MSW2-4 | Full Col Print | ● LineFeed | WaitData |
| MSW2-5 | Resume aft H.D(*) | ● Next | Top |
| MSW2-6 | Reserved | — | ● Fixed |
| MSW2-7 | Reserved | ● Fixed | — |
| MSW2-8 | Reserved | ● Fixed | — |
| MSW3-1 | Resum Ctrr Err | ● Valid | Invalid |
| MSW3-2 | Reserved | ● Fixed | — |
| MSW3-3 | Reset | ● Valid | Invalid |
| MSW3-4 | Reserved | ● Fixed | — |
| MSW3-5 | Reserved | ● Fixed | — |
| MSW3-6 | Reserved | ● Fixed | — |
| MSW3-7 | Reserved | ● Fixed | — |
| MSW3-8 | Resum H.U Err(*) | Close | ● Command |

●: Factory setting

*This function is enabled for platen close/open operation when LT-2x21 is used.

4.1.10 PMU2XXX

| No. | Setting | OFF | ON |
|--------|-------------------|-------------------|----------------|
| MSW1-1 | Power ON Info | ● Valid | Not send |
| MSW1-2 | Buffer Size | ● 4K bytes | 45 bytes |
| MSW1-3 | Busy Condition | ● Full/Err | Full |
| MSW1-4 | Receive Error | ● Print "?" | No Print |
| MSW1-5 | CR mode | ● Ignored | LF |
| MSW1-6 | Reserved | ● Fixed | — |
| MSW1-7 | DSR Signal | ● Invalid | Valid |
| MSW1-8 | Reserved | ● Fixed | — |
| MSW2-1 | Reserved | — | ● Fixed |
| MSW2-2 | Auto Cutter | Invalid | ● Valid |
| MSW2-3 | Spool Print | ● Invalid | Valid |
| MSW2-4 | Full Col Print | ● LineFeed | ● WaitData |
| MSW2-5 | Resume aft PE | ● Print next line | Print top line |
| MSW2-6 | Paper Width | ● 80mm | 58(60)mm |
| MSW2-7 | Reserved | ● Fixed | — |
| MSW2-8 | PNE Sensor | Valid | ● Invalid |
| MSW3-1 | Resum Ctrr Err | ● Valid | Invalid |
| MSW3-2 | Reserved | ● Fixed | — |
| MSW3-3 | Parallel 31 Pin | ● Valid | Invalid |
| MSW3-4 | Paper Select | ● Thermal | Black MK |
| MSW3-5 | Reserved | ● Fixed | — |
| MSW3-6 | Reserved | ● Fixed | — |
| MSW3-7 | Reserved | ● Fixed | — |
| MSW3-8 | Resum Open Err | ● Close | Command |
| MSW4-1 | Auto Length | ● Invalid | Auto |
| MSW4-2 | BM sensor | ● Surface | Back |
| MSW4-3 | FEED&CUT at TOF | Invalid | ● Valid |
| MSW4-4 | Base style | ●PMU2xx0/2 | PMU2xx1 |
| MSW4-5 | Mechanism mounted | ●LT-23xx | LT-22xx |
| MSW4-6 | Reserved | ● Fixed | — |
| MSW4-7 | Reserved | ● Fixed | — |
| MSW4-8 | Partial only | ● Invalid | Valid |
| MSW5-1 | Reserved | ● Fixed | — |
| MSW5-2 | Reserved | ● Fixed | — |
| MSW5-3 | Reserved | ● Fixed | — |
| MSW5-4 | Reserved | ● Fixed | — |
| MSW5-5 | Reserved | ● Fixed | — |
| MSW5-6 | Speed / Quality | Quality | ● Speed |
| MSW5-7 | Reserved | ● Fixed | — |
| MSW5-8 | Reserved | ● Fixed | — |

●: Factory setting

| No. | Setting | Default | Set Values |
|---------|---------------|-------------|---|
| MSW7-1 | Baud Rate | 9600bps | 1200bps ,2400bps, 4800bps, 9600bps, 19200bps, 38400bps, 57600bps, 115200bps |
| MSW7-2 | Data Length | 8bits | 7bits, 8bits |
| MSW7-3 | Stop Bit | 1bit | 1bit, 2bits |
| MSW7-4 | Parity | None | None, Odd, Even |
| MSW7-5 | Flow Control | DTR/DSR | DTR/DSR, Xon/Xoff |
| MSW7-6 | Reserved | — | — |
| MSW7-7 | Reserved | — | — |
| MSW9-1 | Code Page | PC437 | PC437, Katakana, PC850, PC858, PC860, PC863, PC865, PC852, PC866, PC857, WindowsCode, Space page, PC864, ThaiCode18 |
| MSW9-2 | Int'Char Set | USA | USA, France, Germany, England, Denmark, Sweden, Italy, Spain, Japan, Norway, Denmark 2, Spain 2, Latin America, Korea, Croatia, China |
| MSW9-3 | Kanji | OFF | ON, OFF |
| MSW9-4 | JIS/Shift JIS | JIS | JIS, Shift JIS |
| MSW10-1 | Print Density | 100% | 70%, 75%, 80%, 85%, 90% ,95% ,100%, 105%, 110%, 115%, 120%, 125%, 130%, 135%, 140% |
| MSW10-2 | Print Speed | Level9 | Level1, Level2, Level3, Level4, Level5, Level6, Level7, Level8, Level9 |
| MSW10-3 | ACK Timing | Before BUSY | Before Busy, Same Period, After Busy |

<<Difference of MSW by the model>>

MSW2-6, MSW4-4 and MSW4-5 are different by the model as follows.

| Model | MSW2-6 Paper width | | MSW4-4 Base style | | MSW4-5 Used mechnism | |
|-------------|--------------------|----------|-------------------|--------------|----------------------|---------|
| PMU2200 (A) | ON | 58(60)mm | OFF | PMU2XX0/2XX2 | ON | LT-22XX |
| PMU2210 (A) | ON | 58(60)mm | OFF | PMU2XX0/2XX2 | ON | LT-22XX |
| PMU2211 (A) | ON | 58(60)mm | ON | PMU2XX1 | ON | LT-22XX |
| PMU2202 (A) | ON | 58(60)mm | OFF | PMU2XX0/2XX2 | ON | LT-22XX |
| PMU2212 (A) | ON | 58(60)mm | OFF | PMU2XX0/2XX2 | ON | LT-22XX |
| PMU2310 (A) | ON | 58(60)mm | OFF | PMU2XX0/2XX2 | OFF | LT-23XX |
| PMU2300 (A) | OFF | 80mm | OFF | PMU2XX0/2XX2 | OFF | LT-23XX |
| PMU2301 (A) | OFF | 80mm | ON | PMU2XX1 | OFF | LT-23XX |
| PMU2302 (A) | OFF | 80mm | OFF | PMU2XX0/2XX2 | OFF | LT-23XX |

MSW3-4 is different by the model as follows.

| Model | Standard model | | Black mark model | |
|--------|----------------|---------------|------------------|------------------|
| MSW3-4 | OFF | Thermal paper | ON | Black mark paper |

4.1.11 PMU2XXXII

| No. | Setting | OFF | ON |
|--------|-------------------|-------------------|-----------------|
| MSW1-1 | Power ON Info | ● Valid | Not send |
| MSW1-2 | Buffer Size | ● 4K bytes | 45 bytes |
| MSW1-3 | Busy Condition | ● Full/Err | Full |
| MSW1-4 | Receive Error | ● Print "?" | No Print |
| MSW1-5 | CR mode | ● Ignored | LF |
| MSW1-6 | Reserved | ● Fixed | — |
| MSW1-7 | DSR Signal | ● Invalid | Valid |
| MSW1-8 | Reserved | ● Fixed | — |
| MSW2-1 | Reserved | — | ● Fixed |
| MSW2-2 | Auto Cutter | Invalid | ● Valid |
| MSW2-3 | Spool Print | ● Invalid | Valid |
| MSW2-4 | Full Col Print | ● LineFeed | ● WaitData |
| MSW2-5 | Resume aft PE | ● Print next line | Print top line |
| MSW2-6 | Paper Width | ● 80mm | 58(60)mm |
| MSW2-7 | Reserved | ● Fixed | — |
| MSW2-8 | PNE Sensor | Valid | ● Invalid |
| MSW3-1 | Resum Ctrr Err | ● Valid | Invalid |
| MSW3-2 | Reserved | ● Fixed | — |
| MSW3-3 | Parallel 31 Pin | ● Valid | Invalid |
| MSW3-4 | Paper Select | ● Thermal | Black MK |
| MSW3-5 | Column Number | ● 48/32Col | 42/30Col |
| MSW3-6 | Reserved | ● Fixed | — |
| MSW3-7 | CBM1000 Mode | Invalid | ● Valid |
| MSW3-8 | Resum Open Err | ● Close | Command |
| MSW4-1 | Auto Length | ● Invalid | Auto |
| MSW4-2 | BM sensor | ● Surface | Back |
| MSW4-3 | FEED&CUT at TOF | Invalid | ● Valid |
| MSW4-4 | Base style | ●PMU2xx0/2 | PMU2xx1 |
| MSW4-5 | Mechanism mounted | ●LT-23xx | LT-22xx |
| MSW4-6 | Reserved | ● Fixed | — |
| MSW4-7 | Reserved | ● Fixed | — |
| MSW4-8 | Partial only | ● Invalid | Valid |
| MSW5-1 | Reserved | ● Fixed | — |
| MSW5-2 | Reserved | ● Fixed | — |
| MSW5-3 | USB Mode | Virtual COM | ● Printer Class |
| MSW5-4 | Reserved | ● Fixed | — |
| MSW5-5 | Reserved | ● Fixed | — |
| MSW5-6 | Speed / Quality | ● Quality | Speed |
| MSW5-7 | Reserved | ● Fixed | — |
| MSW5-8 | Reserved | ● Fixed | — |

●: Factory setting

| No. | Setting | Default | Set Values |
|---------|---------------|---------|---|
| MSW7-1 | Baud Rate | 9600bps | 1200bps, 2400bps, 4800bps, 9600bps, 19200bps, 38400bps, 57600bps, 115200bps |
| MSW7-2 | Data Length | 8bits | 7bits, 8bits |
| MSW7-3 | Stop Bit | 1bit | 1bit, 2bits |
| MSW7-4 | Parity | None | None, Odd, Even |
| MSW7-5 | Flow Control | DTR/DSR | DTR/DSR, Xon/Xoff |
| MSW7-6 | Reserved | — | — |
| MSW7-7 | Reserved | — | — |
| MSW9-1 | Code Page | PC437 | PC437, Katakana, PC850, PC858, PC860, PC863, PC865, PC852, PC866, PC857, WindowsCode, Space page, PC864, ThaiCode18 |
| MSW9-2 | Int'Char Set | USA | USA, France, Germany, England, Denmark, Sweden, Italy, Spain, Japan, Norway, Denmark 2, Spain 2, Latin America, Korea |
| MSW9-3 | Kanji | OFF | ON, OFF |
| MSW9-4 | JIS/Shift JIS | JIS | JIS, Shift JIS |
| MSW10-1 | Print Density | 100% | 70%, 75%, 80%, 85%, 90%, 95%, 100%, 105%, 110%, 115%, 120%, 125%, 130%, 135%, 140% |
| MSW10-2 | Print Speed | Level9 | Level1, Level2, Level3, Level4, Level5, Level6, Level7, Level8, Level9 |

<<Difference of MSW by the model>>

MSW2-6, MSW4-4 and MSW4-5 are different by the model as follows

| Model | MSW2-6 Paper width | | MSW4-4 Base style | | MSW4-5 Used mechnism | |
|---------------|--------------------|----------|-------------------|--------------|----------------------|---------|
| PMU2200 II(A) | ON | 58(60)mm | OFF | PMU2XX0/2XX2 | ON | LT-22XX |
| PMU2210 II(A) | ON | 58(60)mm | OFF | PMU2XX0/2XX2 | ON | LT-22XX |
| PMU2211 II(A) | ON | 58(60)mm | ON | PMU2XX1 | ON | LT-22XX |
| PMU2202 II(A) | ON | 58(60)mm | OFF | PMU2XX0/2XX2 | ON | LT-22XX |
| PMU2212 II(A) | ON | 58(60)mm | OFF | PMU2XX0/2XX2 | ON | LT-22XX |
| PMU2310 II(A) | ON | 58(60)mm | OFF | PMU2XX0/2XX2 | OFF | LT-23XX |
| PMU2300 II(A) | OFF | 80mm | OFF | PMU2XX0/2XX2 | OFF | LT-23XX |
| PMU2301 II(A) | OFF | 80mm | ON | PMU2XX1 | OFF | LT-23XX |
| PMU2302 II(A) | OFF | 80mm | OFF | PMU2XX0/2XX2 | OFF | LT-23XX |

MSW3-4 is different by the model as follows.

| Model | Standard model | | Black mark model | |
|--------|----------------|---------------|------------------|------------------|
| MSW3-4 | OFF | Thermal paper | ON | Black mark paper |

4.1.12 CT-P292/293

| No. | Setting | OFF | ON |
|--------|------------------|------------------------------------|----------------|
| MSW1-1 | Power ON Info | ● Valid | Not send |
| MSW1-2 | Buffer Size *1 | ● 4K bytes | 45 bytes |
| MSW1-3 | Busy Condition | ● Full/Err | Full |
| MSW1-4 | Receive Error | ● Print "?" | No Print |
| MSW1-5 | CR mode | ● Ignored | LF |
| MSW1-6 | Reserved | ● Fixed | — |
| MSW1-7 | DSR Signal | ● Invalid | Valid |
| MSW1-8 | Reserved | ● Fixed | — |
| MSW2-1 | Reserved | — | ● Fixed |
| MSW2-2 | Auto Cutter | Invalid | ● Valid |
| MSW2-3 | Spool Print | ● Invalid | Valid |
| MSW2-4 | Full Col Print | ● LineFeed | ● WaitData |
| MSW2-5 | Resume aft PE | ● Print next line | Print top line |
| MSW2-6 | Reserved | ● Fixed | — |
| MSW2-7 | Reserved | ● Fixed | — |
| MSW2-8 | Reserved | — | ● Fixed |
| MSW3-1 | Resum Ctrr Err | ● Valid | Invalid |
| MSW3-2 | Reserved | ● Fixed | — |
| MSW3-3 | Parallel 31 Pin | ● Valid | Invalid |
| MSW3-4 | Reserved | ● — | — |
| MSW3-5 | Column Number *2 | ● 48(CT-P292,3) ● 34(CT-P290,1) | 32 32 |
| MSW3-6 | Reserved | ● Fixed | — |
| MSW3-7 | Compatible Mode | ● Invalid | Valid |
| MSW3-8 | Resum Open Err | ● Close | Command |
| MSW4-1 | Reserved | — | ● Fixed |
| MSW4-2 | Reserved | — | ● Fixed |
| MSW4-3 | FEED&CUT at TOF | Invalid | ● Valid |
| MSW4-4 | Reserved | — | — |
| MSW4-5 | Reserved | ● Fixed | LT-22xx |
| MSW4-6 | Reserved | ● Fixed | — |
| MSW4-7 | Reserved | ● Fixed | — |
| MSW4-8 | Partial only | ● Invalid | Valid |
| MSW5-1 | Reserved | ● Fixed | — |
| MSW5-2 | Reserved | ● Fixed | — |
| MSW5-3 | Reserved | ● Fixed | — |
| MSW5-4 | Reserved | ● Fixed | — |
| MSW5-5 | Reserved | ● Fixed | — |
| MSW5-6 | Speed / Quality | ● Quality | Speed |
| MSW5-7 | Reserved | ● Fixed | — |
| MSW5-8 | Reserved | ● Fixed | — |

●: Factory setting

MSW2-2 is effective when DS-1 is set at ON (Valid).

*1: If interface is parallel or USB, Buffer size is fixed at 4k bytes regardless of this setting.

*2: Depending on DSW-6 setting

| No. | Setting | Default | Set Values |
|---------|---------------|------------|---|
| MSW7-1 | Baud Rate | 9600bps | 1200bps, 2400bps, 4800bps, 9600bps, 19200bps, 38400bps, 57600bps, 115200bps |
| MSW7-2 | Data Length | 8bits | 7bits, 8bits |
| MSW7-3 | Stop Bit | 1bit | 1bit, 2bits |
| MSW7-4 | Parity | None | None, Odd, Even |
| MSW7-5 | Flow Control | DTR/DSR | DTR/DSR, Xon/Xoff |
| MSW7-6 | Reserved | — | — |
| MSW7-7 | VCom Protocol | PC setting | PC setting, DTR/DSR, XON/XOFF |
| MSW9-1 | Code Page | PC437 | PC437, Katakana, PC850, PC858, PC860, PC863, PC865, PC852, PC866, PC857, WindowsCode, Space page, PC864, ThaiCode18 |
| MSW9-2 | Int'Char Set | USA | USA, France, Germany, England, Denmark, Sweden, Italy, Spain, Japan, Norway, Denmark 2, Spain 2, Latin America, Korea |
| MSW9-3 | Kanji | OFF | ON, OFF |
| MSW9-4 | JIS/Shift JIS | JIS | JIS, Shift JIS |
| MSW10-1 | Print Density | 100% | 70%, 75%, 80%, 85%, 90%, 95%, 100%, 105%, 110%, 115%, 120%, 125%, 130%, 135%, 140% |
| MSW10-2 | Print Speed | Level9 | Level1, Level2, Level3, Level4, Level5, Level6, Level7, Level8, Level9 |
| MSW10-3 | Reserved | — | — |

4.2 Details of Memory Switches

This section describes the function of memory switch.

Some MSW may not be set or some values may not be selected depending on the model used. For the MSW and value that can be set or selected with the model you are using, refer to the operation manual or the like.

4.2.1 MSW1

●**MSW1-1:** Setting the power ON notify

[Outline] At power ON, to notify the host of the printer power ON, printer can send to host 3 byte power ON notify's status data (3BH 31H 00H).

Set to enable/disable for sending the power ON notify's status data.

| | OFF(0) | ON(1) |
|---------------|---------------|--------------|
| Power ON Info | Valid | Not send |

ON (1) OPERATION:

Function to notify power ON is disabled, sending no status to host.

OFF (0) OPERATION:

Function to notify power ON is enabled, sending status to host.

●**MSW1-2:** Input buffer

[Outline] Select the input buffer (receive buffer) size.

| | OFF(0) | ON(1) |
|-------------|---------------|--------------|
| Buffer Size | 4Kbytes | 45bytes |

ON (1) OPERATION: Input buffer size is set to 45 bytes.

From when free area decreases to 16 bytes until it increases to 26 bytes, receive buffer is full with printer BUSY status.

OFF (0) OPERATION: Input buffer size is set to 4K bytes.

From when free area decreases to 128 bytes until it increases to 256 bytes, receive buffer is full with printer BUSY status.

●**MSW1-3:** Busy condition

[Outline] Select the condition that printer is BUSY. Automatic status send function also runs.

| | OFF(0) | ON(1) |
|----------------|----------------------|--------------|
| Busy Condition | Buffer full/Off-line | Buffer full |

ON (1) OPERATION: If receive buffer is full, printer is BUSY.

Automatic status send (ASB) function is enabled.

OFF (0) OPERATION: If receive buffer is full or off-line, printer is BUSY.

Automatic status send (ASB) function is disabled.

[Additional Description]

Even if ON is selected, printer enters BUSY status when power is turned on or reset by I/F or at self test print

| Printer Status | | MSW1-3 OFF | MSW1-3 ON |
|----------------|---|---------------|--------------|
| Off-line | Power-up or reset used by I/F | ● | ● |
| | Self-print | ● | ● |
| | Cover open | ● | — |
| | Paper-feed by FEED SW | ● | — |
| | Paper-end (including print stop in PNE) | ● | — |
| | Error generation | ● | — |
| | Waiting during macro run by FEED SW | ● | — |
| Buffer full | Receive buffer full | ● | ● |

●**MSW1-4:** Receive error character

[Outline] Select handling of data detected where the serial communication detects the receive data framing error, overrun error and parity error.

| | OFF(0) | ON(1) |
|---------------|---------------|--------------|
| Receive Error | Print ? | No Print |

ON (1) OPERATION: Not printed as “?”

OFF (0) OPERATION: Printed as “?”

●MSW1-5: CR code

[Outline] Select the printer when receiving CR(<0D>H) code.

| | OFF(0) | ON(1) |
|---------|---------|-------|
| CR mode | Ignored | LF |

ON (1) OPERATION:

Select the same operation with LF when receiving CR code.

Print data in print buffer and put linefeeds as specified.

OFF (0) OPERATION:

CR code may be ignored with no actions if receiving CR code.

●MSW1-6: Reserved [Fixed to OFF (0)]

●MSW1-7: DSR signal

[Outline] Printer can be reset with DSR (serial I/F-6pin) signal. Select enable/disable of reset function with this signal.

| | OFF(0) | ON(1) |
|------------|---------|-------|
| DSR Signal | Invalid | Valid |

ON (1) OPERATION: Used as reset signal

OFF (0) OPERATION: Not used as reset signal

●MSW1-8: INIT signal

[Outline] Printer can be reset with INIT (serial I/F-25Pin) signal. Select enable/disable of reset function with this signal.

| | OFF(0) | ON(1) |
|-------------|---------|-------|
| INIT Signal | Invalid | Valid |

ON (1) OPERATION: Used as reset signal

OFF (0) OPERATION: Not used as reset signal

4.2.2 MSW2

●MSW2-1: Reserved [Fixed to ON(1)]

●MSW2-2: Auto-cutter operation

[Outline] Select auto-cutter enable/disable.

| | OFF(0) | ON(1) |
|-------------|---------|-------|
| Auto Cutter | Invalid | Valid |

ON (1) OPERATION: Auto-cutter enabled

OFF (0) OPERATION: Auto-cutter disabled

●MSW2-3: Buffering

[Outline] Select buffering print enable/disable.

| | OFF(0) | ON(1) |
|-------------|---------|-------|
| Spool Print | Invalid | Valid |

ON (1) OPERATION: Buffering print is enabled. Buffering print means that save a certain amount of print buffer to internal RAM for collective printing

- Save a certain amount of print buffer to internal RAM for collective printing.
- If cut command such as GS+V ESC+i ESC +m are entered, print starts even before the specified amount is reached. FF or GS+FF command In Black mark mode or label model works same way.
- Even if no cut command is entered and the entered data does not reach the specified amount, entered data to print buffer is printed after no new data comes to print buffer for certain period.

OFF (0) OPERATION: Buffering print is disabled.

●**MSW2-4:** Full Columns print

[Outline] Select the processing if print data closes to the end of line or the right of print width.

| | OFF(0) | ON(1) |
|----------------|---------------|--------------|
| Full Col print | Line Feed | Wait Data |

ON (1) OPERATION:

If printer receives data/command exceeding the full column, printer further waits for print data.

If data exceeding the full column is a command, printer operates following the command.

OFF (0) OPERATION:

If printer receives data/command exceeding the full column, it automatically prints data in buffer followed by a line-feed.

<Example>

If the first data after exceeding the full column is a control code such as<ESC !>;

If OFF (0) is set, print data within buffer and put a line feed, or

If ON (1) is set, print no data within buffer and further wait for print data.

●**MSW2-5:** Cover close return

[Outline] Select the operating taken after printer cover is opened during printing, paper is refilled with no-paper (PE) is detected, then cover is closed to restart printing.

| | OFF(0) | ON(1) |
|---------------|---------------|--------------|
| Resume aft PE | Next | Top |

ON (1) OPERATION:

Restart printing from the heading of remaining data.

During printing image, bar code, vertically-doubled character or page mode, if cover open or PE is detected, then after return, restart printing from heading of the remaining data.

OFF (0) OPERATION:

Print data continued from the previous printing. During printing, if cover open or PE is detected, then after return, restart printing data immediately after an error data.

*With BD2-2220 and PMU series, Cover Close corresponds to Head Down (Platen Close) and Cover Open to Head Up (Platen Open).

●**MSW2-6:** Paper width

[Outline] Select paper width.

| | OFF(0) | ON(1) |
|-------------|---------------|--------------|
| Paper width | 80mm | 58mm |

ON (1) OPERATION: Paper width is set 80mm

OFF (0) OPERATION: Paper width is set 58mm

●**MSW2-7:** Reserved [Fixed to OFF (0)]

●**MSW2-8:** PNE sensor

[Outline] Select paper near-end enable/disable.

| | OFF(0) | ON(1) |
|------------|---------------|--------------|
| PNE Sensor | Valid | Invalid |

ON (1) OPERATION: Disable paper near-end

OFF (0) OPERATION: Enable paper near-end

4.2.3 MSW3

●**MSW3-1:** Auto-cutter return

[Outline] Selects the return method from cutter lock error.

| | OFF(0) | ON(1) |
|----------------|---------------|--------------|
| Resum Ctrr Err | Valid | Invalid |

ON (1) OPERATION: Return by command.

After removing error cause, return with command <DLE ENQ n>.

OFF (0) OPERATION: Return with FEED switch.

After removing error cause, return by long pressing FEED SW (1 sec or longer).

●**MSW3-2:** Clearing Cover Open Error

[Outline] Selects the method of clearing Cover Open error.

| | OFF(0) | ON(1) |
|----------------|---------------|--------------|
| Resum Open Err | Close | Command |

Operation at ON (1):

When the printer detects that cover is closed and the printer receives a command <DLE+ENQ+n>, the error is cleared.

Operation at OFF (0):

When the printer detects that the cover is closed, it automatically clears the error.

*With BD2-2220, Cover Open corresponds to Head Up (Platen Open).

CT-S801/CT-S851/CT-S601/CT-S651

Selects the Valid/Invalid of PE signal at detecting PNE

| | OFF(0) | ON(1) |
|------------------|---------------|--------------|
| PE output at PNE | Valid | Invalid |

OPERATION at ON (1):

When paper near end is detected, printer output the PE signal from parallel interface. This is same behavior of ESC c 3 n command and n=15.

OPERATION at OFF (0):

When paper near end is detected, printer does not output the PE signal from parallel interface. This is same behavior of ESC c 3 n and n=12.

●**MSW3-3:** Parallel 31 pin

[Outline] Printer can be reset by parallel I/F –31 Pin signal. Select the handling of this signal.

| | OFF(0) | ON(1) |
|-----------------|---------------|--------------|
| Parallel 31 pin | Valid | Invalid |

ON (1) OPERATION: Used as reset signal

OFF (0) OPERATION: Not used as reset signal

●**MSW3-4:** Selecting paper

[Outline] Selects either thermal paper or black mark paper.

| | OFF(0) | ON(1) |
|--------------|---------------|--------------|
| Paper Select | Thermal | Black Mark |

Operation at ON (1): Sets black mark paper.

Operation at OFF (0): Sets thermal paper.

●**MSW3-5:** Column Number

[Outline] Selects column number.

| | OFF(0) | ON(1) |
|---------------|---------------|--------------|
| Column Number | 48/32 col | 42/30 col |

Operation at ON (1): Column number is set 42/30 columns

Operation at OFF (0): Column number is set 48/32 columns

●**MSW3-6:** Reserved [Fixed to OFF (0)]

●**MSW3-7:** CBM compatible mode

[Outline] Select enable/disable of CBM compatible mode.

| | OFF(0) | ON(1) |
|----------|---------------|--------------|
| CBM Mode | Invalid | Valid |

ON (1) OPERATION: Enable CBM compatible mode.

Control code <ESC ~ J> becomes available.

OFF (0) OPERATION: CBM compatible mode is disabled.

●**MSW3-8:** Cover open during printing

[Outline] Select the release method of cover open error during printing.

| | OFF(0) | ON(1) |
|----------------|---------------|--------------|
| Resum Open Err | Close | Command |

ON (1) OPERATION: Cover open error during printing becomes a return allowed error.

Returned with command <DLE ENQ n> after cover is closed.

OFF (0) OPERATION: Cover open error during printing becomes an automatic return error.

Automatically returned from cover open error by closing the cover.

*With BD2-2220, Cover Close corresponds to Head Down (Platen Close) and Cover Open to Head Up (Platen Open).

4.2.4 MSW4

●**MSW4-1:** Automatic length measurement

[Outline] In selecting black mark paper, set the enable/disable of automatic length measurement.
(Black mark/label support model only)

| | OFF(0) | ON(1) |
|------------|---------------|--------------|
| BM Measure | Invalid | Valid |

ON (1) OPERATION: Automatic length measurement is enabled.

At power-up, measurement operation is taken.

OFF (0) OPERATION: Automatic length measurement is disabled.

Operation follows the value set by <GS I>.

●**MSW4-2:** Black mark sensor position

[Outline] Selects black mark sensor position.

| | OFF(0) | ON(1) |
|--------------------|---------------|--------------|
| BM sensor position | surface | back |

ON (1) OPERATION: Black mark sensor detects a black mark on the printing surface.

OFF (0) OPERATION: Black mark sensor detects a black mark on the printing back.

●**MSW4-3:** Paper feed & cut at closing cover

[Outline] When cover is closed, printer feeds paper and cuts.

| | OFF(0) | ON(1) |
|-------------------|---------------|--------------|
| Feed & Cut at TOF | Invalid | Valid |

ON (1) OPERATION: Paper feed & cut at closing cover is enabled.

OFF (0) OPERATION: Paper feed & cut at closing cover is disabled.

●**MSW4-4:** Paper

[Outline] Selects the type of paper used.

| | OFF(0) | ON(1) |
|-------|--------------------|------------------------------|
| Paper | Thermal roll paper | Black mark paper/Label paper |

ON (1) OPERATION: Paper used is limited to black mark paper or label paper.

OFF (0) OPERATION: Paper used is limited to thermal roll paper.

●**MSW4-5:** Position detect

[Outline] Selects the method of detecting paper position.

| | OFF(0) | ON(1) |
|-----------------|---------------|--------------|
| Position detect | Black mark | Label |

ON (1) OPERATION: Detects paper position by detecting the inter-label distance.

OFF (0) OPERATION: Detects the paper position by detecting the black mark.

*This function is valid only with black mark specification or label specification.

*If thermal roll paper is selected by MSW4-4, this function is invalid.

*Black mark detection is fixed with black mark specification.

●**MSW4-6:** Behaviour by cover close

[Outline] Selects the behavior at closing cover for black mark or label

| | OFF(0) | ON(1) |
|----------------|---------------|--------------|
| C.Close Action | Find TOF | Auto Measure |

ON (1) OPERATION: Feed paper to find top of form

OFF (0) OPERATION: MSW4-1 On - Performs automatic length measurement.

MSW4-1 Off - Does not perform automatic length measurement.

●**MSW4-7:** Auto paper Select (CT-S281 unique)

[Outline] Selects Valid/Invalid of paper type auto select function.

| | OFF(0) | ON(1) |
|-------------------|---------------|--------------|
| Auto Paper Select | Invalid | Valid |

ON (1) OPERATION: Paper type auto selection function is valid

OFF (0) OPERATION: Paper type auto selection function is invalid

** Paper type auto select function determines the used paper type and sets the paper type automatically depending on the result of auto length measurement or finding black mark or top of label at power on/cover close,

** Valid only if Black mark/Label is selected at MSW4-4

** If MSW4-1 is set for auto length measurement or MSW4-2 is set to find TOF, this function works at power on.

** If the printer is turned off with receipt mode set by this function, the printer goes back to label mode.

●**MSW4-7:** DC3 command function switch (CT-S280 unique)

[Outline] Select the operation taken when DC3 command is received.

| | OFF(0) | ON(1) |
|----------------------|------------------|--------------|
| DC3 command function | 2 color printing | B/W reverse |

ON(1)) OPERATION: When DC3 command is received, black/white reverse printing mode is set / cleared.

OFF(0) OPERATION::When DC3 command is received, 2 color printing mode is set / cleared.

●**MSW4-8:** Forcible partial cut

[Outline] Select the operation taken when full cut command is received.

| | OFF(0) | ON(1) |
|--------------|---------------|--------------|
| Partial only | Invalid | Valid |

ON (1) OPERATION: When full cut command is received, partial cut, not full cut, is taken.

OFF (0) OPERATION: When full cut command is received, full cut is taken.

4.2.5 MSW5

●**MSW5-1:** Buzzer

[Outline] Select the enable/disable of buzzer.

| | OFF(0) | ON(1) |
|--------|---------------|--------------|
| Buzzer | Valid | Invalid |

ON (1) OPERATION: Disable buzzer

When an error occurs or memory switch setting is changed manually, no buzzer sounds.

OFF (0) OPERATION: Enable buzzer.

When an error occurs or memory switch setting is changed manually, the buzzer sounds.

●**MSW5-2:** Basic vertical calculation pitch

[Outline] Select the basic calculation pitch in the paper feed direction.

| | OFF(0) | ON(1) |
|------------|---------------|--------------|
| Line Pitch | 360 | 406 |

ON (1) OPERATION: Basic vertical calculation pitch is set to 1/406 inch.

Line-feed length is 3.75mm by default.

OFF (0) OPERATION: Basic vertical calculation pitch is set to 1/360 inch.

Line-feed length is 4.23mm by default.

●**MSW5-3:** USB mode

[Outline] Select USB mode.

| | OFF(0) | ON(1) |
|----------|---------------|---------------|
| USB Mode | Virtual COM | Printer Class |

ON (1) OPERATION: Operated as Printer class

OFF (0) OPERATION: Operated as virtual COM class

●**MSW5-4:** Reserved [Fixed to OFF (0)]

●**MSW5-5:** Setting the power OFF notify

[Outline] At power OFF, to notify the host of the printer power OFF, printer can send to host 3 byte power OFF notify's status data (3BH 31H 00H).

Set to enable/disable for sending the power OFF notify's status data.

| | OFF(0) | ON(1) |
|----------------|---------------|--------------|
| Power OFF Info | Not send | Valid |

ON (1) OPERATION:

Function to notify power ON is enabled, sending status to host.

OFF (0) OPERATION:

Function to notify power ON is disabled, sending no status to host.

●**MSW5-6:** High quality printing mode

[Outline] Selects the valid/invalid of high quality printing mode

In high quality printing mode, printing speed can be slower than normal mode.

| | OFF(0) | ON(1) |
|----------------------------|---------------|--------------|
| High quality printing mode | Invalid | Valid |

ON (1) OPERATION: Prints in high quality mode and less speed

OFF (0) OPERATION: Prints in normal mode and normal speed

●**MSW5-7:** Not defined [Fixed to OFF (0)]

●**MSW5-8:** FAULT Output

[Outline] Selects the condition of FAULT output

| | OFF(0) | ON(1) |
|--------------|----------------|--------------|
| FAULT Output | PE, PNE, Error | PE, Error |

ON (1) OPERATION

At PE or Error, FAULT is output.

OFF (0) OPERATION:

At PE or PNE or Error, FAULT is output.

4.2.6 MSW6

●**MSW6-1:** Mode to use with the driver

[Outline] Selects the valid/invalid of mode to use with the driver

| | OFF(0) | ON(1) |
|-----------------------------|---------------|--------------|
| Mode to use with the driver | Invalid | Valid |

ON (1) OPERATION: FAULT signal is not output in the error condition to parallel port..

ASB is valid at power on. (Same behavior as GS a n command and n = 15)

OFF (0) OPERATION: FAULT signal is output in the error condition to parallel port..

ASB is invalid at power on. (Same behavior as GS a n command and n = 0)

●**MSW6-2:** Character space mode

[Outline] Selects the valid/invalid of mode to have right space for each character

| | OFF(0) | ON(1) |
|----------------------|---------------|--------------|
| Character space mode | Invalid | Valid |

ON (1) OPERATION: Default of right space of each character is "0".

Same behavior as ESC SP n command and parameter n = 0.

OFF (0) OPERATION: Default of right space of each character is "1".

The right vertical dot column in character composition matrix is repeated in the additional right space. In this mode, number of columns for font B and C is decreased by 1 - 4.

4.2.7 MSW7

●**MSW7-1:** Baud rate

[Outline] Selects the baud rate which is serial interface communication condition.
Enabled if DSW1-1 OFF is set [following memory switch setting].

| | Setting Value |
|-----------|--|
| Baud Rate | 1200bps,2400bps,4800bps,9600bps,19200bps, 38400bps,57600bps,115200bps |

●**MSW7-2:** Data length

[Outline] Selects the data length, which is a serial interface communication condition.
Enabled if DSW1-1 OFF is set [following memory switch setting].

| | Setting Value |
|-------------|---------------|
| Data Length | 7bits,8bits |

●**MSW7-3:** Stop bit

[Outline] Selects the stop bit, which is a serial interface communication condition.
Enabled if DSW1-1 OFF is set [following memory switch setting].

| | Setting Value |
|----------|---------------|
| Stop Bit | 1bit,2bits |

●**MSW7-4:** Parity

[Outline] Selects the parity, which is a serial interface communication condition.
Enabled if DSW1-1 OFF is set [following memory switch setting].

| | Setting Value |
|--------|-----------------|
| Parity | NONE, ODD, EVEN |

●**MSW7-5:** Flow control

[Outline] Selects the flow control, which is a serial interface communication condition.
Enabled if DSW1-1 OFF is set [following memory switch setting].

| | Setting Value |
|--------------|-------------------|
| Flow Control | DTR/DSR, XON/XOFF |

●**MSW7-6:** DMA control

[Outline] Selects the valid/invalid of DMA (Direct Memory Access) control.

| | Setting Value |
|-------------|----------------------|
| DMA control | Valid, Invalid |

●**MSW7-7:** VCom flow control

[Outline] In MSW5-3, selects the flow control when virtual COM is set.

| | Setting Value |
|---------------|-------------------------------|
| VCom Protocol | PC setting, DTR/DSR, XON/XOFF |

4.2.8 MSW8

●MSW8-1: Print width

[Outline] Selects the print width in dots.

| | Setting Value |
|-------------|---|
| Print Width | 832dots, 720dots, 660dots, 640dots, 576dots, 512dots, 436dots, 432dots, 420dots, 384dots, 360dots, 390dots, 546dots |

●MSW8-2: Paper type

[Outline] Selects the paper type used.

| | Setting Value |
|------------|--|
| Paper Type | 1 Color Normal, 1 Color BM, 1 Color Label, 2 color Normal, 2 Color BM |

4.2.9 MSW9

●**MSW9-1:** Code page

[Outline] Selects the codepage.

| | Setting Value |
|----------|---|
| Codepage | PC437, Katakana, PC850, PC858, PC860, PC863, PC865, PC852, PC866, PC857, WindowsCode, Space page, PC864, ThaiCode18 |

●**MSW9-2:** International character

[Outline] Selects the international character.

| | Setting Value |
|--------------|---|
| Int'Char Set | USA, France, Germany, UK, Denmark, Sweden, Italy, Spain, Japan, Norway, Denmark 2, Spain2, Latin America, Korea |

●**MSW9-3:** Kanji

[Outline] Selects the enable/disable of Kanji.

| | Setting Value |
|-------|---------------|
| Kanji | ON, OFF |

●**MSW9-4:** JIS

[Outline] Selects the kanji code system.

| | Setting Value |
|---------------|----------------|
| JIS/Shift JIS | JIS, Shift JIS |

●**MSW9-5:** Reserved [Fixed to OFF (0)]

●**MSW9-6:** Language for LCD message

[Outline] Selects the language of message shown on the LCD.

| | Setting Value |
|--------------|--|
| LCD Language | English, Français, Deutsch, Italiano, Español, Japanese, Chinese |

●**MSW9-7:** LCD download message

[Outline] Selects the valid/invalid of download message for LCD.

| | Setting Value |
|---------------|----------------|
| LCD Ext. Char | Invalid, Valid |

●**MSW9-8:** Auto back light off time

[Outline] Sets the time of LCD back light auto off.

| | Setting Value |
|---------------------|------------------------------|
| Back light auto off | Never, 30 seconds, 5 minutes |

4.2.10 MSW10

- MSW10-1:** Print density
[Outline] Selects the print density.

| | Setting Value |
|---------------|--|
| Print Density | 70%, 75%, 80%, 85%, 90%, 95%, 100%, 105%, 110%, 115%, 120%, 125%, 130%, 135%, 140% |

- MSW10-2:** Print speed
[Outline] Selects the print speed.

| | Setting Value |
|-------------|--|
| Print Speed | Level1, Level2, Level3, Level4, Level5, Level6, Level7, Level8, Level9 |

- MSW10-3:** ACK output timing
[Outline] Selects the ACK signal output timing in parallel interface.

| | Setting Value |
|------------|--------------------------------------|
| ACK Timing | Before Busy, Same Period, After Busy |

- MSW10-4:** user NV memory capacity
[Outline] Selects the user NV memory capacity.

| | Setting Value |
|---------|---|
| NV User | 1Kbytes, 64Kbytes, 128Kbytes, 192Kbytes |

- MSW10-5:** NV graphics memory capacity
[Outline] Selects the NV graphics memory capacity.

| | Setting Value |
|------------|---|
| NV Graphic | 0bytes, 64Kbytes, 128Kbytes, 192Kbytes, 256Kbytes, 320Kbytes, 384Kbytes |

- MSW10-6:** Buzzer volume
[Outline] Selects the buzzer volume level

| | Setting Value |
|---------------|--------------------------------|
| Buzzer volume | Level1, Level2, Level3, Level4 |

Level 1 is the maximum and level 4 is the minimum.

●**MSW10-7:** Key lock

[Outline] Selects the valid/invalid of key lock function

| | Setting Value |
|----------|----------------|
| Key lock | Invalid, Valid |

●**MSW10-8:** LCD display direction

[Outline] Selects the direction of message on the LCD.

| | Setting Value |
|------------------------|-----------------|
| LCD display diirection | Normal, Invated |

5. APPENDIX

5.1 Explanation on PAGE MODE

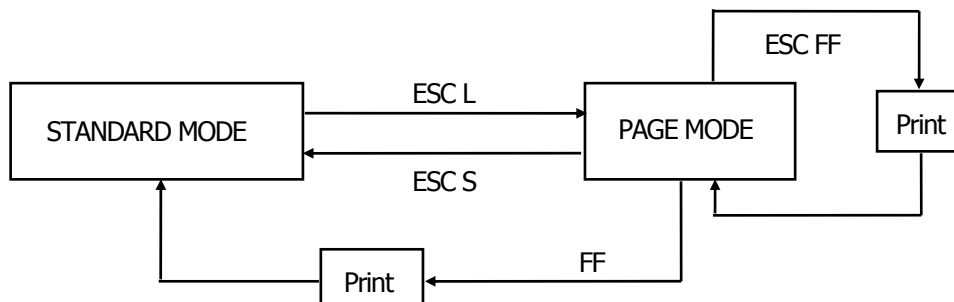
5.1.1 Overview

The printer has two print modes: STANDARD and PAGE.

In STANDARD MODE, the printer prints or feeds paper each time it receives a print or paper feed command. In PAGE MODE, when the printer receives print commands and/or form feed commands, it simply forwards them to the specified print area of memory. Only when an ESC FF or FF is executed all the data mapped in the print area will then be printed in a batch.

For example, suppose you executed a print and line feed for data "ABCDEF"<LF>. In STANDARD MODE, the data "ABCDEF" is printed and paper is advanced one line. In PAGE MODE, the data "ABCDEF" is written in the specified print area of memory, and the memory location for the storage of the next print data is shifted one line.

The printer enters PAGE MODE with an ESC L, so that all commands received after that point are handled in PAGE MODE. When an ESC FF is executed, the data received until then is printed in a batch. When an FF is executed, the data received until then is printed in a batch, after which the printer returns to STANDARD MODE. An ESC S causes the printer to immediately return to STANDARD MODE; any print data, however, that has been stored in PAGE MODE is not printed. Instead it will be cleared.



[Switching Between STANDARD MODE and PAGE MODE]

5.1.2 Values Set by Each Command in STANDARD MODE and PAGE MODE

(1) The values set with commands are common to the STANDARD MODE and PAGE MODE. The values set with any of the commands listed below are, however, treated differently and stored separately for the STANDARD and PAGE MODES.

- ESC SP, ESC 2, ESC 3, FS S

(2) The maximum printable size of a bitmap image is 576 dots for STANDARD MODE. In PAGE MODE, the maximum printable size of a bitmap image is 831 dots in the "y" direction (paper feed direction). (However 831 dots are reserved for "y" of the print area set by ESC W and the value of print direction "n" specified by ESC T is 1 or 3.)

5.1.3 Mapping of Print Data in the Print Area

Print data is mapped in the print area as follows:

- (1) The print area is set by ESC W. When the printer has finished all of the print and paper feed actions specified before receiving an ESC W, the ESC W sets the right end (as viewed facing the printer) as the start point (x0, y0) of the print area. The print area is a rectangle defined by two edges extending from the start point (x0, y0): one edge running in the "x" (Horizontal) direction by "dx" pitch (inclusive of the start point), and the other running in the "y" (Vertical) direction by "dy" pitch. (If no ESC W is defined, the default values are used to define the print area.)
- (2) With a print area defined by ESC W and a print direction specified by ESC T, when the printer receives print data, the print data is mapped in the print area where point A (see the Figure 4-1 "Mapping Position for Character Data") is used as the initial value of the start point. If the print data consists of characters, this start point serves as the baseline.

If the print data is a downloaded bitmap image or a bar code, the print data is mapped with its lower-left point B aligned to the baseline. (See the Figure 4-2 "Mapping Positions for Print Data".) When attempting to map the HRI characters of a bar code, however, the section above the standard character height will not be printed.

- (3) If print data (or the space to the right of a character) extends beyond the print area before a command that involves a line feed (for example, LF or ESC J command) is received, a line feed is automatically executed in the print area, so that the mapping position of the print data is moved one line. The next mapping position will be the beginning of the line. In this case, the line feed width is as defined by a command such as ESC 2 or ESC 3.
- (4) By default, the line feed width is 1/6 inch, which is equivalent to 34 dots. If the print data for the next line includes a vertically doubled or taller character, a downloaded bitmap image extending two or more lines, or a bar code taller than the character height, the data, therefore, falls short of the line feed width, causing the upper dots of the character to overlap the print data of the current line. The line feed width needs to be increased.

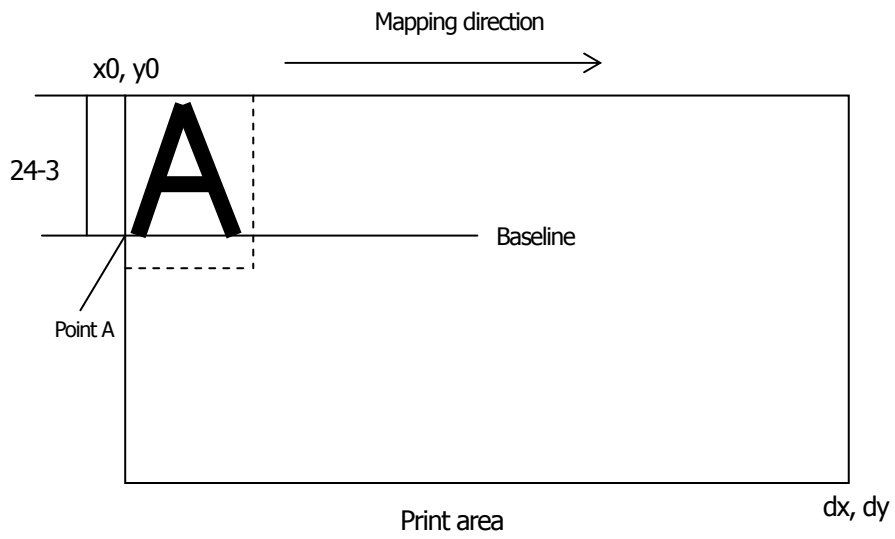


Figure 5-1 Mapping Position for Character Data

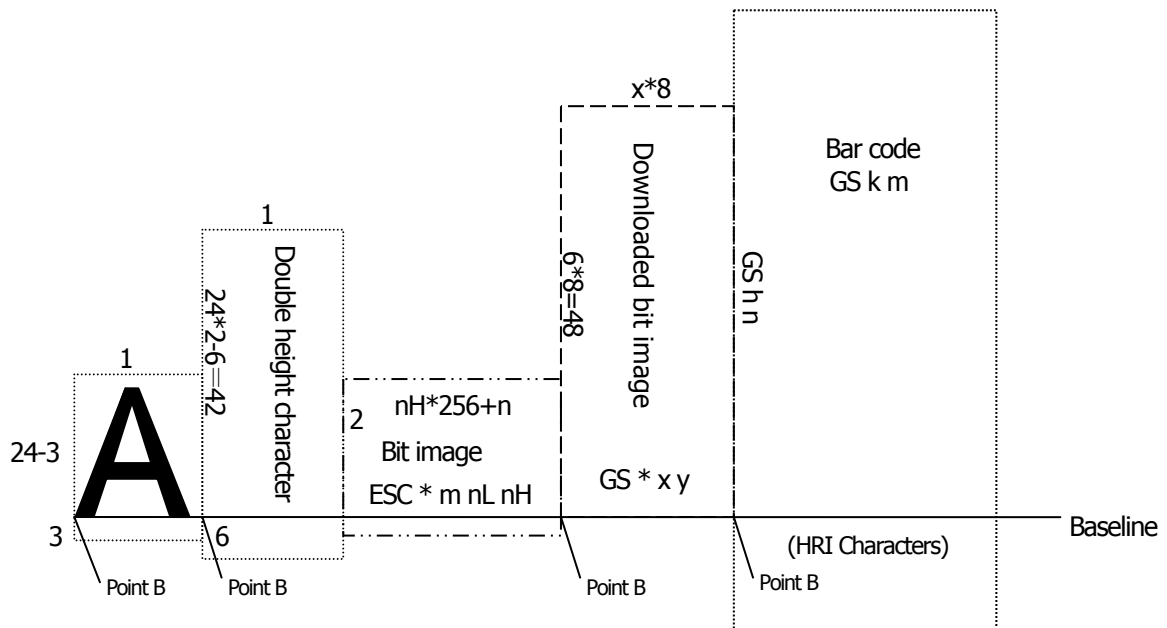


Figure 5-2 Mapping Positions for Print Data

5.1.4 Example of Using PAGE MODE

The following explains specific uses of PAGE MODE.

When in PAGE MODE, the commands are typically sent from the host to the printer in the following sequence:

- (1) An ESC L puts the printer in PAGE MODE.
- (2) An ESC W specifies the print area.
- (3) An ESC T specifies the print direction.
- (4) Print data is sent.
- (5) An FF instructs the printer to print the print data in a batch.
- (6) After printing, the printer returns to STANDARD MODE.

< Example 1 >

```
100 PRINT #1, CHR$(&H1B);"L";  
110 PRINT #1, CHR$(&H1B);"W";CHR$(0);CHR$(0);CHR$(0);CHR$(0);  
120 PRINT #1, CHR$(200);CHR$(0);CHR$(144);CHR$(1);  
130 PRINT #1, CHR$(&H1B);"T";CHR$(0);  
140 PRINT #1, "Page mode lesson Test1"  
150 PRINT #1, CHR$(&HC);
```

The program in Example 1 reserves a print area of 200 .400 pitches extending from the start point (0, 0), and then prints the text "Page Mode lesson Test 1" on the first line of the print area as shown in Figure 5-3 "Example 1: Results of Print".

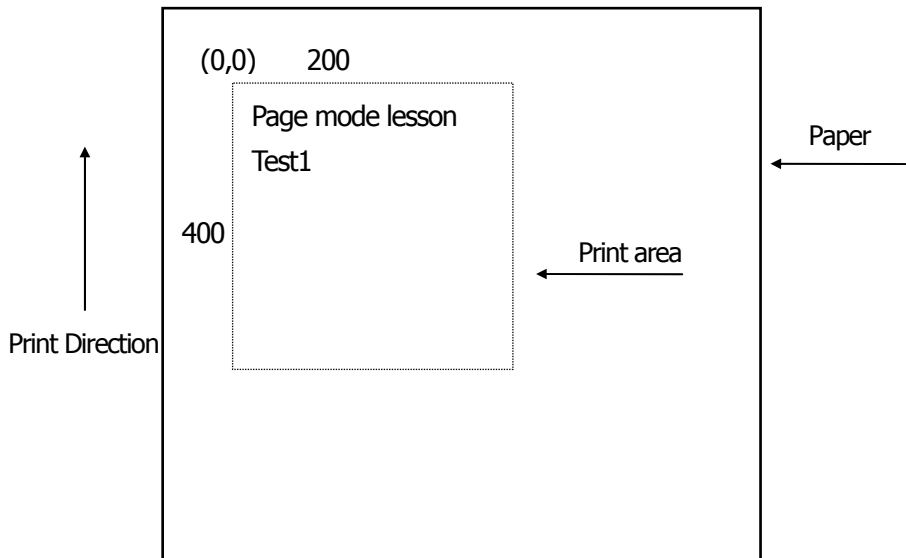


Figure 5-3 Example 1: Results of Print

In Figure 4-3, a line feed occurs between "lesson" and "Test 1" because the space " " next to "lesson" does not fit in the horizontal range of the 200, 400-pitch print area. The line feed width conforms to the value specified by a command such as ESC 3.

It is possible to set as many print areas as desired before executing FF. If print areas overlap each other, the print area setup data are ORed with the previous data.

If you want to erase a section of mapped data, use the CAN command. The CAN command erases all data in the print area being specified. You can, therefore, use an ESC W to define a print area that encloses the section you want to erase, and then execute the CAN command, so that the section of the data is erased.

It is important to remember that any part of a character that overlaps with the specified print area will be erased.

< **Example 2** >

```
100 PRINT #1, CHR$(&H1B);"L";
110 PRINT #1, CHR$(&H1B);"W";CHR$(0);CHR$(0);CHR$(0);CHR$(0);
120 PRINT #1, CHR$(200);CHR$(0);CHR$(144);CHR$(1);
130 PRINT #1, CHR$(&H1B);"T";CHR$(0);
140 PRINT #1, "Page mode lesson2CAN command";
150 PRINT #1, CHR$(&HA);
160 PRINT #1, "ABCDEFGHJKLMNOPQRST1234567890";
170 PRINT #1, CHR$(&HC);
```

First, an ESC L is sent to switch to PAGE MODE (100th line). Next, an ESC W is used to send eight arguments, n1 to n8, to reserve a print area. In this example, the arguments are sent in the sequence of 0, 0, 0, 0, 200, 0, 144, and 1, to reserve a print area that measures 200 from the start point (0, 0) in the "x" direction and 400 in the "y" direction (110th to 120th line). Furthermore, an ESC T is issued to specify the print direction to be "0" (130th line).

After the above setup, print data is sent (140th to 160th line). Finally, an FF is sent (170th line) to produce a print-out as shown in Figure 5-4 "Example 2: Result of Print".

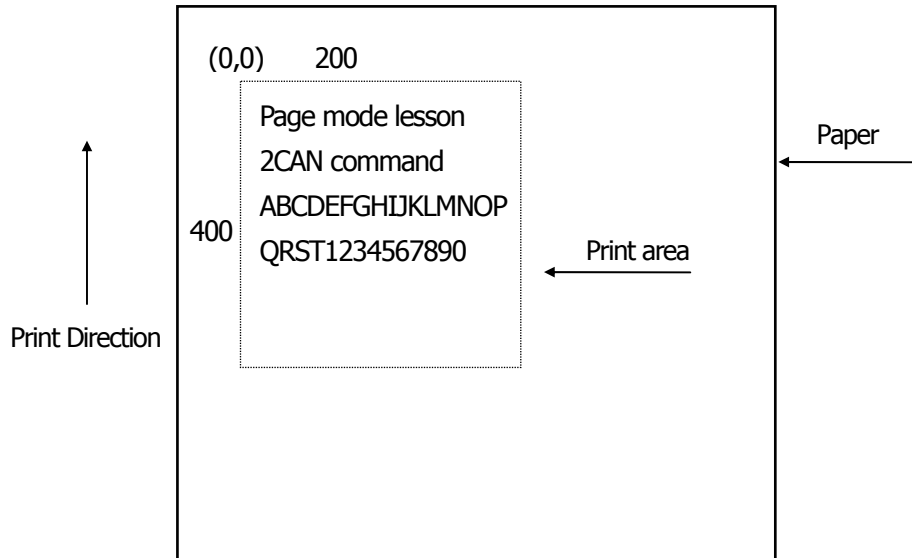


Figure 5-4 Example 2: Result of Print

Before an FF is sent (170th line), the following program code can be added to remove part of the data.

< **Example 2** >

```
180 PRINT#1, CHR$(&H1B);"W";CHR$(72);CHR$(0);CHR$(120);CHR$(0);
190 PRINT#1, CHR$(36);CHR$(0);CHR$(48)CHR$(0);
200 PRINT#1, CHR$(&H18);
```

As a result of the additional program code, a print-out is executed as shown in Figure 5-5 "Print Result of Adding a Program of Example 3 to Example 2", where the string "GHI" is removed.

When strings are removed with CAN, the area where the string would have been is not used by the rest of the data, instead it is converted into a sequence of spaces.

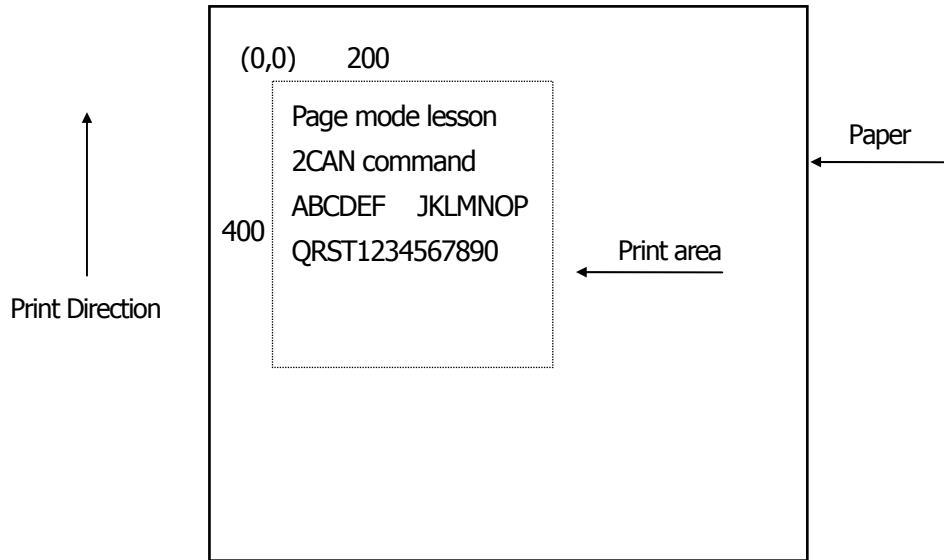


Figure 5-5 Print Result of Adding a Program of Example 3 to Example 2

5.2 Bidirectional Parallel Interface

Overview

The interface of the printer is a Level-1 compatible device according to IEEE-P1284. It supports the communication modes described in 5.2.1 below.

5.2.1 Parallel Interface Communication Mode

The parallel interface of the printer provides three communication modes as outlined below. When the printer is turned on or reset, it defaults to Compatibility mode.

- Compatibility Mode

Data is transmitted from the host to the printer in units of one byte. Usually, this mode is used for data transmission. You may switch to the other modes from Compatibility mode.

*Remarks: CT-P29x cannot use this mode.

- Nibble Mode

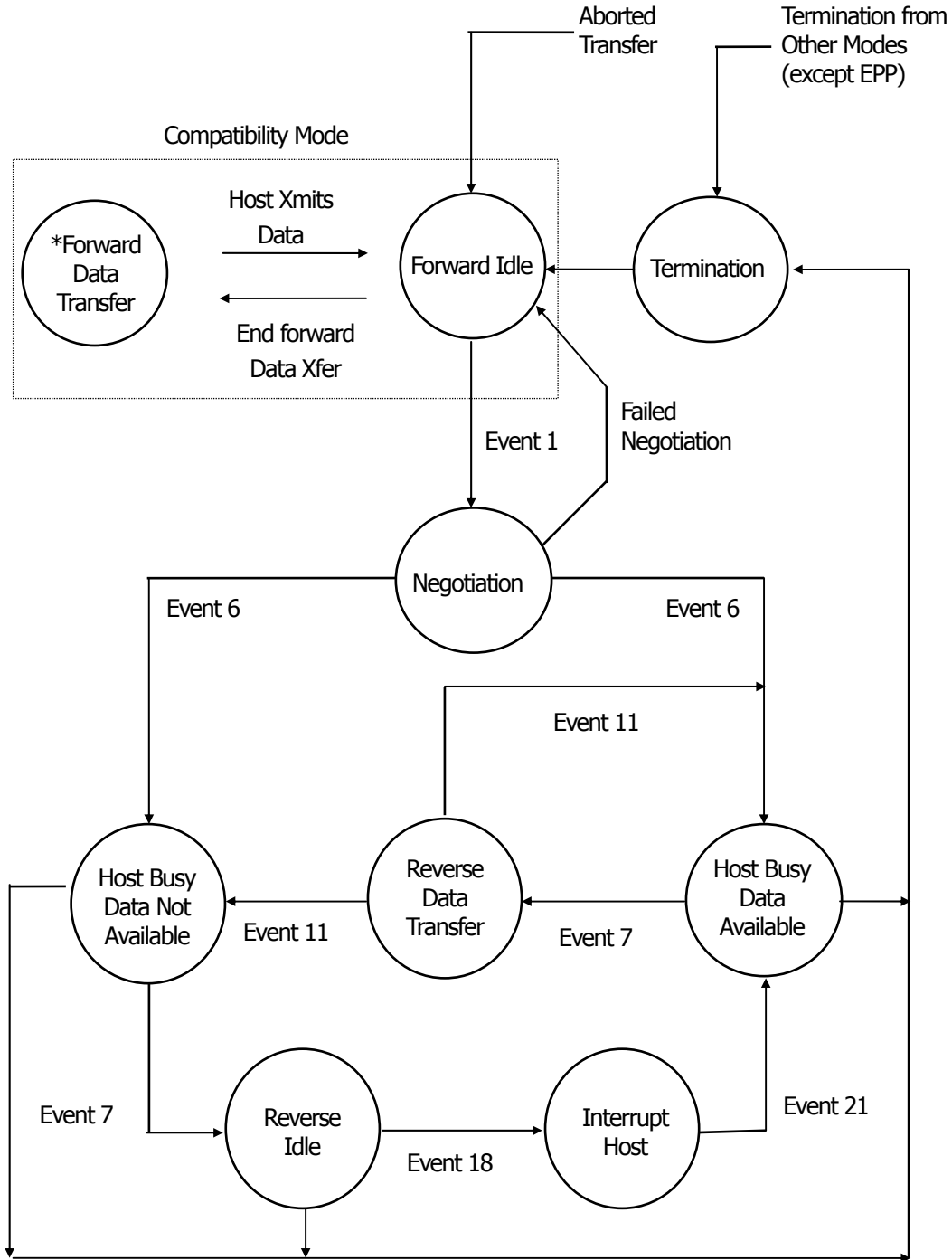
Data is transmitted from the printer to the host in units of four bits. The data transmission from the printer uses a status signal line. To send one byte of data in this mode, two sets of four-bit data are sent consecutively.

- Byte Mode

Data is transmitted from the printer to the host in units of one byte. Data transmission from the printer uses an 8-bit data signal line. For Byte mode, the host must be capable of toggling the signal direction over the 8-bit data signal line. Communication from the host to the printer is called Forward mode, while communication from the printer to the host is called Reverse mode.

5.2.2 Interfacing Phases

Interfacing in each communication mode is divided into several phases. In addition, there is a phase for mode initialization, as well as a phase for mode switching. Interface signals may differ in name and function for different modes and different phases.



5.2.3 Negotiation

Overview

Usually, the printer is started in Compatibility mode, which corresponds to the Centronics interface phase.

When the host intends to switch to the Nibble or Byte mode, it sends a request and negotiates with the printer. A general flow of negotiations is given below.

- (1) The host sets the IEEE 1284 Active signal to High. In response, the printer moves into the Negotiation phase.
- (2) The printer replies whether it can execute the mode requested by the host.
- (3) The interface terminates the Negotiation phase and moves into the communication phase.

Negotiation Procedure

The negotiations proceed as follows:

- (1) In IEEE 1284 communication mode, the host and printer are in Compatibility mode by default. They remain in Compatibility mode as long as the host recognizes the connected device as an IEEE 1284 compatible device.
- (2) To start negotiations, the host sets the communication mode request bit on the data path. (Event 0)
- (3) The host sets IEEE 1284 Active (nSelectIn) to High, and HostBusy (nAutoFd) to Low. (Event 1)
- (4) The printer responds by setting PtrClk (nAck) to Low, nDataAvail (nFault) to High, Xflag (Select) to High, and AckDatReq (PError) to High. (Event 2)
- (5) The host sets HostClk (nStrobe) to Low. In response, the printer latches the data of the communication mode request bit. (Event 3)
- (6) The host sets HostClk (nStrobe) and HostBusy (nAutoFd) to High. (Event 4)
- (7) If the printer has communication data to send to the host, it sets AckDataReq (PError) to Low, nDataAvail (nFault) to Low, and Xflag (Select) to the value corresponding to the communication mode. (Event 5)
Xflag: Nibble Mode : Low
Byte Mode : High
- (8) The printer sets PtrClk (nAck) to High to indicate that it is ready to read status lines. (Event 6)
- (9) If the printer has communication data to send to the host, the host moves into the Host Busy Available phase or Termination phase, and then returns to the Compatibility mode.
- (10) If the printer has no communication data to send to the host, the host moves into the Host Busy Data Not Available phase or Termination phase, and then returns to the Compatibility mode.
- (11) If the printer cannot support the communication mode requested by the host, it sets Xflag (Select) as follows:
When Nibble mode is requested : High
When Byte mode is requested : Low

Precautions

- (1) The Negotiation phase is triggered when the IEEE 1284 Active signal sent by the host becomes High.
- (2) In Compatibility mode, the time when the negotiation process begins is, as a general rule, after the host sets nStrobe to High and then the printer outputs an nAck pulse.
Once the nStrobe signal is set to High, however, the printer immediately moves into the Negotiation phase when the high state of IEEE 1284 Active is detected, even if the nAck pulse has yet to be output or is being output. In this case, if the printer has returned to Compatibility mode after Termination, no nAck pulse will be output.
- (3) Negotiations can be entered from the Busy or Error state of the Compatibility mode. In this case, the printer will not return to the Busy or Error state before the negotiations, but still remains in the printer state just after Termination.
- (4) If the host requested a communication mode that is not supported by the printer, it must move into the Termination phase and return to the Compatibility mode.

Table Definitions of Request Bits in IEEE 1284 Communication Mode

| bit | Definition | Bit Values (76543210) | Hex Code | Xflag | |
|-----|--|--------------------------|------------------|----------------|----------------|
| | | | | When Supported | In the Printer |
| 7 | Request Extensibility Link | 10000000 | 80H | High | Low |
| 6 | Request EPP Mode | 01000000 | 40H | High | Low |
| 5 | Request ECP Mode with RLE | 00110000 | 30H | High | Low |
| 4 | Request ECP Mode | 00010000 | 10H | High | Low |
| 3 | Reserve | 00001000 | 08H | High | Low |
| 2 | Request Device ID:Return Data Using Nibble Mode Rev Channel Transfer | 00000100 | 04H | High | High |
| | Byte Mode Rev Channel Transfer | 00000101 | 05H | High | High |
| | ECP Mode Transfer without RLE | 00010100 | 14H | High | Low |
| | ECP Mode Transfer with RLE | 00110100 | 34H | High | Low |
| 1 | Reserve | 00000010 | 02H | High | Low |
| 0 | Byte Mode Reverse Channel Transfer | 00000001 | 01H | High | High |
| non | Nibble Mode Reverse Channel Transfer | 00000000 | 00H | Low | Low |
| | Illegal or Contradictory Request | Other than above | Other than above | -- | Low |

The printer only supports the Nibble and Byte modes. For a request for any other mode, Xflag is set to Low.

*Remarks: CT-P292/293 support Nibble Mode only.

Data Communication from Printer to Host

Nibble Mode

In this mode, data is transferred between the printer and the host through the procedure described below.

The steps beginning from (1) are applicable when the Negotiation phase has switched to the Host Busy Data Available phase. If the Negotiation phase has switched to the Host Busy Data Not Available phase, the procedure starts at step (9).

- (1) After the negotiations for the entry into Nibble mode are completed, the host sets HostBusy (nAutoFd) to Low to indicate that it is ready to receive data from the printer. (Event 7)
- (2) The printer places the low-order four bits on the reverse channel data line and sets PtrClk (nAck) to Low. (Events 8 and 9)
- (3) The host sets HostBusy (nAutoFd) to High to indicate that it has latched data and received the signal in Event 9. (Event 10)
- (4) The printer sets PtrClk (nAck) to High. This completes transfer of the first nibble. (Event 11)
- (5) Steps (1) to (3) are repeated to transfer the high-order four bits, before proceeding to steps (6) and on.
- (6) After the host has set HostBusy (nAutoFd) to High (Event 10) and received data, the printer must set the four status lines as shown below. (Event 13)
 - PtrBusy (Busy) : Returned to the status given in Forward mode.
 - nDataAvail (nFault) : Set to Low if there is data to be sent.
 - AckDataReq (PError) : Set to Low if there is data to be sent.
 - Xflag (Select) : Set to the current mode (i.e., set to Low).
- (7) The printer sets PtrClk (nAck) to High. (Event 11)
- (8) After Event 11, the host checks the signals set by the printer in Event 13. With this check the host determines:
 1. Whether there is more data to be sent from the printer to the host;
 2. And whether data can be transferred from the host to the printer.
- (9) If there is no more data to be sent from the printer after the transfer of one byte (two nibbles), the host chooses one of three status selections:
 1. Performing Termination and returning to the Compatibility mode.
 2. Remaining in the Host Busy Data Not Available phase.
 3. Setting HostBusy (nAutoFd) to Low (Event 7) and moving to the Reverse Idle phase.
- (10) If there is more data to be received from the printer, the host chooses one of three status selections:
 1. Setting HostBusy (nAutoFd) to Low and indicating that the host is ready to receive.
 2. Remaining in the Host Busy Data Available phase.
 3. Performing Termination and returning to the Compatibility mode.
- (11) If the host selected the Host Busy Data Available phase and set HostBusy (nAutoFd) to Low, the printer repeats the steps from (2) onwards.
- (12) If the host selected the Reverse Idle phase and new data becomes available to be sent from the printer, the printer sets PtrClk to Low to request the host for an interrupt. (Event 18)
- (13) The printer sets PtrClk back to High. (Event 19)

- (14) Upon receiving a request for interrupt from the printer, the host responds by setting HostBusy (nAutoFd) to High. (Event 20)
- (15) Finally, the printer responds to the host by setting AckDataReq (PError) to Low, and then the host moves to the Host Busy Data Available phase. (Event 21)

Byte Mode

In this mode, data is transferred between the printer and the host through the procedure described below.

The steps beginning from (1) are applicable when the Negotiation phase has switched to the Host Busy Data Available phase. If the Negotiation phase has switched to the Host Busy Data Not Available phase, the procedure starts at step (9).

- (1) After the negotiations for the entry into the Byte mode are complete, the host indicates that it is ready to receive data from the printer. This is indicated by switching the data bus to a high-impedance state and setting HostBusy (nAutoFd) to Low. (Events 14 and 7)
- (2) The printer places communication data on the data bus. (Event 15)
- (3) The printer sets PtrClk (nAck) to Low. (Event 9)
- (4) The host sets HostBusy (nAutoFd) to High to indicate that it has latched data and received the signal in Event 9. (Event 10)
- (5) The printer must set the four status lines as shown below. (Event 13)
 - PtrBusy (Busy): Returned to the status given in the Forward mode.
 - nDataAvail (nFault): Set to Low if there is data to be sent.
 - AckDataReq (PError): Set to Low if there is data to be sent.
 - Xflag (Select): Set to the status given during the last negotiation (i.e., set to Low).
- (6) The printer sets PtrClk (nAck) to High (Event 10) and ends the Byte handshake. (Event 11)
- (7) The host indicates that it has succeeded in receiving the data. This is indicated by setting HostClk (nStrobe) to Low (Event 16) and then to High. (Event 17)
- (8) Events 10 and 16 may occur simultaneously, and Events 7 and 17 may occur simultaneously. (Such as when HostBusy and HostClk are used together.)
- (9) After transferring one byte of data, the printer signals to the host whether it has more data to transfer. When there is no more data to be received by the host from the printer, the host chooses one of three status selections:
 1. Performing Termination and returning to the Compatibility mode.
 2. Remaining in the Host Busy Data Not Available phase.
 3. Setting HostBusy (nAutoFd) to Low and moving to the Reverse Idle phase. (Event 7)
- (10) When more data is to be received from the printer, the host chooses one of three status selections:
 1. Setting HostBusy (nAutoFd) to Low and indicating that the host is ready to receive.
 2. Remaining in the Host Busy Data Available phase.
 3. Performing Termination and returning to the Compatibility mode.

Device ID

The device ID is a character string that provides the ID, the type, and other information regarding the printer connected to the interface. When the printer receives a request for a device ID from the host, it replies with the following device ID:

```
<00>H<2E>H  
MFG:CITIZEN;  
CMD:ESC/POS;  
MDL:CT-S300;(*)  
CLS:PRINTER;
```

*This value differs by model and model name is returned.

The first two bytes of the device ID indicate the length of the entire device ID. For a description of a request for a device ID, refer to the "Negotiation" section.

When the host receives the device ID string of the length indicated by the first two bytes, it must do so consecutively, without terminating the process until the entire device ID is received. If the process is terminated halfway, the printer discards the rest of the string; when the printer receives a new request for the device ID, it sends the device ID beginning from the first character of the ID. After receiving the ID of the length indicated by the first two bytes, the host must carry out the termination even if the printer has data to send (Data Available). If the host does not carry out Termination and tries to receive data, the printer sends the printer status.

Termination

Termination is the process of returning to Compatibility mode from the Nibble or Byte modes. When performing Termination, the host sets the signals as follows:

- IEEE 1284 Active (nSelectIn): Low
- HostBusy (nAutoFd): High (Event 22)

There are two methods of Termination:

- (1) Termination through a handshake between the host and the printer
- (2) Immediate termination

(1) Termination through a handshake between the host and the printer:

When switching from Reverse mode to Compatibility mode, this termination method can be used if the interface is activated (IEEE 1284 Active: High) and Event 22 has taken place.

- 1) The printer responds to IEEE 1284 Active by setting PtrBusy (Busy) and nDataAvail (nFault) to High. (Event 23)
- 2) The printer then inverts Xflag (Select) and sets PtrClk (nAck) to Low. (Event 24)
- 3) The host sets HostBusy (nAutoFd) to Low. (Event 25)
- 4) The printer returns nDataAvail (nFault), Xflag (Select), and AckDataReq (PErr) to the status given in the Compatibility mode, and sets PtrClk (nAck) to High. (Events 26 and 27)
- 5) The host sets HostBusy (nAutoFd) to High to terminate the handshake and return the interface to the Compatibility Mode Idle phase. (Event 28)
- 6) The printer changes PtrBusy (Busy) to be able to receive data from the host.

(2) Immediate termination:

- 1) If the interface is deactivated (IEEE 1284 Active: Low) without Event 22 having taken place, the printer immediately performs Termination. In this termination, the data is not guaranteed, and the printer switches the data bus from output to input within 1 μ sec.

In the Reverse Idle phase, the printer can notify the host that it has data to transfer to the host. The notification may occur simultaneously with termination in order for the host to move from the Idle phase to the Compatibility mode.

If the printer has data to send, it initiates the Interrupt phase indicated by Events 8 and 9. In this case, if 1284 - Active (nSelectIn) was set to Low before HostBusy (nAutoFd) changed from High to Low, the printer interprets that the host has switched to the Termination phase, and then completes the normal termination through handshaking.

5.3 Identification of Send Status

Because the status sent from the printer has certain fixed bits, it is possible to identify to which command the status belongs.

When using ASB (Automatic Status Back), however, the first byte of ASB should be checked, and then the three consecutive bytes except for XOFF should be treated as ASB data.

Identification of Send Status

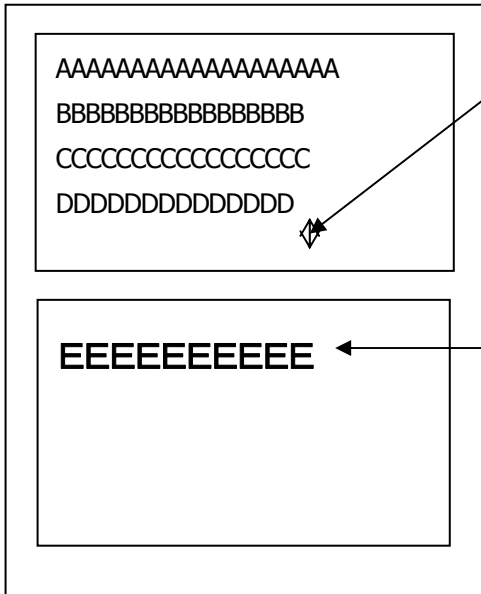
| Command and Function | Status |
|-----------------------|-------------|
| GS I | <0**0****>B |
| GS r | <0**0****>B |
| XON | <00010001>B |
| XOFF | <00010011>B |
| DLE EOT | <0**1**10>B |
| ASB (1st byte) | <0**1**00>B |
| ASB (2nd - 4th bytes) | <0**0****>B |

5.4 Cautions on Black Mark/Label Paper

Cautions on LF (CR), ESC J, ESC d, Page mode, Image, and barcode printing.

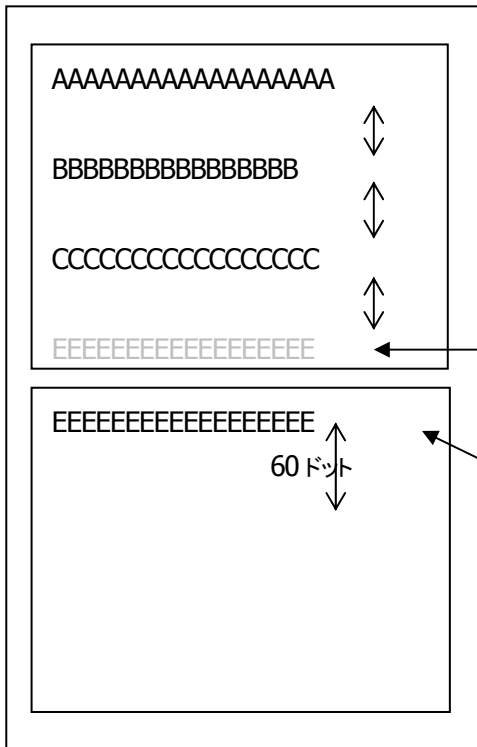
Printing of image greater than vertical print area of BM paper/label paper used is prohibited as a rule.

The user must use label while taking label size into account at all times and terminate printing of a sheet of label with FF, ESC FF or GS FF.



After printing of "D" in the left figure, remainder of vertical print area must be 36 dots.

If printing of "E" of 2 times vertical (48 dots) is attempted there, 48 dots are not printed in the remaining area of 36 dots. Therefore, "E" is printed from next label's first print position. Here, line feed of "E" must also be included in the calculation of the height of "E". (See figure below.)



Only character can be printed here but printed on next label as feed amount cannot be applied.

As shown in the left figure, character height is 24 dots. If, however, line feed width is 60 dots by the setting or command such as ESC 3 or the like, vertical print area is calculated including line feed width in character height. If printing in vertical area is not available, printing is started from the first print position of the next label.

The same principle applies to image and barcode. Barcode and image are as shown on the next page.

If printing of image greater than inter-BM distance/label paper length (vertical print area width) is attempted, image is printed in two separated images as shown below.

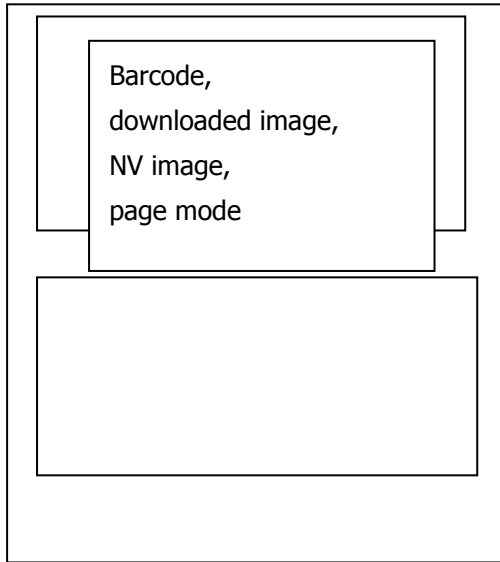
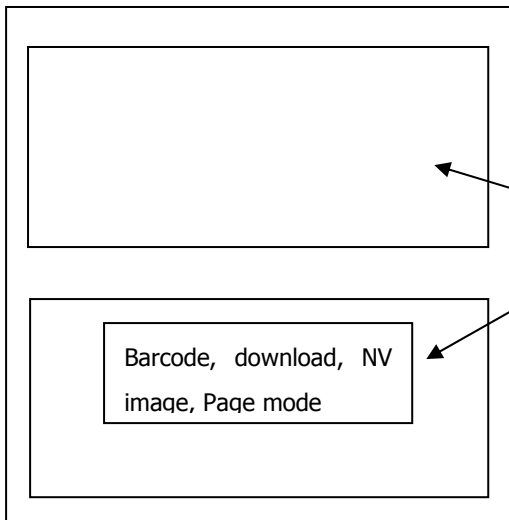


Image greater than vertical print area of label paper used is printed over the label. In this case, head and bottom margins must be taken into account.



Printing occurs in two or more separate areas.