ESC/POS Instruction Set Notes

# ESC/POS Application Guide

*Micro-thermal printer series product*

AN01010101 V1.02 Date: 2012/08/21 **Product Application Note**

## Document Information

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|---|---|
| Key words | ESC/POS, micro-thermal printer, application guide |
| Abstract | Guangzhou ZLG MCU Technology Co., Ltd. developed several types of Micro-Thermal Printer. They are fully functional, and can support more than thirty common ESC/POS instructions. And the corresponding evaluation boards are also provided for evaluation test, enabling customers to complete their product development in a short time and make their products more competitive in the market. This document introduces the ESC/ POS command set in details |

# Revision History

| Version | Rev. Date | Modifications |
|---|---|---|
| V1.00 | 2011-05-04 | Original version |
| V1.01 | 2011-07-27 | Add label paper/black mark paper commands |
| V1.02 | 2012-08-21 | Add supplementary ESC/POS commands and product instruction lists |

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# Chapter 1: ESC/POS Commands

## 1.1 Commands List

ESC/POS commands list supported by Micro-thermal printer series products are listed in Table 1-1.

**Table 1-1: ESC/POS commands list**

| Command | Function | Command type | See |
|---|---|---|---|
| LF | Print and feed paper | Print and feed commands | Table 2-1 |
| CR | Carriage return | | Table 2-2 |
| FF | Print and feed label/BM paper to the starting position for printing | | Table 2-3 |
| Gs FF | Feed label/BM paper to the starting position for printing | | Table 2-4 |
| ESC J | Print and feed paper for n dots | | Table 2-5 |
| ESC K | Print and feed paper back for n dots | | Table 2-6 |
| ESC d | Print and feed paper for n lines | | Table 2-7 |
| ESC e | Print and feed paper back for n lines | | Table 2-8 |
| GS T | Set print position to the beginning of print line | Print configuration command | Table 2-9 |
| ESC 3 | Set the line space to n dots | | Table 2-10 |
| ESC 2 | Set the line space to a default value | | Table 2-11 |
| ESC 1 | Set the left margin | | Table 2-12 |
| ESC Q | Set the right margin | | Table 2-13 |
| GS L | Set the left margin (only ZYTP80 available) | | Table 2-14 |
| ESC SP | Set right-side character space | | Table 2-15 |
| GS W | Set print area width | | Table 2-16 |
| ESC $ | Set the absolute print position | | Table 2-17 |
| ESC \ | Set the relative print position | | Table 2-18 |
| ESC ! | Set the font types | | Table 2-19 |
| ESC - | Turn underline mode on/off | | Table 2-20 |
| ESC E | Turn bold mode on/off | | Table 2-21 |
| ESC a | Set the print alignment | | Table 2-22 |
| ESC { | Turn upside-down printing mode on/off | | Table 2-23 |
| GS B | Turn black/white inverse printing mode on/off | | Table 2-24 |
| ESC m | Set the font grayscale | | Table 2-25 |
| FS s | Set the print speed | | Table 2-26 |
| ESC M | Set the font size | | Table 2-27 |
| ESC V | Turn 90° clockwise rotation mode on/off | | Table 2-28 |

| Command | Function | Command type | See |
|---|---|---|---|
| GS ! | Select character size | | Table 2-29 |
| FS & | Select print mode(s) for Kanji characters | | Table 2-30 |
| FS . | Cancel Kanji character mode | | Table 2-31 |
| ESC R | Select an international character set | | Table 2-32 |
| ESC t | Select character code page | | Table 2-33 |
| ESC c 4 | Select paper sensor(s) to stop printing | | Table 2-34 |
| ESC c 5 | Enable/disable panel buttons | | Table 2-35 |
| ESC* | Select bit-image mode | Image print commands | Table 2-39. Table 2-36 |
| GS v 0 | Print raster bit image | | Table 2-37 |
| FS p | Print NV bit image | | Table 2-38 |
| FS q | Load NV bit image | | Table 2-39 |
| HT | Horizontal tab | Tabulation commands | Table 2-40 |
| ESC D | Set horizontal tab positions | | Table 2-41 |
| FS V | Print the vertical table | | Table 2-42 |
| GS H | select print position of one-dimension HRI | One-dimension /two-dimension Barcode print commands | Table 2-43 |
| GS h | Set the height of one-dimension Barcode | | Table 2-44 |
| GS w | Set the width of one-dimension Barcode | | Table 2-45 |
| GS f | Select font size for one-dimension Barcode | | Table 2-46 |
| GS k | Print one-dimension Barcode | | Table 2-47 |
| GS ( k | Set/Print two-dimension Barcode | | Table 2-48 |
| FS(L | Label paper/Black mark paper commands | Label paper/black mark paper commands | Table 2-61 |
| GS ( F | Set the threshold for label/BM paper border checking | | Table 2-67 |
| DLE EOT | Query the states of printer (real-time) | States commands | Table 2-68 |
| GS a | Set/cancel the printer states automatic back | | Table 2-69 |
| GS r | Transmit status (non-real-time) | | Table 2-70 |
| ESC @ | Initialize the printer | Miscellaneous commands | Table 2-71 |
| DLE DC4 8 | Clear the printer buffer (real-time) | | Table 2-72 |
| GS V | Feed paper and cut paper | | Table 2-73 |
| GS ( E | Set the configuration item for the serial interface | | Table 2-74 |
| GS ( K | Select printing control mode | | Table 2-75 |
| GS E | Select printer head control mode | | Table 2-77 |
| GS I | Transmit printer ID | | Table 2-78 |
| DLE DC4 2 | Enter/Exit low power mode (real-time) | | Table 2-79 |

## 1.2 Micro-thermal printer command lists

### 1.2.1 Command list supported by ZYTP58-xx4A

ZYTP58-xx4A series include ZYTP58-PT4A

**Table 1-2: Command list supported by ZYTP58-xx4A**

| Command | Function | Command type | See |
|---|---|---|---|
| LF | Print and feed paper | Print and feed commands | Table 2-1 |
| CR | Carriage return | | Table 2-2 |
| ESC J | Print and feed paper for n dots | | Table 2-5 |
| ESC K | Print and feed paper back for n dots | | Table 2-6 |
| ESC d | Print and feed paper for n lines | | Table 2-7 |
| ESC e | Print and feed paper back for n lines | | Table 2-8 |
| ESC 3 | Set the line space to n dots | Print configuration command | Table 2-10 |
| ESC 2 | Set the line space to a default value | | Table 2-11 |
| ESC 1 | Set the left margin | | Table 2-12 |
| ESC Q | Set the right margin | | Table 2-13 |
| ESC $ | Set the absolute print position | | Table 2-17 |
| ESC ! | Set the font types | | Table 2-19 |
| ESC a | Set the print alignment | | Table 2-22 |
| ESC m | Set the font grayscale | | Table 2-25 |
| ESC * | Select bit-image mode | Image print commands | Table 2-39. Table 2-36 |
| GS v 0 | Print raster bit image | | Table 2-37 |
| HT | Horizontal tab | Tabulation commands | Table 2-40 |
| ESC D | Set horizontal tab positions | | Table 2-41 |
| DLE EOT | Query the states of printer (real-time) | States commands | Table 2-68 |
| GS a | Set/cancel the printer states automatic back | | Table 2-69 |
| GS r | Transmit status (non-real-time) | | Table 2-70 |
| ESC @ | Initialize the printer | Miscellaneous commands | Table 2-71 |
| DLE DC4 8 | Clear the printer buffer (real-time) | | Table 2-72 |
| GS ( E | Set the configuration item for the serial interface | | Table 2-74 |
| DLE DC4 2 | Enter/Exit low power mode (real-time) | | Table 2-79 |

### 1.2.2 Command list supported by ZYTP58-xx4B

ZYTP58-xx4B series include ZYTP58-FT4B, ZYTP58-FR4B, ZYTP58-TT4B and ZYTP58-MT4B.

**Table 1-3: Command list supported by ZYTP58-xx4B**

| Command | Function | Command type | See |
|---|---|---|---|
| LF | Print and feed paper | Print and feed commands | Table 2-1 |
| CR | Carriage return | | Table 2-2 |
| ESC J | Print and feed paper for n dots | | Table 2-5 |
| ESC K | Print and feed paper back for n dots | | Table 2-6 |
| ESC d | Print and feed paper for n lines | | Table 2-7 |
| ESC e | Print and feed paper back for n lines | | Table 2-8 |

| Command | Function | Command type | See |
|---|---|---|---|
| ESC 3 | Set the line space to n dots | Print configuration command | Table 2-10 |
| ESC 2 | Set the line space to a default value | | Table 2-11 |
| ESC 1 | Set the left margin | | Table 2-12 |
| ESC Q | Set the right margin | | Table 2-13 |
| ESC $ | Set the absolute print position | | Table 2-17 |
| ESC ! | Set the font types | | Table 2-19 |
| ESC a | Set the print alignment | | Table 2-22 |
| ESC m | Set the font grayscale | | Table 2-25 |
| ESC * | Select bit-image mode | Image print commands | Table 2-39. Table 2-36 |
| GS v 0 | Print raster bit image | | Table 2-37 |
| HT | Horizontal tab | Tabulation commands | Table 2-40 |
| ESC D | Set horizontal tab positions | | Table 2-41 |
| GS H | select print position of one-dimension HRI | One-dimension /two-dimension Barcode print commands | Table 2-43 |
| GS h | Set the height of one-dimension Barcode | | Table 2-44 |
| GS w | Set the width of one-dimension Barcode | | Table 2-45 |
| GS f | Select font size for one-dimension Barcode | | Table 2-46 |
| GS k | Print one-dimension Barcode | | Table 2-47 |
| DLE EOT | Query the states of printer (real-time) | States commands | Table 2-68 |
| GS a | Set/cancel the printer states automatic back | | Table 2-69 |
| GS r | Transmit status (non-real-time) | | Table 2-70 |
| ESC @ | Initialize the printer | Miscellaneous commands | Table 2-71 |
| DLE DC4 8 | Clear the printer buffer (real-time) | | Table 2-72 |
| GS ( E | Set the configuration item for the serial interface | | Table 2-74 |
| DLE DC4 2 | Enter/Exit low power mode (real-time) | | Table 2-79 |

### 1.2.3 Command list supported by ZYTP58-xx5B

ZYTP58-xx5B series include ZYTP58-FT5B and ZYTP58-FR5B.

**Table 1-4: Command list supported by ZYTP58-xx5B**

| Command | Function | Command type | See |
|---|---|---|---|
| LF | Print and feed paper | Print and feed commands | Table 2-1 |
| CR | Carriage return | | Table 2-2 |
| ESC J | Print and feed paper for n dots | | Table 2-5 |
| ESC K | Print and feed paper back for n dots | | Table 2-6 |
| ESC d | Print and feed paper for n lines | | Table 2-7 |
| ESC e | Print and feed paper back for n lines | | Table 2-8 |
| ESC 3 | Set the line space to n dots | Print configuration command | Table 2-10 |
| ESC 2 | Set the line space to a default value | | Table 2-11 |
| ESC 1 | Set the left margin | | Table 2-12 |

| Command | Function | Command type | See |
|---|---|---|---|
| ESC Q | Set the right margin | | Table 2-13 |
| ESC $ | Set the absolute print position | | Table 2-17 |
| ESC ! | Set the font types | | Table 2-19 |
| ESC a | Set the print alignment | | Table 2-22 |
| ESC m | Set the font grayscale | | Table 2-25 |
| FS s | Set the print speed | | Table 2-26 |
| ESC M | Set the font size | | Table 2-27 |
| ESC * | Select bit-image mode | Image print commands | Table 2-39. Table 2-36 |
| GS v 0 | Print raster bit image | | Table 2-37 |
| HT | Horizontal tab | Tabulation commands | Table 2-40 |
| ESC D | Set horizontal tab positions | | Table 2-41 |
| GS H | select print position of one-dimension HRI | One-dimension /two-dimension Barcode print commands | Table 2-43 |
| GS h | Set the height of one-dimension Barcode | | Table 2-44 |
| GS w | Set the width of one-dimension Barcode | | Table 2-45 |
| GS f | Select font size for one-dimension Barcode | | Table 2-46 |
| GS k | Print one-dimension Barcode | | Table 2-47 |
| DLE EOT | Query the states of printer (real-time) | States commands | Table 2-68 |
| GS a | Set/cancel the printer states automatic back | | Table 2-69 |
| GS r | Transmit status (non-real-time) | | Table 2-70 |
| ESC @ | Initialize the printer | Miscellaneous commands | Table 2-71 |
| DLE DC4 8 | Clear the printer buffer (real-time) | | Table 2-72 |
| GS ( E | Set the configuration item for the serial interface | | Table 2-74 |
| DLE DC4 2 | Enter/Exit low power mode (real-time) | | Table 2-79 |

### 1.2.4 Command list supported by ZYTP58-xx6B

ZYTP58-xx6B series include ZYTP58-FT6B, ZYTP58-FR6B, ZYTP58-LT6B and ZYTP58-LR6B.

**Table 1-5: Command list supported by ZYTP58-xx6B**

| Command | Function | Command type | See |
|---|---|---|---|
| LF | Print and feed paper | Print and feed commands | Table 2-1 |
| CR | Carriage return | | Table 2-2 |
| ESC J | Print and feed paper for n dots | | Table 2-5 |
| ESC K | Print and feed paper back for n dots | | Table 2-6 |
| ESC d | Print and feed paper for n lines | | Table 2-7 |
| ESC e | Print and feed paper back for n lines | | Table 2-8 |
| ESC 3 | Set the line space to n dots | Print configuration command | Table 2-10 |
| ESC 2 | Set the line space to a default value | | Table 2-11 |
| ESC 1 | Set the left margin | | Table 2-12 |

| Command | Function | Command type | See |
|---|---|---|---|
| ESC Q | Set the right margin | | Table 2-13 |
| ESC $ | Set the absolute print position | | Table 2-17 |
| ESC ! | Set the font types | | Table 2-19 |
| ESC a | Set the print alignment | | Table 2-22 |
| ESC m | Set the font grayscale | | Table 2-25 |
| FS s | Set the print speed | | Table 2-26 |
| FS & | Select print mode(s) for Kanji characters | | Table 2-30 |
| FS . | Cancel Kanji character mode | | Table 2-31 |
| ESC R | Select an international character set | | Table 2-32 |
| ESC t | Select character code page | | Table 2-33 |
| ESC * | Select bit-image mode | Image print commands | Table 2-39. Table 2-36 |
| GS v 0 | Print raster bit image | | Table 2-37 |
| FS p | Print NV bit image | | Table 2-38 |
| FS q | Load NV bit image | | Table 2-39 |
| HT | Horizontal tab | Tabulation commands | Table 2-40 |
| ESC D | Set horizontal tab positions | | Table 2-41 |
| GS H | select print position of one-dimension HRI | One-dimension /two-dimension Barcode print commands | Table 2-43 |
| GS h | Set the height of one-dimension Barcode | | Table 2-44 |
| GS w | Set the width of one-dimension Barcode | | Table 2-45 |
| GS f | Select font size for one-dimension Barcode | | Table 2-46 |
| GS k | Print one-dimension Barcode | | Table 2-47 |
| DLE EOT | Query the states of printer (real-time) | States commands | Table 2-68 |
| GS a | Set/cancel the printer states automatic back | | Table 2-69 |
| GS r | Transmit status (non-real-time) | | Table 2-70 |
| ESC @ | Initialize the printer | Miscellaneous commands | Table 2-71 |
| DLE DC4 8 | Clear the printer buffer (real-time) | | Table 2-72 |
| GS ( E | Set the configuration item for the serial interface | | Table 2-74 |
| GS I | Transmit printer ID | | Table 2-78 |
| DLE DC4 2 | Enter/Exit low power mode (real-time) | | Table 2-79 |

### 1.2.5 Command list supported by ZYTP58-xx4C

ZYTP58-xx4C series include ZYTP58-FT4C and ZYTP58-FR4C.

**Table 1-6: Command list supported by ZYTP58-xx4C**

| Command | Function | Command type | See |
|---|---|---|---|
| LF | Print and feed paper | Print and feed commands | Table 2-1 |
| CR | Carriage return | | Table 2-2 |
| ESC J | Print and feed paper for n dots | | Table 2-5 |
| ESC K | Print and feed paper back for n dots | | Table 2-6 |

| Command | Function | Command type | See |
|---|---|---|---|
| ESC d | Print and feed paper for n lines | | Table 2-7 |
| ESC e | Print and feed paper back for n lines | | Table 2-8 |
| ESC 3 | Set the line space to n dots | Print configuration command | Table 2-10 |
| ESC 2 | Set the line space to a default value | | Table 2-11 |
| ESC 1 | Set the left margin | | Table 2-12 |
| ESC Q | Set the right margin | | Table 2-13 |
| ESC $ | Set the absolute print position | | Table 2-17 |
| ESC ! | Set the font types | | Table 2-19 |
| ESC a | Set the print alignment | | Table 2-22 |
| ESC m | Set the font grayscale | | Table 2-25 |
| ESC * | Select bit-image mode | Image print commands | Table 2-39. Table 2-36 |
| GS v 0 | Print raster bit image | | Table 2-37 |
| HT | Horizontal tab | Tabulation commands | Table 2-40 |
| ESC D | Set horizontal tab positions | | Table 2-41 |
| FS V | Print the vertical table | | Table 2-42 |
| DLE EOT | Query the states of printer (real-time) | States commands | Table 2-68 |
| GS a | Set/cancel the printer states automatic back | | Table 2-69 |
| GS r | Transmit status (non-real-time) | | Table 2-70 |
| ESC @ | Initialize the printer | Miscellaneous commands | Table 2-71 |
| DLE DC4 8 | Clear the printer buffer (real-time) | | Table 2-72 |
| GS ( E | Set the configuration item for the serial interface | | Table 2-74 |
| DLE DC4 2 | Enter/Exit low power mode (real-time) | | Table 2-79 |

### 1.2.6 Command list supported by ZYTP58-xx4BC

ZYTP58-xx4BC series include ZYTP58-FT4BC and ZYTP58-FR4BC.

**Table 1-7: Command list supported by ZYTP58-xx4BC**

| Command | Function | Command type | See |
|---|---|---|---|
| LF | Print and feed paper | Print and feed commands | Table 2-1 |
| CR | Carriage return | | Table 2-2 |
| ESC J | Print and feed paper for n dots | | Table 2-5 |
| ESC K | Print and feed paper back for n dots | | Table 2-6 |
| ESC d | Print and feed paper for n lines | | Table 2-7 |
| ESC e | Print and feed paper back for n lines | | Table 2-8 |
| ESC 3 | Set the line space to n dots | Print configuration command | Table 2-10 |
| ESC 2 | Set the line space to a default value | | Table 2-11 |
| ESC 1 | Set the left margin | | Table 2-12 |
| ESC Q | Set the right margin | | Table 2-13 |
| ESC $ | Set the absolute print position | | Table 2-17 |

| Command | Function | Command type | See |
|---|---|---|---|
| ESC ! | Set the font types | | Table 2-19 |
| ESC a | Set the print alignment | | Table 2-22 |
| ESC m | Set the font grayscale | | Table 2-25 |
| ESC * | Select bit-image mode | Image print commands | Table 2-39. Table 2-36 |
| GS v 0 | Print raster bit image | | Table 2-37 |
| HT | Horizontal tab | Tabulation commands | Table 2-40 |
| ESC D | Set horizontal tab positions | | Table 2-41 |
| GS H | select print position of one-dimension HRI | One-dimension /two-dimension Barcode print commands | Table 2-43 |
| GS h | Set the height of one-dimension Barcode | | Table 2-44 |
| GS w | Set the width of one-dimension Barcode | | Table 2-45 |
| GS f | Select font size for one-dimension Barcode | | Table 2-46 |
| GS k | Print one-dimension Barcode | | Table 2-47 |
| DLE EOT | Query the states of printer (real-time) | States commands | Table 2-68 |
| GS a | Set/cancel the printer states automatic back | | Table 2-69 |
| GS r | Transmit status (non-real-time) | | Table 2-70 |
| ESC @ | Initialize the printer | Miscellaneous commands | Table 2-71 |
| DLE DC4 8 | Clear the printer buffer (real-time) | | Table 2-72 |
| GS ( E | Set the configuration item for the serial interface | | Table 2-74 |
| DLE DC4 2 | Enter/Exit low power mode (real-time) | | Table 2-79 |

### 1.2.7 Command list supported by ZYTP80-xx4EC

ZYTP58-xx4EC series products include ZYTP80-CT4EC, ZYTP80-CU4EC and ZYTP80-UU4EC.

**Table 1-8: Command list supported by ZYTP58-xx4EC**

| Command | Function | Command type | See |
|---|---|---|---|
| LF | Print and feed paper | Print and feed commands | Table 2-1 |
| CR | Carriage return | | Table 2-2 |
| FF | Print and feed label/BM paper to the starting position for printing | | Table 2-3 |
| Gs FF | Feed label/BM paper to the starting position for printing | | Table 2-4 |
| ESC J | Print and feed paper for n dots | | Table 2-5 |
| ESC d | Print and feed paper for n lines | | Table 2-7 |
| GS T | Set print position to the beginning of print line | Print configuration command | Table 2-9 |
| ESC 3 | Set the line space to n dots | | Table 2-10 |
| ESC 2 | Set the line space to a default value | | Table 2-11 |
| ESC 1 | Set the left margin | | Table 2-12 |
| ESC Q | Set the right margin | | Table 2-13 |

| Command | Function | Command type | See |
|---|---|---|---|
| GS L | Set the left margin (only ZYTP80 available) | | Table 2-14 |
| ESC SP | Set right-side character spacing | | Table 2-15 |
| GS W | Set print area width | | Table 2-16 |
| ESC $ | Set the absolute print position | | Table 2-17 |
| ESC \ | Set the relative print position | | Table 2-18 |
| ESC ! | Set the font types | | Table 2-19 |
| ESC - | Turn underline mode on/off | | Table 2-20 |
| ESC E | Turn bold mode on/off | | Table 2-21 |
| ESC a | Set the print alignment | | Table 2-22 |
| ESC { | Turn upside-down printing mode on/off | | Table 2-23 |
| GS B | Turn black/white inverse printing mode on/off | | Table 2-24 |
| ESC m | Set the font grayscale | | Table 2-25 |
| FS s | Set the print speed | | Table 2-26 |
| ESC M | Set the font size | | Table 2-27 |
| ESC V | Turn 90° clockwise rotation mode on/off | | Table 2-28 |
| GS ! | Select character size | | Table 2-29 |
| ESC t | Select character code page | | Table 2-33 |
| ESC c 4 | Select paper sensor(s) to stop printing | | Table 2-34 |
| ESC c 5 | Enable/disable panel buttons | | Table 2-35 |
| ESC* | Select bit-image mode | Image print commands | Table 2-39. Table 2-36 |
| GS v 0 | Print raster bit image | | Table 2-37 |
| FS p | Print NV bit image | | Table 2-38 |
| FS q | Load NV bit image | | Table 2-39 |
| HT | Horizontal tab | Tabulation commands | Table 2-40 |
| ESC D | Set horizontal tab positions | | Table 2-41 |
| FS V | Print the vertical table | | Table 2-42 |
| GS H | select print position of one-dimension HRI | One-dimension /two-dimension Barcode print commands | Table 2-43 |
| GS h | Set the height of one-dimension Barcode | | Table 2-44 |
| GS w | Set the width of one-dimension Barcode | | Table 2-45 |
| GS f | Select font size for one-dimension Barcode | | Table 2-46 |
| GS k | Print one-dimension Barcode | | Table 2-47 |
| GS ( k | Set/Print two-dimension Barcode | | Table 2-48 |
| FS ( L | Label paper/Black mark paper commands | Label paper/black mark paper commands | Table 2-61 |
| GS ( F | Set the threshold for label/BM paper border checking | | Table 2-67 |
| DLE EOT | Query the states of printer (real-time) | States commands | Table 2-68 |
| GS a | Set/cancel the printer states automatic back | | Table 2-69 |
| GS r | Transmit status (non-real-time) | | Table 2-70 |
| ESC @ | Initialize the printer | Miscellaneous | Table 2-71 |

| Command | Function | Command type | See |
|---|---|---|---|
| GS V | Feed paper and cut paper | commands | Table 2-73 |
| GS ( E | Set the configuration item for the serial interface | | Table 2-74 |
| GS ( K | Select printing control mode | | Table 2-75 |
| GS E | Select printer head control mode | | Table 2-77 |
| GS I | Transmit printer ID | | Table 2-78 |

### 1.2.8 Command list supported by ZY-TP01

ZY-TP01 series products include ZY-TP01-T and ZY-TP01-R.

**Table 1-9: Command list supported by ZY-TP01**

| Command | Function | Command type | See |
|---|---|---|---|
| LF | Print and feed paper | Print and feed commands | Table 2-1 |
| CR | Carriage return | | Table 2-2 |
| ESC J | Print and feed paper for n dots | | Table 2-5 |
| ESC K | Print and feed paper back for n dots | | Table 2-6 |
| ESC d | Print and feed paper for n lines | | Table 2-7 |
| GS T | Set print position to the beginning of print line | Print configuration command | Table 2-8 |
| ESC 3 | Set the line space to n dots | | Table 2-10 |
| ESC 2 | Set the line space to a default value | | Table 2-11 |
| ESC 1 | Set the left margin | | Table 2-12 |
| ESC Q | Set the right margin | | Table 2-13 |
| ESC $ | Set the absolute print position | | Table 2-17 |
| ESC ! | Set the font types | | Table 2-19 |
| ESC a | Set the print alignment | | Table 2-22 |
| ESC m | Set the font grayscale | | Table 2-25 |
| ESC* | Select bit-image mode | Image print commands | Table 2-39. Table 2-36 |
| GS v 0 | Print raster bit image | | Table 2-37 |
| HT | Horizontal tab | Tabulation commands | Table 2-40 |
| ESC D | Set horizontal tab positions | | Table 2-41 |
| GS H | select print position of one-dimension HRI | One-dimension /two-dimension Barcode print commands | Table 2-43 |
| GS h | Set the height of one-dimension Barcode | | Table 2-44 |
| GS w | Set the width of one-dimension Barcode | | Table 2-45 |
| GS f | Select font size for one-dimension Barcode | | Table 2-46 |
| GS k | Print one-dimension Barcode | | Table 2-47 |
| DLE EOT | Query the states of printer (real-time) | States commands | Table 2-68 |
| GS a | Set/cancel the printer states automatic back | | Table 2-69 |
| GS r | Transmit status (non-real-time) | | Table 2-70 |
| ESC @ | Initialize the printer | Miscellaneous commands | Table 2-71 |
| DLE DC4 8 | Clear the printer buffer (real-time) | | Table 2-72 |

| Command | Function | Command type | See |
|---|---|---|---|
| GS V | Feed paper and cut paper | | Table 2-73 |
| GS ( E | Set the configuration item for the serial interface | | Table 2-74 |
| DLE DC4 2 | Enter/Exit low power mode (real-time) | | Table 2-79 |

### 1.2.9 Command list supported by ZY-TP11

**Table 1-10: Command list supported by ZY-TP11**

| Command | Function | Command type | See |
|---|---|---|---|
| LF | Print and feed paper | Print and feed commands | Table 2-1 |
| CR | Carriage return | | Table 2-2 |
| ESC J | Print and feed paper for n dots | | Table 2-5 |
| ESC K | Print and feed paper back for n dots | | Table 2-6 |
| ESC d | Print and feed paper for n lines | | Table 2-7 |
| ESC e | Print and feed paper back for n lines | | Table 2-8 |
| ESC 3 | Set the line space to n dots | Print configuration command | Table 2-10 |
| ESC 2 | Set the line space to a default value | | Table 2-11 |
| ESC 1 | Set the left margin | | Table 2-12 |
| ESC Q | Set the right margin | | Table 2-13 |
| ESC $ | Set the absolute print position | | Table 2-17 |
| ESC ! | Set the font types | | Table 2-19 |
| ESC a | Set the print alignment | | Table 2-22 |
| ESC m | Set the font grayscale | | Table 2-25 |
| ESC* | Select bit-image mode | Image print commands | Table 2-39. Table 2-36 |
| GS v 0 | Print raster bit image | | Table 2-37 |
| HT | Horizontal tab | Tabulation commands | Table 2-40 |
| ESC D | Set horizontal tab positions | | Table 2-41 |
| GS H | select print position of one-dimension HRI | One-dimension /two-dimension Barcode print commands | Table 2-43 |
| GS h | Set the height of one-dimension Barcode | | Table 2-44 |
| GS w | Set the width of one-dimension Barcode | | Table 2-45 |
| GS f | Select font size for one-dimension Barcode | | Table 2-46 |
| GS k | Print one-dimension Barcode | | Table 2-47 |
| DLE EOT | Query the states of printer (real-time) | States commands | Table 2-68 |
| GS a | Set/cancel the printer states automatic back | | Table 2-69 |
| GS r | Transmit status (non-real-time) | | Table 2-70 |
| ESC @ | Initialize the printer | Miscellaneous commands | Table 2-71 |
| DLE DC4 8 | Clear the printer buffer (real-time) | | Table 2-72 |
| GS ( E | Set the configuration item for the serial interface | | Table 2-74 |
| DLE DC4 2 | Enter/Exit low power mode (real-time) | | Table 2-79 |

### 1.2.10 Command list supported by ZY-TP12

ZY-TP12 series include ZY-TP12-TAHP, ZY-TP12-RAHP, ZY-TP12-TBHP and ZY-TP12-RBHP.

**Table 1-11: Command list supported by ZY-TP12**

| Command | Function | Command type | See |
|---|---|---|---|
| LF | Print and feed paper | Print and feed commands | Table 2-1 |
| CR | Carriage return | | Table 2-2 |
| ESC J | Print and feed paper for n dots | | Table 2-5 |
| ESC K | Print and feed paper back for n dots | | Table 2-6 |
| ESC d | Print and feed paper for n lines | | Table 2-7 |
| ESC e | Print and feed paper back for n lines | | Table 2-8 |
| ESC 3 | Set the line space to n dots | Print configuration command | Table 2-10 |
| ESC 2 | Set the line space to a default value | | Table 2-11 |
| ESC 1 | Set the left margin | | Table 2-12 |
| ESC Q | Set the right margin | | Table 2-13 |
| ESC $ | Set the absolute print position | | Table 2-17 |
| ESC ! | Set the font types | | Table 2-19 |
| ESC a | Set the print alignment | | Table 2-22 |
| ESC m | Set the font grayscale | | Table 2-25 |
| ESC* | Select bit-image mode | Image print commands | Table 2-39. Table 2-36 |
| GS v 0 | Print raster bit image | | Table 2-37 |
| HT | Horizontal tab | Tabulation commands | Table 2-40 |
| ESC D | Set horizontal tab positions | | Table 2-41 |
| GS H | select print position of one-dimension HRI | One-dimension /two-dimension Barcode print commands | Table 2-43 |
| GS h | Set the height of one-dimension Barcode | | Table 2-44 |
| GS w | Set the width of one-dimension Barcode | | Table 2-45 |
| GS f | Select font size for one-dimension Barcode | | Table 2-46 |
| GS k | Print one-dimension Barcode | | Table 2-47 |
| DLE EOT | Query the states of printer (real-time) | States commands | Table 2-68 |
| GS a | Set/cancel the printer states automatic back | | Table 2-69 |
| GS r | Transmit status (non-real-time) | | Table 2-70 |
| ESC @ | Initialize the printer | Miscellaneous commands | Table 2-71 |
| DLE DC4 8 | Clear the printer buffer (real-time) | | Table 2-72 |
| GS ( E | Set the configuration item for the serial interface | | Table 2-74 |
| DLE DC4 2 | Enter/Exit low power mode (real-time) | | Table 2-79 |

### 1.2.11 Command list supported by ZY-TP21

**Table 1-12: Command list supported by ZY-TP21**

| Command | Function | Command type | See |
|---|---|---|---|

| Command | Function | Command type | See |
|---|---|---|---|
| LF | Print and feed paper | Print and feed commands | Table 2-1 |
| CR | Carriage return | | Table 2-2 |
| ESC J | Print and feed paper for n dots | | Table 2-5 |
| ESC K | Print and feed paper back for n dots | | Table 2-6 |
| ESC d | Print and feed paper for n lines | | Table 2-7 |
| ESC e | Print and feed paper back for n lines | | Table 2-8 |
| ESC 3 | Set the line space to n dots | Print configuration command | Table 2-10 |
| ESC 2 | Set the line space to a default value | | Table 2-11 |
| ESC 1 | Set the left margin | | Table 2-12 |
| ESC Q | Set the right margin | | Table 2-13 |
| ESC $ | Set the absolute print position | | Table 2-17 |
| ESC ! | Set the font types | | Table 2-19 |
| ESC a | Set the print alignment | | Table 2-22 |
| ESC m | Set the font grayscale | | Table 2-25 |
| FS s | Set the print speed | | Table 2-26 |
| FS & | Select print mode(s) for Kanji characters | | Table 2-30 |
| FS . | Cancel Kanji character mode | | Table 2-31 |
| ESC R | Select an international character set | | Table 2-32 |
| ESC t | Select character code page | | Table 2-33 |
| ESC * | Select bit-image mode | Image print commands | Table 2-39. Table 2-36 |
| GS v 0 | Print raster bit image | | Table 2-37 |
| FS p | Print NV bit image | | Table 2-38 |
| FS q | Load NV bit image | | Table 2-39 |
| HT | Horizontal tab | Tabulation commands | Table 2-40 |
| ESC D | Set horizontal tab positions | | Table 2-41 |
| FS V | Print the vertical table | | Table 2-42 |
| GS H | select print position of one-dimension HRI | One-dimension /two-dimension Barcode print commands | Table 2-43 |
| GS h | Set the height of one-dimension Barcode | | Table 2-44 |
| GS w | Set the width of one-dimension Barcode | | Table 2-45 |
| GS f | Select font size for one-dimension Barcode | | Table 2-46 |
| GS k | Print one-dimension Barcode | | Table 2-47 |
| FS ( L | Label paper/Black mark paper commands | Label paper/black mark paper commands | Table 2-61 |
| DLE EOT | Query the states of printer (real-time) | States commands | Table 2-68 |
| GS a | Set/cancel the printer states automatic back | | Table 2-69 |
| GS r | Transmit status (non-real-time) | | Table 2-70 |
| ESC @ | Initialize the printer | Miscellaneous commands | Table 2-71 |
| GS ( E | Set the configuration item for the serial interface | | Table 2-74 |

| Command | Function | Command type | See |
|---|---|---|---|
| GS I | Transmit printer ID | | Table 2-78 |
| DLE DC4 2 | Enter/Exit low power mode (real-time) | | Table 2-79 |

# Chapter 2 Command Explanations

## 2.1 Print and feed paper commands

Print and feed paper commands are listed in Table 2-1 to Table 2-8.

**Table 2-1: Print and feed paper**

| | |
|---|---|
| **Command name** | Print and feed paper |
| **Command code** | ASCII: LF<br>Decimal: 10<br>Hexadecimal: 0A |
| **Function description** | Print the data in the printer buffer, then feed paper for one line according to the current line space settings. After printing, the print position moves to the beginning of the line. |
| **Parameter range** | None |
| **Default value** | None |
| **Notes** | None |
| **Example** | None |

**Table 2-2: Carriage return**

| | |
|---|---|
| **Command name** | Carriage return |
| **Command code** | ASCII: CR<br>Decimal: 13<br>Hexadecimal: 0D |
| **Function description** | Adjust the print position to the starting position of this line without line feed |
| **Parameter range** | None |
| **Default value** | None |
| **Notes** | The new printed data will override the old in the printer buffer by bitwise inclusive OR operation if the carriage return command is executed |
| **Example** | None |

**Table 2-3: Print and feed label/BM paper to the starting position for printing**

| | |
|---|---|
| **Command name** | Print and feed label/BM paper to the start position for printing |
| **Command code** | ASCII: FF<br>Decimal: 12<br>Hexadecimal: 0C |
| **Function description** | When BM sensor is active: Print data in the print buffer and feed the label/BM paper to the print start position. |
| **Parameter range** | None |
| **Default value** | None |
| **Notes** | This command is effective only when BM sensor is active by DIP SW1-1. If this command is executed at the starting position of the BM paper, printer will only feed the paper to next starting position without printing |
| **Example** | None |

**Table 2-4: Feed label/BM paper to the starting position for printing**

| | |
|---|---|
| **Command name** | Feed label/BM paper to the start position for printing |
| **Command code** | ASCII: GS FF<br>Decimal: 29 12<br>Hexadecimal: 1D 0C |
| **Function description** | Feed the label/BM paper to the print start position |
| **Parameter range** | None |
| **Default value** | None |
| **Notes** | This command is effective only when BM sensor is active by DIP SW1-1 for BM paper printing. And the printing position will be set at the beginning of a line. |
| **Example** | None |

**Table 2-5: Print and feed paper for n dots**

| | |
|---|---|
| **Command name** | Print and feed paper for n dots |
| **Command code** | ASCII: ESC J n<br>Decimal: 27 74 n<br>Hexadecimal: 1B 4A n |
| **Function description** | Print the data in the printer buffer and feed paper for n dots |
| **Parameter range** | $0 \le n \le 255$ |
| **Default value** | None |
| **Notes** | When printer buffer is empty, only feed paper for n dots (0.125mm per dot) but not print.<br>After printing, the print position moves to the beginning of the line. |
| **Example** | None |

**Table 2-6: Print and feed paper back for n dots**

| | |
|---|---|
| **Command name** | Print and feed paper back for n dots |
| **Command code** | ASCII: ESC K n<br>Decimal: 27 75 n<br>Hexadecimal: 1B 4B n |
| **Function description** | Print the data in the printer buffer and feed paper back for n dots |
| **Parameter range** | 0 ≤ n ≤ 255 |
| **Default value** | None |
| **Notes** | When printer buffer is empty, only feed paper back for n dots (0.125mm per dot) but not print.<br>After printing, the print position moves to the beginning of the line. |
| **Example** | None |

**Table 2-7 Print and feed paper for n lines**

| | |
|---|---|
| **Command name** | Print and feed paper for n lines |
| **Command code** | ASCII: ESC d n<br>Decimal: 27 100 n<br>Hexadecimal: 1B 64 n |
| **Function description** | Print the data in the printer buffer and feed paper for n lines |
| **Parameter range** | 0 ≤ n ≤ 255 |
| **Default value** | No |
| **Notes** | When the printer buffer is empty, only feed paper for n lines but not print. The line space is set by ESC 2 or ESC 3.<br>After printing, the print position moves to the beginning of the line. |
| **Example** | None |

**Table 2-8 Print and feed paper back for n lines**

| | |
|---|---|
| **Command name** | Print and feed paper back for n lines |
| **Command code** | ASCII: ESC e n<br>Decimal: 27 101 n<br>Hexadecimal: 1B 65 n |
| **Function description** | Print the data in the printer buffer and feed paper back for n lines |
| **Parameter range** | 0 ≤ n ≤ 255 |
| **Default value** | None |
| **Notes** | When the printer buffer is empty, only feed paper back for n lines. The line space is set by ESC 2 or ESC 3.<br>After printing, the print position moves to the beginning of the line. |
| **Example** | None |

### 2.1.1 Print Setting Commands

The print setting commands are listed in Table 2-9 to Table 2-35.

**Table 2-9: Set print position to the beginning of print line**

| | |
|---|---|
| **Command name** | Set print position to the beginning of line |
| **Command code** | ASCII: GS T n<br>Decimal: 29 84 n<br>Hexadecimal: 1D 54 n |
| **Function description** | Set print position to the beginning of line.<br>The process of data in the printer buffer is specified by n.<br>n: Function<br>0, 48: Delete the data in the print buffer, and Set print position to the beginning of line<br>1, 49: Print data in the print buffer, and Set print position to the beginning of line |
| **Parameter range** | 0 ≤ n ≤ 255 |
| **Default value** | None |
| **Notes** | None |
| **Example** | None |

**Table 2-10 Set the line space to n dots**

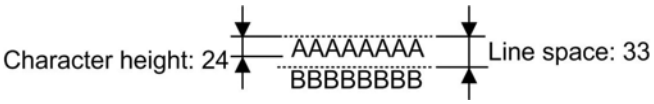
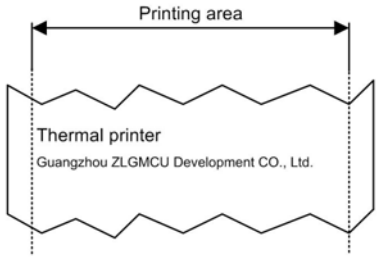
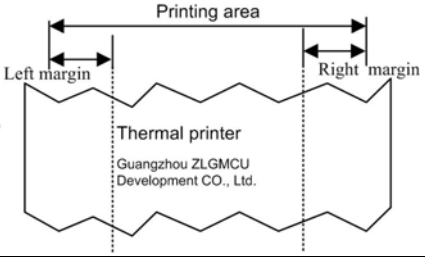
| | |
|---|---|
| **Command name** | Set the line space to n dots |
| **Command code** | ASCII: ESC 3 n<br>Decimal: 27 51 n<br>Hexadecimal: 1B 33 n |
| **Function description** | Set the line space to n dots |
| **Parameter range** | 0 ≤ n ≤ 255 |
| **Default value** | n=33 |
| **Notes** | Line space is shown as follows:<br>  <br>If the maximum character height exceeds the specified line space in a line, the line spacing will be automatically set to that maximum height.<br>The line space will be reset to the default value 33 dots, if ESC 2 is executed, ESC @ command is executed, printer is reset or printer is turned off |
| **Example** | None |

**Table 2-11 Set the line space to a default value**

| | |
|---|---|
| **Command name** | Set the line space to a default value 33 dots |
| **Command code** | ASCII: ESC 2<br>Decimal: 27 50<br>Hexadecimal: 1B 32 |
| **Function description** | Set the line space to a default value 33 dots |
| **Parameter range** | None |
| **Default value** | None |
| **Notes** | For more details in line space settings, please refer to ESC 3 command.<br>If the maximum character height exceeds the specified line space in a line, the line spacing will be automatically set to that maximum height.<br>The line space can be set by ESC 3 command. |
| **Example** | None |

**Table 2-12 Set the left margin**

| | |
|---|---|
| **Command name** | Set the left margin |
| **Command code** | ASCII: ESC 1 n<br>Decimal: 27 108 n<br>Hexadecimal: 1B 6C n |
| **Function description** | Set the left margin (Unit: 8 dots) to make the data printed not exceed the left margin position |
| **Parameter range** | For ZYTP58 and MTP58: 0≤n≤47, and 0≤(left margin + right margin)≤47<br>For ZYTP80 and MTP80: 0≤n≤71, and 0≤(left margin + right margin)≤71 |
| **Default value** | n=0 |
| **Notes** | The left margin position indicates the left edge position of the printing range. Following is an example of left margin setting.<br>Case one: left /right margin is zero<br>  <br>Case two: left/right margin is nonzero<br>  |

| | |
|---|---|
| | The left margin settings are effective until ESC @ command is executed, printer is reset or printer is turned off. |
| **Example** | None |

**Table 2-13 Set the right margin**

| | |
|---|---|
| **Command name** | Set the right margin |
| **Command code** | ASCII: ESC Q n<br>Decimal: 27 81 n<br>Hexadecimal: 1B 51 n |
| **Function description** | Set the right margin (Unit: 8 dots) to make the data printed not exceed the right margin position |
| **Parameter range** | For ZYTP58 and MTP58: 0≤n≤47, and 0≤(left margin + right margin)≤47<br>For ZYTP80 and MTP80: 0≤n≤71, and 0≤(left margin + right margin)≤71 |
| **Default value** | n=0 |
| **Notes** | The right margin position indicates the right edge position of the printing range. For more details in margin setting, please refer to ESC 1 command.<br>The right margin settings are effective until ESC @ command is executed, printer is reset or printer is turned off. |
| **Example** | None |

**Table 2-14: Set the left margin (only ZYTP80 available)**

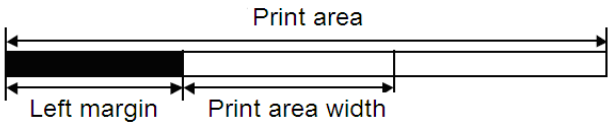
| | |
|---|---|
| **Command name** | Set the left margin |
| **Command code** | ASCII: GS L nL nH<br>Decimal: 29 76 nL nH<br>Hexadecimal: 1D 4C nL nH |
| **Function description** | Left margin can be set by nL and nH.<br>Sets the left margin to (nL + nH × 256) × 0.125mm from the left edge of the printable area<br>  |
| **Parameter range** | 0 ⩽ nL ⩽ 255，0 ⩽ nH ⩽ 255, and 0 ⩽ nL + nH × 256 ⩽ 65535 |
| **Default value** | nL = 0, nH = 0 |
| **Notes** | The left margin settings are effective until ESC @ command is executed, printer is reset or printer is turned off. |
| **Example** | None |

**Table 2-15: Set right-side character space**

| | |
|---|---|
| **Command name** | Set right-side character space |
| **Command code** | ASCII: ESC SP n<br>Decimal: 27 32 n<br>Hexadecimal: 1B 20 n |
| **Function description** | Set right-side character space to [n × 0.125mm] |
| **Parameter range** | For ZYTP58 and MTP58: 0≤n≤47, and 0≤(left margin + right margin)≤47<br>For ZYTP80 and MTP80: 0≤n≤71, and 0≤(left margin + right margin)≤71 |
| **Default value** | n=0 |
| **Notes** | The right margin position indicates the right edge position of the printing range. For more details in margin setting, please refer to ESC 1 command.<br>The right margin settings are effective until ESC @ command is executed, printer is reset or printer is turned off. |
| **Example** | None |

**Table 2-16: Set print area width**

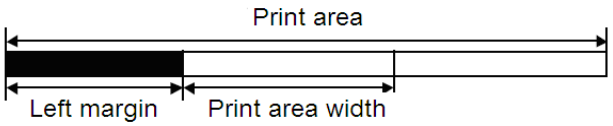
| | |
|---|---|
| **Command name** | Set print area width |
| **Command code** | ASCII: GS W nL nH<br>Decimal: 29 87 nL nH<br>Hexadecimal: 1D 57 nL nH |
| **Function description** | Print area width can be set by nL and nH.<br>Sets the print area width to (nL + nH × 256) × 0.125mm<br>  |
| **Parameter range** | 0 ⩽ nL ⩽ 255，0 ⩽ nH ⩽ 255, and 0 ⩽ nL + nH × 256 ⩽ 65535 |
| **Default value** | nL = 0, nH = 0 |
| **Notes** | If the setting value exceeds the print area, the maximum print area width will be automatically applied.<br>The left margin settings are effective until ESC @ command is executed, printer is reset or printer is turned off. |
| **Example** | None |

**Table 2-17 Set the absolute print position**

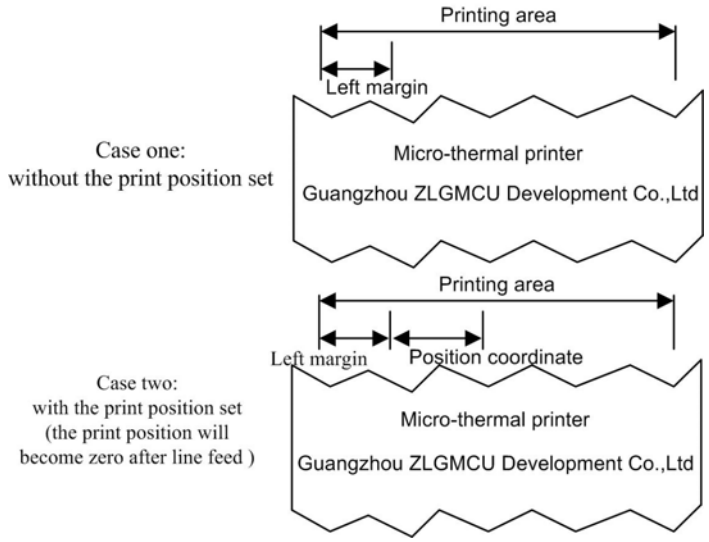
| | |
|---|---|
| **Command name** | Set the absolute print position |
| **Command code** | ASCII: ESC $ nL nH<br>Decimal: 27 36 nL nH<br>Hexadecimal: 1B 24 nL nH |
| **Function description** | Moves the print position to a location in a distance of (nL + nH × 256) dots from the starting position for printing |
| **Parameter range** | 0≤nL≤255, 0≤nH≤255 |
| **Default value** | None |
| **Notes** | The print positions are shown as follows:<br>  <br>The starting position for printing will be the left margin position if the left margin is set.<br>This command only affects one line. The print position is the starting position of printing again after line feed. |
| **Example** | None |

**Table 2-18: Set the relative print position**

| | |
|---|---|
| **Command name** | Set the relative print position |
| **Command code** | ASCII: ESC \ nL nH<br>Decimal: 27 92 nL nH<br>Hexadecimal: 1B 5C nL nH |
| **Function description** | Moves the print position to a location in a distance of (nL + nH × 256) dots from the current position |
| **Parameter range** | 0≤nL≤255, 0≤nH≤255 |
| **Default value** | None |
| **Notes** | With this command, the print position will be moved to a location in a distance of (nL + nH × 256) dots from the current position |
| **Example** | None |

**Table 2-19 Set the font type**

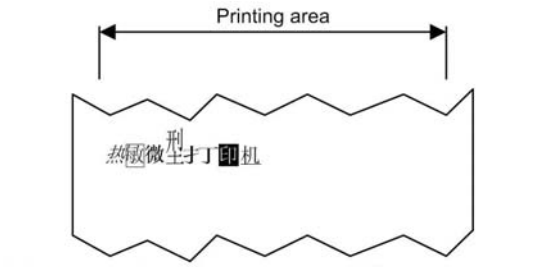
| | |
|---|---|
| **Command name** | Set the font type |
| **Command code** | ASCII: ESC ! n<br>Decimal: 27 33 n<br>Hexadecimal: 1B 21 n |
| **Function description** | Set the font type (italic, border, bold, double width, double height, inverse or underline). And the bit definitions of parameter n are shown as follows:<br>bit function value<br>0 1<br>0 reserved must clear to 0<br>1 italic cancel set<br>2 border cancel set<br>3 bold cancel set<br>4 double height cancel set<br>5 double width cancel set<br>6 inverse cancel set<br>7 underline cancel set |
| **Parameter range** | None |
| **Default value** | n=0 |
| **Notes** | This command is applicable for both Chinese fonts and English fonts.<br>The font types are shown as follows (from left to right):<br>  <br>*Italic*, border, bold, double height, double width, inverse, underline<br>And all the font types can be used in combination.<br>The settings by this command are effective until ESC @ command is executed, printer is reset or printer is turned off. |
| **Example** | None |

**Table 2-20: Turn underline mode on/off**

| | |
|---|---|
| **Command name** | Turn underline mode on/off |
| **Command code** | ASCII: ESC - n<br>Decimal: 27 45 n<br>Hexadecimal: 1B 2D n |
| **Function description** | Turns underline mode on or off using n as follows:<br>n: Function<br>0, 48: Turns off underline mode<br>1, 49: Turns on underline mode (1-dot thick)<br>2, 50: Turns on underline mode (2-dots thick) |
| **Parameter range** | 0≤n≤2 or 48≤n≤50 |
| **Default value** | n = 0 |
| **Notes** | The settings by this command are effective until ESC @ command is executed, printer is reset or printer is turned off. |
| **Example** | None |

**Table 2-21: Turn bold mode on/off**

| | |
|---|---|
| **Command name** | Turn bold mode on/off |
| **Command code** | ASCII: ESC E n<br>Decimal: 27 69 n<br>Hexadecimal: 1B 45 n |
| **Function description** | Turns underline mode on or off using n as follows:<br>n: Function<br>0, 48: Turns off bold mode<br>1, 49: Turns on bold mode |
| **Parameter range** | 0≤n≤1 or 49≤n≤50 |
| **Default value** | n = 0 |
| **Notes** | The settings by this command are effective until ESC @ command is executed, printer is reset or printer is turned off. |
| **Example** | None |

**Table 2-22 Set the print alignment**

| | |
|---|---|
| **Command name** | Set the print alignment mode(left, center or right) |
| **Command code** | ASCII: ESC a n<br>Decimal: 27 97 n<br>Hexadecimal: 1B 61 n |
| **Function description** | Align all data in a line, the meanings of n value are as follows:<br>n mode<br>0,48 left<br>1,49 center<br>2,50 right |
| **Parameter range** | 0≤n≤2 or 48≤n≤50 |
| **Default value** | n=0 |
| **Notes** | The settings by this command are effective until ESC @ command is executed, printer is reset or printer is turned off. |
| **Example** | None |

**Table 2-23: Turn upside-down printing mode on/off**

| | |
|---|---|
| **Command name** | Turn upside-down printing mode on/off |
| **Command code** | ASCII: ESC { n<br>Decimal: 27 123 n<br>Hexadecimal: 1B 7B n |
| **Function description** | turns upside-down print mode on or off.<br>n: Function<br>00: Upside-down print mode is turned off<br>01: Upside-down print mode is turned on |
| **Parameter range** | 0≤n≤255 |
| **Default value** | n=0 |
| **Notes** | The settings by this command are effective until ESC @ command is executed, printer is reset or printer is turned off. |
| **Example** | None |

**Table 2-24: Turn black/white inverse printing mode on/off**

| | |
|---|---|
| **Command name** | Turn black/white inverse printing mode on/off |
| **Command code** | ASCII: GS B n<br>Decimal: 29 66 n<br>Hexadecimal: 1D 42 n |
| **Function description** | In standard mode, turns upside-down print mode on or off.<br>n: Function<br>00: Black/white inverse printing mode is turned off<br>01: Black/white inverse printing mode is turned on |
| **Parameter range** | 0≤n≤255 |
| **Default value** | n=0 |
| **Notes** | The settings by this command are effective until ESC @ command is executed, printer is reset or printer is turned off. |
| **Example** | None |

**Table 2-25 Set the font grayscale**

| | |
|---|---|
| **Command name** | Set the font grayscale |
| **Command code** | ASCII: ESC m n<br>Decimal: 27 109 n<br>Hexadecimal: 1B 6D n |
| **Function description** | Set the font grayscale. There are 8 levels supported (1 to 8) to satisfy different colors depth requirements for different thermal paper, where ”1” is the lightest and “8” is the darkest. |
| **Parameter range** | 1≤n≤8 |
| **Default value** | n=4 |
| **Notes** | For ZYTPxx-xx4xx and MTPxx-xx4xx, the smaller the gray value is, the faster print speed is. However, since the low gray value may cause the step motor out of step, user should adjust the gray value based on the actual situation.<br>For ZYTPxx -xx5xx and MTPxx -xx5xx, the gray value doesn’t affect the print speed.<br>The settings by this command are effective until ESC @ command is executed, printer is reset or printer is turned off. |
| **Example** | None |

**Table 2-26 Set the print speed**

| | |
|---|---|
| **Command name** | Set the print speed |
| **Command code** | ASCII: FS s n<br>Decimal: 28 115 n<br>Hexadecimal: 1C 73 n |
| **Function description** | Set the print speed ,the meanings of parameter n are as follows:<br>n speed<br>0 low speed<br>1 moderate speed<br>2 high speed |
| **Parameter range** | 0≤n≤2 |
| **Default value** | n=1 |
| **Notes** | For ZYTP80/MTP80, the maximum speed can only reach the moderate speed (n≤1) when the serial communication baud rate is below 9600bps.<br>The settings by this command are effective until ESC @ command is executed, printer is reset or printer is turned off. |
| **Example** | None |

**Table 2-27 Set the font size**

| | |
|---|---|
| **Command name** | Set the font size |
| **Command code** | ASCII: ESC M n<br>Decimal: 27 77 n<br>Hexadecimal: 1B 4D n |
| **Function description** | Set the font size, he meanings of parameter n are as follows:<br>n type<br>0 Chinese: 24×24, foreign language: 12×24<br>1 Chinese: 16×16, foreign language: 8×16<br>2 Chinese: 12×12, foreign language: 6×12 |
| **Parameter range** | 0≤n≤2 |
| **Default value** | n=0 |
| **Notes** | This command is valid for both Chinese and foreign langue, but only available for the products with multiple fonts supported.<br>The settings by this command are effective until ESC @ command is executed, printer is reset or printer is turned off. |
| **Example** | None |

**Table 2-28: Turn 90° clockwise rotation mode on/off**

| | |
|---|---|
| **Command name** | Turn 90° clockwise rotation mode on/off |
| **Command code** | ASCII: ESC V n<br>Decimal: 27 86 n<br>Hexadecimal: 1B 56 n |
| **Function description** | Turn 90° clockwise rotation mode on/off using n as follows:<br>n: Function<br>0, 48: Turns off 90°clockwise rotation mode<br>1, 49: Turns on 90°clockwise rotation mode |
| **Parameter range** | 0≤n≤1 or 48≤n≤49 |
| **Default value** | n = 0 |
| **Notes** | The settings by this command are effective until ESC @ command is executed, printer is reset or printer is turned off. |
| **Example** | None |

**Table 2-29: Select character size**

| | |
|---|---|
| **Command name** | Select character size |
| **Command code** | ASCII: GS ! n<br>Decimal: 29 33 n<br>Hexadecimal: 1D 21 n |
| **Function description** | Character width is set by the bit0~bit3 of n, and character height is set by bit4~bit7 of n.<br>Hexadecimal / Decimal / Width / Height<br>00 / 0 / 1 (normal) / 1 (normal)<br>01 / 1 / 1 (normal) / 2 (double height0<br>10 / 16 / 2 (double width) / 1 (normal)<br>11 / 17 / 2 (double width) / 2 (double height0 |
| **Parameter range** | 0≤n≤225 |
| **Default value** | n = 0 |
| **Notes** | The settings by this command are effective until ESC @ command is executed, printer is reset or printer is turned off. |
| **Example** | None |

**Table 2-30 Select Kanji character mode**

| | |
|---|---|
| **Command name** | Select Kanji character mode |
| **Command code** | ASCII: FS &<br>Decimal: 28 38<br>Hexadecimal: 1C 26 |
| **Function description** | Selects Kanji character mode |
| **Notes** | This command can be used only for the Japanese, Simplified Chinese, and Traditional Chinese models. |
| **Example** | None |

**Table 2-31 Cancel Kanji character mode**

| | |
|---|---|
| **Command name** | Cancel Kanji character mode |
| **Command code** | ASCII: FS .<br>Decimal: 28 46<br>Hexadecimal: 1C 2E |
| **Function description** | Cancel Kanji character mode |
| **Notes** | This command can be used only for the Japanese, Simplified Chinese, and Traditional Chinese models. |
| **Example** | None |

**Table 2-32 Select international character**

| | |
|---|---|
| **Command name** | Select international character |
| **Command code** | ASCII: ESC .R n<br>Decimal: 27 82 n<br>Hexadecimal: 1B 52 n |
| **Function description** | Selects an international character set n as follows:<br>n Character<br>0 U.S.A<br>1 France<br>2 Germany<br>3 U.K.<br>4 Denmark I<br>5 Sweden<br>6 Italy<br>7 Spain<br>8 Japan<br>9 Norway<br>10 Denmark II<br>11 Spain II<br>12 Latin America<br>13 Korean<br>14 Slovenia / Croatia<br>15 Chinese |
| **Parameter range** | 0≤n≤15 |
| **Default value** | n=0 |
| **Notes** | The selected international character set is effective until ESC @ is executed, the printer is reset, or the power is turned off. |
| **Example** | None |

**Table 2-33 Select character code page**

| | |
|---|---|
| **Command name** | Select character code page |
| **Command code** | ASCII: ESC .t n<br>Decimal: 27 116 n<br>Hexadecimal: 1B 74 n |
| **Function description** | Selects an page n from the character code page as follows:<br>n Character code page<br>0 PC437(U.S.A.,Standard Europe)<br>1 Katakana<br>2 PC850(Multilingual)<br>3 PC860(Portuguese)<br>4 PC863(Canadian-French)<br>5 PC865(Nordic)<br>16 WPC1252<br>17 PC866(Cyrillic #2)<br>18 PC852(Latin 2)<br>19 PC858(Euro)<br>254 Page 254<br>255 Page 255 |
| **Parameter range** | $0 \le n \le 5$, $16 \le n \le 19$, $n = 255$ |
| **Default value** | n=0 |
| **Notes** | The characters of each page are the same for alphanumeric parts (ASCII code: Hexadecimal = 20H to 7FH / Decimal = 32 to 127 20H to 7FH), and different for the escape character parts (ASCII code: Hexadecimal = 80H to FFH / Decimal = 128 to 255 80H to FFH). |
| **Example** | None |

**Table 2-34: Select paper sensor(s) to stop printing**

| | |
|---|---|
| **Command name** | Select paper sensor(s) to stop printing |
| **Command code** | ASCII: ESC c 4 n<br>Decimal: 27 99 52 n<br>Hexadecimal: 1B 63 34 n |
| **Function description** | Selects the paper sensor(s) to use to stop printing when a paper end is detected using n as follows:<br>n \| Mode<br>00 \| Paper near-end sensor is disabled<br>02 \| Paper near-end sensor is enabled |
| **Parameter range** | 0≤n≤255 |
| **Default value** | n = 0 |
| **Notes** | It is possible to select multiple sensors to stop printing. When any sensor detects a paper-end, printing stops.<br>The settings by this command are effective until ESC @ command is executed, printer is reset or printer is turned off. |
| **Example** | None |

**Table 2-35: Enable/disable panel buttons**

| | |
|---|---|
| **Command name** | Enable/disable panel buttons |
| **Command code** | ASCII: ESC c 5 n<br>Decimal: 27 99 53 n<br>Hexadecimal: 1B 63 35 n |
| **Function description** | Enable/disable panel buttons using n as follows:<br>n \| Function<br>00 \| Panel buttons are disabled<br>02 \| Panel buttons are enabled |
| **Parameter range** | 0≤n≤255 |
| **Default value** | n = 0 |
| **Notes** | If panel buttons are disabled, the function of the panel button will not be executed even when the printer platen is close. For the printers from ZLG, panel button is only used for paper feeding.<br>The settings by this command are effective until ESC @ command is executed, printer is reset or printer is turned off. |
| **Example** | None |

### 2.1.2 Image print commands

The image print commands are listed in Table 2-36 to Table 2-39.

**Table 2-36 Select bit-image mode**

| **Command name** | Select bit-image mode |
|---|---|
| **Command code** | ASCII: ESC * m Hl Hh [d]k<br>Decimal: 27 42 m Hl Hh [d]k<br>Hexadecimal: 1B 2A m Hl Hh [d]k |
| **Function description** | Stores the bit image data in the print buffer using the mode specified by bit image mode n are as follows:<br>m mode horizontal scale vertical scale<br>0 8 dots single density ×2 ×3<br>1 8 dots double density ×1 ×3<br>32 24 dots single density ×2 ×1<br>33 24 dots double density ×1 ×1<br>For the following,<br>Hl and Hh specifies a bit image in the horizontal direction as (Hl+256×Hh) dots<br>[d]k specifies the bit image data (column format)<br>k indicates the amount of bit image data, but it does not need to be transmitted. |
| **Parameter range** | For ZYTP58, MTP58:<br>m=0,1,32,33<br>1≤H1+Hh×256≤384<br>0≤d≤255<br>k =H1+Hh×256 (m=0,1)<br>k=(H1+Hh×256)×3 (m=32,33)<br>For ZYTP80,MTP80:<br>m=0,1,32,33<br>1≤H1+Hh×256≤576<br>0≤d≤255<br>k=H1+Hh×256 (m=0,1)<br>k=(H1+Hh×256)×3 (m=32,33) |
| **Default value** | None |
| **Notes** | data [d]k specifies a bit printed to 1 and not printed to 0.<br>If the bit image exceeds one line of print area, the excess part will be ignored.<br>The print result is as follows. |

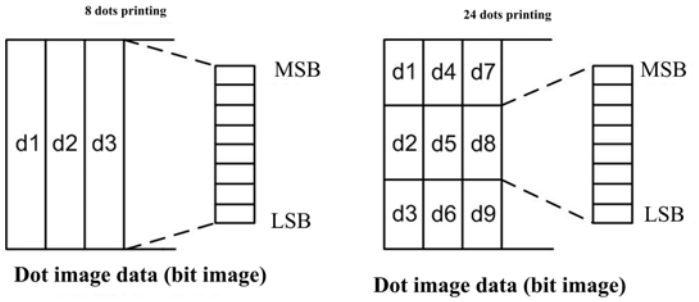
| | |
|---|---|
| |  <br>The bit image is only stored in the print buffer and is not printed. When the print command is received, the printing starts. The printer buffer will be clear when the printing is complete.<br>If the image to be printed is too high, please split it into several images that the height is 8(m=0,1) or 24 dots (m=32,33) and print them respectively.<br>After filling up the image data, additional information can also be filled in the print buffer to print with the image.<br>Both ESC J(n=24) and LF commands can be applied for printing, but LF command would cause the line feeding, making the image for several lines discontinuously. |
| **Example** | |

**Table 2-37 Print raster bit image**

| | |
|---|---|
| **Command name** | Print raster bit image |
| **Command code** | ASCII: Gs v 0<br>Decimal: 29 118 48 m xL xH yL yH [d]k<br>Hexadecimal: 1D 76 30 m xL xH yL yH [d]k |
| **Function description** | Print raster bit image, the meanings of parameter m are as follows:<br>m mode horizontal scale vertical scale<br>0,48 normal ×1 ×1<br>1,49 double-width ×2 ×1<br>2,50 double-height ×1 ×2<br>3,51 double-width + double-height ×2 ×2<br>xL, xH specifies (xL + xH × 256) bytes in horizontal direction for the bit image.<br>yL, yH specifies (yL + yH × 256) dots in vertical direction for the bit image.<br>[d]k specifies the bit image data (raster format).<br>k indicates the number of bit image data. k is an explanation parameter; therefore, it does not need to be transmitted. |
| **Parameter range** | For ZYTP58, MTP58:<br>0≤m≤3; 48≤m≤51<br>1≤xL+xH×256≤ 48<br>0≤yL≤255, 0≤yH ≤255 |

<table>
<tr><td></td><td>0≤d≤255<br>k =(H1+Hh×256)×(yL+yH×256)<br>For ZYTP80,MTP80:<br>0≤m≤3; 48≤m≤51<br>1≤xL+xH×256≤72<br>0≤yL≤255, 0≤yH≤255<br>0≤d≤255<br>k =(H1+Hh×256)×(yL+yH×256)</td></tr>
<tr><td>Default value</td><td>None</td></tr>
<tr><td>Notes</td><td>When data [d]k is 1 specifies a bit printed to 1 and not printed to 0.<br>If a raster bit image exceeds one line of print area, the excess data is not printed.<br>This command executes paper feed for amount needed for printing the bit image regardless of the settings by ESC 2 or ESC 3.<br>After printing the bit image, this command sets the print position to the beginning of the line, and clears up the buffer.<br>The printing result is as follows:<br><table><tr><td>d1</td><td>d2</td><td>……</td><td>dx</td></tr><tr><td>d(x+1)</td><td>d(x+2)</td><td>……</td><td>d(x×2)</td></tr><tr><td>|</td><td>|</td><td>……</td><td>|</td></tr><tr><td>……</td><td>d(k-2)</td><td>d(k-1)</td><td>dk</td></tr></table>MSB LSB MSB LSB MSB LSB MSB LSB<br>When this command is executed, the data is transmitted and printed synchronously. So no other printing command is required.</td></tr>
<tr><td>Example</td><td></td></tr>
</table>

**Table 2-38: Print NV bit image**

<table>
<tr><td>Command name</td><td>Print NV bit image</td></tr>
<tr><td>Command code</td><td>ASCII: FS p n m<br>Decimal: 28 112 n m<br>Hexadecimal: 1C 70 n m</td></tr>
<tr><td>Function description</td><td>Prints NV bit image n using the process of FS q and using the mode specified by m.
<table>
<tr><th>m</th><th>Mode</th><th>Scaling</th><th>for</th></tr>
<tr><td>0, 48</td><td>Normal</td><td>· 1</td><td>· 1</td></tr>
<tr><td>1, 49</td><td>Double-width</td><td>· 2</td><td>· 1</td></tr>
<tr><td>2, 50</td><td>Double-height</td><td>· 1</td><td>· 2</td></tr>
<tr><td>3, 51</td><td>Quadruple</td><td>· 2</td><td>· 2</td></tr>
</table></td></tr>
<tr><td>Parameter range</td><td>0≤n≤255<br>0≤m≤3, 48≤m≤51</td></tr>
<tr><td>Default value</td><td>None</td></tr>
<tr><td>Notes</td><td>NV bit image is stored in Flash, and can be Load by FS q and printed by FS p. This command is not effective when the NV bit image specified by n has not been loaded.<br>This command is not effective when the NV bit image specified by n has not been defined.</td></tr>
<tr><td>Example</td><td>Test data (Hexadecimal):<br>1C 70 01 00<br>Test function:<br>Print a loaded NV bit image in original size.</td></tr>
</table>

**Table 2-39: Define NV bit image**

| | |
|---|---|
| **Command name** | Define NV bit image |
| **Command code** | ASCII: FS q n [xL xH yL yH d1 … dk]1…[xL xH yL yH d1…dk]n<br>Decimal: 28 113 n [xL xH yL yH d1 … dk]1…[xL xH yL yH d1…dk]n<br>Hexadecimal: 1C 71 n [xL xH yL yH d1 … dk]1…[xL xH yL yH d1…dk]n |
| **Function description** | Defines the NV bit image in the NV graphics area.<br>n specifies the number of loaded NV bit images.<br>xL, xH specifies (xL + xH × 256) bytes in the horizontal direction for the NV bit image you loaded.<br>yL, yH specifies (yL + yH × 256) bytes in the vertical direction for the NV bit image you loaded.<br>d specifies the definition data for the NV bit image (column format).<br>k indicates the number of the definition data. k is an explanation parameter; therefore it does not need to be transmitted. |
| **Parameter range** | 0≤n≤255<br>0≤m≤3, 48≤m≤51 |
| **Default value** | None |
| **Notes** | NV bit image means a bit image which is defined in a non-volatile memory. The NV bit image defined is effective until the next NV bit image is defined. This command deletes all the NV bit images previously define in the printer firstly, and then down loads and stores new NV bit image data. NV bit images should be changed in a whole, since printer can not change any one of them independently. After processing this command, the printer executes a hardware reset. No processing can be performed before hardware reset completed. |
| **Example** | Test data (Hexadecimal):<br>1c 71 01 02 00 02 00 01 02 04 08 10 20 40 80 80 40 20 10 08 04 02 01 80 40 20 10 08 04 02 01 01 02 04 08 10 20 40 80<br>Test function:<br>Down load two micro-size NV bit images, of each is 8 bytes. And then, the NV bit image is printed by FS p. |

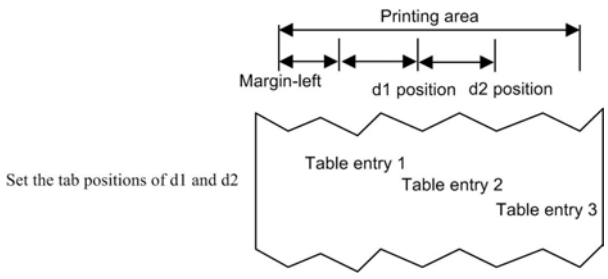
### 2.1.3 Tab commands

Tab commands are listed in Table 2-40 to Table 2-42.

**Table 2-40 Horizontal tab**

| | |
|---|---|
| **Command name** | Horizontal tab |
| **Command code** | ASCII: HT<br>Decimal: 9<br>Hexadecimal: 09 |
| **Function description** | Move the print position to the next tab position |
| **Parameter range** | None |
| **Default value** | None |
| **Notes** | The tab position is set by ESC D.<br>If no tab position is set (it is default setting), this command will be used as LF command.<br>If the tab position exceeds the print area, printing position will be moved to the starting position of next line (Considering as a line is full, print the data and feed one line). |
| **Examples** | None |

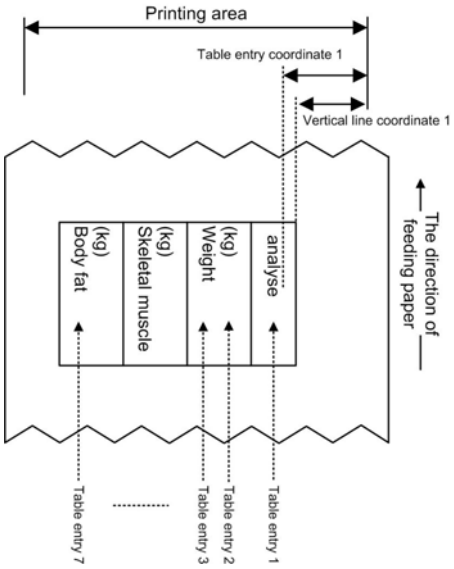
**Table 2-41 set horizontal tab positions**

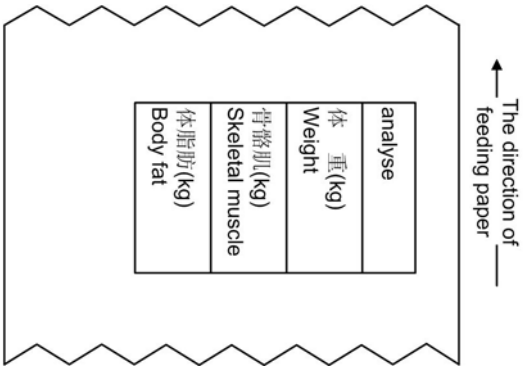
| | |
|---|---|
| **Command name** | Set horizontal tab positions |
| **Command code** | ASCII: ESC D [d]k NUL<br>Decimal: 27 68 [d]k 0<br>Hexadecimal: 1B 44 [d]k 00 |
| **Function description** | Set the horizontal tab positions, the meanings of parameters are as follows:<br>d1..dk are horizontal tab position (Unit: 8 dots), NULL is a stop character |
| **Parameter range** | For ZYTP58 and MTP58: 1≤d≤46(d1<d2< …… dk,1≤k≤16)<br>For ZYTP58 and MTP58: 1≤d≤70(d1 < d2< …… dk,1≤k≤16) |
| **Default value** | [d]k=0(no horizontal tab position by default) |
| Notes | The tab position is shown as follows:<br>  <br>A maximum of 16 tab positions can be set.<br>When this command is used, any previous horizontal tab settings will be canceled.<br>k is not transmission data to the printer. |

| | |
|---|---|
| | Transmit [d]k in ascending order and place a NULL code at the end.<br>When dk is less than or equal to dk-1, horizontal tab setting is finished, and the following data will be processed as normal data.<br>The tab position can be switched by HT command.<br>When the left margin is changed, the tab position is also changed.<br>Horizontal tab position settings are effective until ESC @ is executed, the printer is reset, or the power is turned off. |
| **Examples** | None |

**Table 2-42 Print the vertical table**

| | |
|---|---|
| **Command name** | Print the vertical table |
| **Command code** | ASCII: FS V<br>Decimal: 28 86 m LP1…LPm n IP1…IPn FT1 D11…D1k 0…FTn Dn1…Dnk 0<br>Hexadecimal: 1C 56 m LP1…LPm n IP1…IPn FT1 D11…D1k 0…FTn Dn1…Dnk 0 |
| **Function description** | Print the vertical table, the meanings of each parameters are as follows:<br>M is the number of the vertical line of table<br>LP1…LPm are the coordinates of the vertical line of table (Unit: 8dots), from right to left in the direction of the paper feed<br>n is the number of table entry (one line of text for one entry)<br>IP1…IPn are the coordinates of table entry<br>FT1 is the font type of the text in the first table entry: (Font is multiple selected)<br>Bit function value 0 1<br>0 fixed bit must be 1<br>1 bold cancel set<br>2 underline cancel set<br>3 reversed cancel set<br>4-7 reserved<br>D11…D1K 0x00 are the content of the first table entry, ending by a NULL<br>…<br>FTn is the font type of the nth table entry, it is the same as FT1<br>Dn1…Dnk 0x00 is the content of the nth table entry, ending by a NULL |
| **Parameter range** | For ZYTP58-xxxCx, MTP58-xxxCx:<br>0≤m≤17<br>0≤LPm≤48<br>0≤n≤16<br>0≤IPn≤45<br>0≤FTn≤255<br>0≤Dnk≤255 |

| | |
|---|---|
| | 0≤k≤20<br>For ZYTP80-xxxCx, MTP80-xxxCx:<br>0≤m≤17<br>0≤LPm≤72<br>0≤n≤16<br>0≤lPn≤69<br>0≤FTn≤255<br>0≤Dnk≤255<br>0≤k≤20 |
| **Default value** | None |
| **Notes** | The parameters related to the vertical table are shown as follows:<br>  <br><br>The reference 0 is located at the right side of the paper in the direction of paper feeding.<br>Each table entry contains maximum 10 Chinese characters or 20 English characters<br>If no table border is required, m will be zero. |
| **Example** | Test data (hexadecimal):<br>1C 56 05 00 05 0F 19 23 07 01 07 0B 11 15 1B 1F 01 B7 D6 20 20 CE F6 00 01 CC E5 20 20 D6 D8 28 6B 67 29 00 01 57 65 69 67 68 74 00 01 B9 C7 F7 C0 BC A1 28 6B 67 29 00 01 53 6B 65 6C 65 74 61 6C 20 6D 75 73 63 6C 65 00 01 CC E5 D6 AC B7 BE 28 6B 67 29 00 01 42 6F 64 79 20 66 61 74 00<br>The printing output is shown as follows: |




The parameters settings of the table are as follows:
The number of vertical lines in the table is 5
The coordinates of the vertical lines in the table are respectively.
00H,05H,0FH,19H,23H (from right to left)
The number of the table entry is 7.
The coordinates of the table entry are respectively.
01H,07H,0BH,11H,15H,1BH,1FH (from right to left)
The font type of the first table entry: no
Table entry 1 is “分析”
The font type of the second table entry: no
Table entry 2 is “体重(kg)”
The font type of the third table entry: no
Table entry 3 is “Weight”
…
The font type of the seventh table entry: no
Table entry 7 is “Body fat”

### 2.1.4 Barcode print commands

Barcode print commands are listed in Table 2-43 to Table 2-48

**Table 2-43 select print position of one-dimension HRI**

| | |
|---|---|
| **Command name** | Select print position of one-dimension HRI |
| **Command code** | ASCII: GS H n<br>Decimal: 29 72 n<br>Hexadecimal: 1D 48 n |
| **Function description** | Set the print position of one-dimension HRI, the meanings of parameter n are as follows:<br>n print position<br>0,48 not print<br>1,49 above the Barcode<br>2,50 below the Barcode<br>3,51 above and below the Barcode |
| **Parameter range** | 0≤n≤3 or 48≤n≤51 |
| **Default value** | n=0 |
| **Notes** | HRI characters of xxTPxx-xx5Bxx are printed using the font |

| | |
|---|---|
| | specified by GS f<br>This command setting is effective until performing of ESC @, reset or power-off |
| **Example** | None |

**Table 2-44 Set the height of one-dimension Barcode**

| | |
|---|---|
| **Command name** | Set the height of one-dimension Barcode |
| **Command code** | ASCII: GS h n<br>Decimal: 29 104 n<br>Hexadecimal: 1D 68 n |
| **Function description** | Set the height of the Barcode to n dots, the meaning of parameter n is as follows:<br>  |
| **Parameter range** | 0≤n≤255 |
| **Default value** | n=64 |
| **Notes** | This command setting is effective until performing of ESC @, reset or power-off. |
| **Example** | None |

**Table 2-45 Set the width of Barcode**

| | |
|---|---|
| **Command name** | Set the width of Barcode |
| **Command code** | ASCII: GS w n<br>Decimal: 29 119 n<br>Hexadecimal: 1D 77 n |
| **Function description** | Set the width of a bar in the Barcode to n dots, the meaning of parameter n is as follows:<br>  |
| **Parameter range** | 1≤n≤6 |
| **Default value** | n=2 |
| **Notes** | This command setting is effective until performing of ESC @, reset or power-off. |
| **Example** | None |

**Table 2-46 Select font size for Barcode**

| | |
|---|---|
| **Command name** | Select font size for Barcode |
| **Command code** | ASCII: GS f n<br>Decimal: 29 102 n<br>Hexadecimal: 1D 66 n |
| **Function description** | Select font size for Barcode HRI, the meaning of parameter n is as follows:<br>n font<br>0 12×24<br>1 8×16<br>2 6×12 |
| **Parameter range** | 0≤n≤2 |
| **Default value** | n=0 |
| **Notes** | This command setting is effective until performing of ESC @, reset or power-off. |
| **Example** | None |

**Table 2-47 Print Barcode**

| | |
|---|---|
| **Command name** | Print Barcode |
| **Command code** | (A) ASCII: GS k m [d]k NUL<br>Decimal: 29 107 m [d]k NUL<br>Hexadecimal: 1D 6B m [d]k NUL<br>(B) ASCII: GS k m n [d]k<br>Decimal: 29 107 m n [d]k<br>Hexadecimal: 1D 6B m n [d]k |
| **Function description** | Print Barcode, the meanings of parameters are as follows:<br>m is the encoding method<br>n is the encoding data length. It is only suitable for (B), the differences between (A) and (B) are the data segment of (A) ends with a NULL and (B) is used to indicate the length of data<br>[d]k is Barcode data<br>k indicates the length of Barcode data, but it does not need to be transmitted.<br>The relationships between parameters are as follows:<br>(Command A): see Table 2-80<br>(Command B): see Table 2-81 |
| **Parameter range** | (A) 0≤m≤6<br>(B) 65≤m≤74 |
| **Default value** | None |
| **Notes** | If the width of Barcode exceeds the printing area, then the printer will not print.<br>This command is not affected by the line space setting of ESC2 or ESC3, and it doesn't affect the line space setting. |

This command is not affected by the character font setting of ESC!

The print position will be reset to the starting position for printing after this command is executed.

The values of m from 0 to 6 in (A) and from 65 to 71 in (B) select the same Barcode system, respectively. The printing results are the same.

This command specifies m = 0 to 6 and ends with a NULL code.

The printer processes n bytes from the next data as Barcode data by this command specifying m = 65 to 78.

K does not need to be transmitted.

**Notes for UPC-A (m = 0, 65) process:**

If the length of input data is any of 11 or 12 bytes, the parity bit will be added automatically for error correcting.

The start character, central separating character and stop character will also be added automatically.

**Notes for UPC-E (m = 1, 66) process**

If the data length is 6 bytes, the system character (NSC) 0 will be added automatically.

If the data length is any of 7,8,11 or 12 bytes, the first data (d1) is processed as number system character (NSC) so 0 must be specified.

If the length of input data is any of 6, 7, 8, 11 or 12 bytes, the parity bit will be added automatically for error correcting.

If the length of input data is any of 6, 7, 8, 11 or 12 bytes, only the shortened 6 bits of Barcode HRI will be printed, in which the system character (NSC) and parity code is not included.

Following is the relationship between data transferred and data printed:

| Data transferred | | | | | | | | | | Data printed | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d2 | d3 | d4 | d5 | d6 | d7 | d8 | d9 | d10 | d11 | d1 | d2 | d3 | d4 | d5 | d6 |
| 0~9 | 0~9 | 0 | 0 | 0 | - | - | 0~9 | 0~9 | 0~9 | d2 | d3 | d9 | d10 | d11 | 0 |
| 0~9 | 0~9 | 1 | 0 | 0 | - | - | 0~9 | 0~9 | 0~9 | d2 | d3 | d9 | d10 | d11 | 1 |
| 0~9 | 0~9 | 2 | 0 | 0 | - | - | 0~9 | 0~9 | 0~9 | d2 | d3 | d9 | d10 | d11 | 2 |
| 0~9 | 0~9 | 3~9 | 0 | 0 | - | - | - | 0~9 | 0~9 | d2 | d3 | d4 | d10 | d11 | 3 |
| 0~9 | 0~9 | 0~9 | 1~9 | 0 | - | - | - | - | 0~9 | d2 | d3 | d4 | d5 | d11 | 4 |
| 0~9 | 0~9 | 0~9 | 0~9 | 1~9 | - | - | - | - | 5~9 | d2 | d3 | d4 | d5 | d6 | d11 |

When 1≤d6≤9, be sure to specify (5≤d11≤9).

The start character and stop character are added automatically.

**Notes for JAN13/EAN13 (m = 2, 67) process**

If the length of input data is any of 11 or 12 bytes, the parity bit will be added automatically for error correcting.

Start character, central separating character and stop character will be added automatically.

**Notes for JAN8/EAN8 (m = 3, 68) process**

If the length of input data is any of 7 or 8 bytes, the parity bit will be added automatically for error correcting.

| | |
|---|---|
| | Start character, central separating character and stop character will be added automatically.<br>**Notes for CODE39 (m = 4, 69) process**<br>When the first Barcode d1 is not “*”, the printer adds a first character (*) automatically.<br>When the last Barcode dn is not “*”, the printer adds a last character (*) automatically.<br>When “*” is processed during Barcode data processing, the printer processes “*” as a stop character.The printer prints data preceding “*” and finishes command processing. Therefore, data following “*” are processed as normal data.<br>Parity bit are not calculated and added.<br>**Notes for ITF 25 (m = 5, 70) process**<br>The start character and stop character are added automatically.<br>Parity bit are not calculated and added.<br>**Notes for CODABAR (NW-7) (m = 6, 71) process**<br>Since the start character and stop character are not added automatically, user should add them manually. Its valid range is “A” ~ “D” or “a” ~ “d”.<br>Parity bit is not calculated and added.<br>**Notes for CODE93 (m = 72) process**<br>Start character and stop character are added automatically.<br>Parity codes (2 bits) are calculated and added automatically.<br>For the Barcode HRI printing, no HRI character will be used as start character or stop character.<br>For the Barcode HRI printing, space character will be used as the control character.<br>**Notes for CODE128 (m = 73) process**<br>Barcode system can identify data intelligently and perform the minimum length encoding without setting the character set (including the start character set) or switching the character set.<br>The function characters FNC1 to FNC4 can be inputted by using C1H to C4H.<br>Parity bit is calculated and added automatically.<br>For Barcode HRI printing, space character will be used as control character or FNC1 ~ FNC4.<br><br>**Notes for EAN128 (m = 74) process**<br>Basic structure: |

<table>
<tr><td></td><td>
<table>
<tr><td>Start character set</td><td>FNC1</td><td>AI</td><td>Data part</td><td>Parity bit A</td><td>Parity bit B</td><td>Stop character</td></tr>
<tr><td>Added automatically</td><td colspan="4">(d1 … dk)</td><td colspan="2">Added automatically</td></tr>
</table>
Connect structure:
<table>
<tr><td>Start character set</td><td>FNC1</td><td>AI</td><td>Data part</td><td>Parity bit A</td><td>FNC1</td><td>AI</td><td>Data part</td><td>Parity bit A</td><td>Parity bit B</td><td>Stop character</td></tr>
<tr><td>Added automatically</td><td colspan="7">(d1 … dk)</td><td colspan="2">Added automatically</td></tr>
</table>
Barcode system can identify data intelligently and perform the minimum length encoding without setting the character set (including the start character set) or switching the character set.<br>
The function characters FNC1 to FNC4 can be inputted by using C1H to C4H.<br>
When inputting data, AI should not be added in “()”, since the Barcode system will do it automatically. Otherwise error may occur. For example: GS k 74 18 "019501234567890*" is correct, in which 01 is AI. While GS k 74 18 "(01)9501234567890*" is wrong.<br>
When linking two data together, FNC1 (C1H “Decimal = 193”) should be inserted between them. For example: GS k 74 18 "019501234567890*" 193 "029501234567890*.<br>
For Barcode HRI printing, the space character is used as control character, but FNC1 ~ FNC4 are removed.</td></tr>
<tr><td>Example</td><td>None</td></tr>
</table>

**Table 2-48 Set/print two-dimension code**

| | |
|---|---|
| **Command name** | Set/print two- dimension Barcode |
| **Command code** | None |
| **Function description** | Set/print two-dimension code(PDF417,QRCODE), cn is the encode system, fn is the function code, see Table 2-82 |
| **Parameter range** | None |
| **Default value** | None |
| **Notes** | None |
| **Examples** | None |

**Table 2-49 <function 065>PDF417: Set the number of columns in the data area**

| | |
|---|---|
| **Command name** | PDF417: set the number of columns in the data area |
| **Command code** | ASCII: GS ( k pL pH cn fn n<br>Decimal: 2 9 40 107 pL pH 48 65 n<br>Hexadecimal: 1D 28 6B pL pH 30 41 n |
| **Function description** | Set the number of columns in the data area, the meanings of parameter n are as follows:<br>When n is 0, specifies automatic processing<br>When n is not 0, sets the number of columns in the data region to n codeword |
| **Parameter range** | (pL+pH×256)=3 (pL=3, pH=0)<br>cn=48<br>fn=65<br>0≤n≤30 |
| **Default value** | n=0 |
| **Notes** | This command affects the processing of <function 081><br>When auto processing (n = 0) is specified, the maximum number of columns in the data area is 30 columns.<br>When automatic processing (n = 0) is specified, the number of columns is calculated by the print area, when processing module width (Function 067), and option setting (Function 070).<br>The number of columns in the data area doesn't include start character, stop character, indicator codeword of left and right in a sense.<br>Settings of this function are effective until ESC @ is executed, the printer is reset, or the power is turned off. |
| **Example** | None |

**Table 2-50 <function 066>PDF417: Set the number of rows**

| | |
|---|---|
| **Command name** | PDF417: set the number of rows |
| **Command code** | ASCII: GS ( k pL pH cn fn n<br>Decimal: 29 40 107 pL pH 48 66 n<br>Hexadecimal: 1D 28 6B pL pH 30 42 n |
| **Function description** | Set the number of rows for PDF417 ,the meanings of parameter n are as follows:<br>When n=0, specifies automatic processing<br>When n is not 0, set the number of rows to n rows |
| **Parameter range** | (pL+pH×256)=3 (pL=3,pH=0)<br>cn=48<br>fn=66<br>n=0,3≤n≤90 |
| **Default value** | n=0 |
| **Notes** | This command affects the processing of <function 081> |

| | |
|---|---|
| | When automatic processing (n = 0) is specified, the maximum number of rows is 90<br>When automatic processing (n = 0) is specified, the number of rows is calculated by the print area, line height<function 68><br>Settings of this function are effective until ESC @ is executed, the printer is reset, or the power is turned off. |
| **Example** | None |

**Table 2-51 <function 067>PDF417: Set the unit width**

| | |
|---|---|
| **Command name** | PDF417: Set the width of the module |
| **Command code** | ASCII: GS ( k pL pH cn fn n<br>Decimal: 29 40 107 pL pH 48 67 n<br>Hexadecimal: 1D 28 6B pL pH 30 43 n |
| **Function description** | Set the module width for PDF417 to n dots |
| **Parameter range** | (pL+pH×256)=3(pL=3,pH=0)<br>cn=48<br>fn=67<br>2≤n≤8 |
| **Default value** | n=3 |
| **Notes** | This command affects the processing of <function 081><br>Settings of this function are effective until ESC @ is executed, the printer is reset, or the power is turned off. |
| **Example** | None |

**Table 2-52 <function 068>PDF417: Set the row height**

| | |
|---|---|
| **Command name** | PDF417: set the row height |
| **Command code** | ASCII: GS ( k pL pH cn fn n<br>Decimal: 29 40 107 pL pH 48 68 n<br>Hexadecimal: 1D 28 6B pL pH 30 44 n |
| **Function description** | Set the row height for PDF417 to n × 2 ×dots |
| **Parameter range** | (pL+pH×256)=3(pL=3,pH=0)<br>cn=48<br>fn=68<br>2≤n≤8 |
| **Default value** | n=3 |
| **Notes** | This command affects the processing of <function 081><br>Settings of this function are effective until ESC @ is executed, the printer is reset, or the power is turned off. |
| **Example** | None |

**Table 2-53 <function 069>PDF417: Set the error correction level**

<table>
<tr><td>Command name</td><td>PDF417: set the error correction level</td></tr>
<tr><td>Command code</td><td>ASCII: GS ( k pL pH cn fn m n<br>Decimal: 29 40 107 pL pH 48 69 m n<br>Hexadecimal: 1D 28 6B pL pH 30 45 m n</td></tr>
<tr><td>Function description</td><td>Set the error correction level for PDF417
<table>
<tr><th>m</th><th>Explain</th></tr>
<tr><td>48</td><td>The error correction level is set by “level”, 0 to 8 levels</td></tr>
<tr><td>49</td><td>The error correction level is set by “ratio”, which is n ×10%</td></tr>
</table></td></tr>
<tr><td>Parameter range</td><td>(pL+pH×256)=4(pL=4,pH=0)<br>cn=48 fn=69<br>48≤n≤56(m=48),1≤n≤40(m=49)</td></tr>
<tr><td>Default value</td><td>m=48, n=48 (level: 0)</td></tr>
<tr><td>Notes</td><td>This command affects the processing of <function 081><br>Error correction level specified by “level” (m = 48) is as follows. The number of the error correction codeword is fixed regardless of the number of codewords in the data area.
<table>
<tr><th>n</th><th>Function</th><th>Number of correction codeword</th></tr>
<tr><td>48</td><td>Error correction level 0</td><td>2</td></tr>
<tr><td>49</td><td>Error correction level 1</td><td>4</td></tr>
<tr><td>50</td><td>Error correction level 2</td><td>8</td></tr>
<tr><td>51</td><td>Error correction level 3</td><td>16</td></tr>
<tr><td>52</td><td>Error correction level 4</td><td>32</td></tr>
<tr><td>53</td><td>Error correction level 5</td><td>64</td></tr>
<tr><td>54</td><td>Error correction level 6</td><td>128</td></tr>
<tr><td>55</td><td>Error correction level 7</td><td>256</td></tr>
<tr><td>56</td><td>Error correction level 8</td><td>512</td></tr>
</table>
Error correction level specified by “ratio” (m = 49) is as follows. The number of the error correction codeword is changeable in proportion to the number of the codeword in the data area.
<table>
<tr><th>n</th><th>Correction level</th><th>Number of error correction codeword</th></tr>
<tr><td>0~3</td><td>Error correction scale 0</td><td>4</td></tr>
<tr><td>4~10</td><td>Error correction scale 1</td><td>8</td></tr>
<tr><td>11~20</td><td>Error correction scale 2</td><td>16</td></tr>
<tr><td>21~45</td><td>Error correction scale 3</td><td>32</td></tr>
<tr><td>46~100</td><td>Error correction scale 4</td><td>64</td></tr>
<tr><td>101~200</td><td>Error correction scale 5</td><td>128</td></tr>
<tr><td>201~400</td><td>Error correction scale 6</td><td>256</td></tr>
<tr><td>401 or more</td><td>Error correction scale 7</td><td>512</td></tr>
</table>
The error correction codeword calculated by modulus 929.<br>Settings of this function are effective until ESC @ is executed, the printer is</td></tr>
</table>

| | |
|---|---|
| | reset, or the power is turned off. |
| **Example** | None |

**Table 2-54 <function 070>PDF417: Set/cancel the truncated mode**

| | |
|---|---|
| **Command name** | PDF417: set/cancel the truncated mode |
| **Command code** | ASCII: GS ( k pL pH cn fn n<br>Decimal: 29 40 107 pL pH 48 70 n<br>Hexadecimal: 1D 28 6B pL pH 30 46 n |
| **Function description** | Set/cancel the truncated mode for PDF417. n =0 for standard mode, n=1 for truncated mode |
| **Parameter range** | (pL+pH×256)=3(pL=3,pH=0)<br>cn=48<br>fn=70<br>n=0,1 |
| **Default value** | n=0 |
| **Notes** | This command affects the processing of <function 081><br>Settings of this function are effective until ESC @ is executed, the printer is reset, or the power is turned off. |
| **Example** | None |

**Table 2-55 <function 080>PDF417: Transfer the data to the encode buffer**

| | |
|---|---|
| **Command name** | PDF417: transfer the data to the encode buffer |
| **Command code** | ASCII: GS ( k pL pH cn fn m dl…dk<br>Decimal: 29 40 107 pL pH 48 70 48 dl…dk<br>Hexadecimal: 1D 28 6B pL pH 30 46 30 dl…dk |
| **Function description** | Transfer the data for PDF417 (d1.. dk) to the encode buffer |
| **Parameter range** | 4≤(pL+pH×256)≤2710<br>cn=48<br>fn=80<br>m=48<br>0≤d≤255<br>k=(pL+pH×256)-3 |
| **Default value** | None |
| **Notes** | This command affects the processing of <function 081><br>After the <function 081> is executed, data is kept until next setting<br>k bytes of d1…dk are processed as encode data<br>Be sure not to include the following data in the data d1...dk, because they are added automatically by encode system: start character, stop character, indicator codeword of left and right, descriptor of symbol length and error correction codeword.<br>Settings of this function are effective until ESC @ is executed, |

| | |
|---|---|
| | the printer is reset, or the power is turned off. |
| **Example** | None |

**Table 2-56 <function 081>PDF417: Print the two-dimension Barcode in encode buffer**

| | |
|---|---|
| **Command name** | PDF417: print the two-dimension Barcode in encode buffer |
| **Command code** | ASCII: GS ( k pL pH cn fn m<br>Decimal: 29 40 107 pL pH 48 81 m<br>Hexadecimal: 1D 28 6B pL pH 30 51 m |
| **Function description** | Encode and print the data in encode buffer with PDF417 |
| **Parameter range** | (pL+pH×256)=3(pL=3, pH=0)<br>cn=48<br>fn=81<br>m=48 |
| **Default value** | None |
| **Notes** | If the size of the two-dimension exceeds the printing area, then the print task will be canceled.<br>If the encode buffer is empty, then the print task will be canceled<br>If (the number of columns × the number of rows ) is less than the number of codeword, then the print task will be canceled.<br>If the number of codeword exceeds 928, then the print task will be canceled.<br>The start character, stop character, indicator codeword of left and right, descriptor of length and error correction code are added by encode system automatically.<br>The error correction code is calculated by modulus 929. |
| **Example** | None |

**Table 2-57 <function 167>QR Code: Set the size of module**

| | |
|---|---|
| **Command name** | QR Code: set the size of module |
| **Command code** | ASCII: GS ( k pL pH cn fn n<br>Decimal: 29 40 107 pL pH 49 67 n<br>Hexadecimal: 1D 28 6B pL pH 31 43 n |
| **Function description** | Sets the size of the module for QR Code to n dots. |
| **Parameter range** | (pL+pH×256)=3(pL=3, pH=0)<br>cn=49<br>fn=67<br>1≤n≤16 |
| **Default value** | n=3 |
| **Notes** | This commands affects the processing of <function 181><br>n = width of a module = height of a module.<br>Settings of this function are effective until ESC @ is executed, the printer is reset, or the power is turned off. |
| **Example** | None |

**Table 2-58 <function 169>QR Code: Select the error correction level**

| | |
|---|---|
| **Command name** | QR Code: Select the error correction level |
| Command code | ASCII: GS ( k pL pH cn fn n<br>Decimal: 29 40 107 pL pH 49 69 n<br>Hexadecimal: 1D 28 6B pL pH 31 45 n |
| **Function description** | Select the error correction level for QR Code, the meaning of parameter n is as follows: |

| n | function | Recovery capacity(%) |
|---|---|---|
| 48 | Level L | 7 |
| 49 | Level M | 15 |
| 50 | Level Q | 25 |
| 51 | Level H | 30 |

| | |
|---|---|
| **Parameter range** | (pL+pH×256)=3(pL = 3, pH =0)<br>cn=49<br>fn=69<br>48≤n≤51 |
| **Default value** | n=48 |
| **Notes** | This commands affects the processing of <function 181><br>QR Code employs Reed-Solomon error correction to generate a series of error correction codewords.<br>Settings of this function are effective until ESC @ is executed, the printer is reset, or the power is turned off. |
| **Example** | None |

**Table 2-59 <function 180>QR Code: Transfer the data to encode buffer**

| | |
|---|---|
| **Command name** | QR Code: transfer the data to encode buffer |
| **Command code** | ASCII: GS ( k pL pH cn fn m d1…dk<br>Decimal: 29 40 107 pL pH 49 80 48 dl…dk<br>Hexadecimal: 1D 28 6B pL pH 31 50 30 d1…dk |
| **Function description** | Transfer the data for PDF417 (d1…dk) to encode buffer |
| **Parameter range** | 4≤(Pl+pH×256)≤2710<br>cn=49<br>fn=80<br>m=48<br>0≤d≤255<br>K=(pL+pH×256)-3 |
| **Default value** | None |
| **Notes** | This commands affects the processing of <function 181><br>After the <function 081> is executed, data is kept until next setting<br>k bytes of d1…dk are processed as encode data<br>Be sure not to include the following data in the data d1...dk:<br>**Character set** / **Included character**<br>Numerical data: "0"~ "9"<br>Alphanumeric data: " 0" ~ "9", "A" ~ "Z", SP, $, %, *, +, –, . , /, :<br>Chinese: Shift-JIS(JISX0208 standard )<br>8 bit data: 00H ~ FFH<br>Settings of this function are effective until ESC @ is executed, the printer is reset, or the power is turned off. |
| **Example** | None |

**Table 2-60 <function 181>QR Code: Print two-dimension Barcode in encode buffer**

| | |
|---|---|
| **Command name** | QR Code: print two-dimension Barcode in encode buffer |
| **Command code** | ASCII: GS ( k pL pH cn fn m<br>Decimal: 29 40 107 pL pH 49 81 48<br>Hexadecimal: 1D 28 6B pL pH 31 51 30 |
| **Function description** | Encode and print the data of QR Code in encode buffer |
| **Parameter range** | 4≤(Pl+pH×256)≤2710<br>cn=49<br>fn=81<br>m=48 |
| **Default value** | None |
| **Notes** | If the size of two-dimension Barcode exceeds the printing area, then the print task will be canceled<br>If the encode buffer is empty, then the print task will be canceled |
| **Example** | None |

## 2.1.5 Label paper / black mark paper commands

**Table 2-61 Label paper/ black mark paper commands**

<table>
<tr><td>Command name</td><td>Label paper/ black mark paper command</td></tr>
<tr><td>Command code</td><td>None</td></tr>
<tr><td>Function description</td><td>Label paper / black mark paper commands, fn means function code
<table>
<tr><th>fn</th><th>Function code</th><th>Function description</th><th>see</th></tr>
<tr><td>33</td><td>Function 33</td><td>Paper layout setting</td><td>Table 1.42</td></tr>
<tr><td>65</td><td>Function 65</td><td>Feed paper to the label peeling position</td><td>Table 1.43</td></tr>
<tr><td>66</td><td>Function 66</td><td>Feed paper to the cutting position</td><td>Table 1.44</td></tr>
<tr><td>67</td><td>Function 67</td><td>Feed paper to the print starting position</td><td>Table 1.45</td></tr>
<tr><td>102</td><td>Function 102</td><td>Set the machinery parameter of printer</td><td>Table 1.46</td></tr>
</table></td></tr>
<tr><td>Parameter range</td><td>None</td></tr>
<tr><td>Default value</td><td>None</td></tr>
<tr><td>Notes</td><td>None</td></tr>
<tr><td>Example</td><td>None</td></tr>
</table>

**Table 2-62 <function 33> Set the paper layout**

<table>
<tr><td>Command name</td><td>Set the paper layout</td></tr>
<tr><td>Command code</td><td>ASCII: FS ( L pL pH fn sm [sa] ; [sb] ; [sc] ; [sd] ; [se] ; [sf] ;<br>Decimal: 28 40 76 pL pH 33 sm [sa] 59 [sb] 59 [sc] 59 [sd] 59 [se] 59 [sf] 59<br>Hex: 1C 28 4C pL pH 21 sm [sa] 3B [sb] 3B [sc] 3B [sd] 3B [se] 3B [sf] 3B</td></tr>
<tr><td>Function description</td><td>Set the paper layout parameters: sa ~sf</td></tr>
<tr><td>Parameter range</td><td>pH=0,8≤pL≤26<br>fn=33<br>ZYTP58-Lxxx-L,MTP58-Lxxx-L<br>sm=1<br>0≤sb<the distance from the top edge to the button edge of the label paper,<br>0≤sc<the distance between two label papers, other parameters are reserved<br>ZYTP80-CxxxC, MTP80-CxxxC:<br>sm =3<br>24≤sb< the distance from the top edge to the button edge of black mark paper,<br>0≤sc< the distance from the top edge to the button edge of black mark paper,<br>other parameters are reserved<br>sc + 24≤sb</td></tr>
<tr><td>Default value</td><td>ZYTP58-Lxxx-L, MTP58-Lxxx-L: sm = 1, sa~sf are respectively 0,0,0,0,0,0<br>ZYTP80-CxxxC, MTP80-CxxxC: sm = 3, sa~sf are respectively 0,24,0,0,0,0</td></tr>
</table>

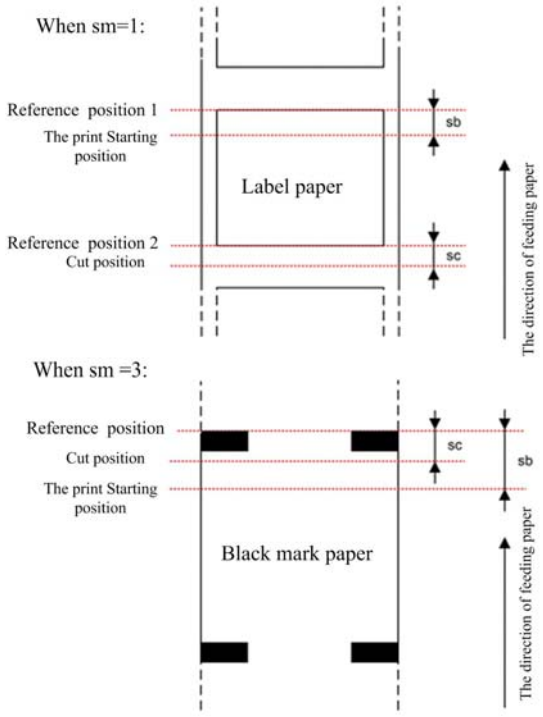
| | |
|---|---|
| **Notes** | The meaning of parameter sm is as follows:<br>When sm=1:<br>  <br><br>(sa - sf) can be omitted. Omitted settings are not changed. However, when omitting parameters ";" cannot be omitted. Example: (When omitting sc and se)<br>FS ( L pL pH fn sm sa ; sb ; ; sd ; ; sf ;<br>The setting values of (sa - sf) expressed as decimals are converted to text data and the high-order values are specified first. When specifying a negative number, add "-" at the beginning.<br>Example: When specifying 120, the data is the 3 bytes "120" [Hexadecimal = 31H, 32H, 30H / Decimal = 49, 50, 48].<br>When specifying -10, the data is the 3 bytes "-10" [Hexadecimal = 2DH, 31H, 30H / Decimal = 45, 49, 48].<br>Settings of this function are effective until ESC @ is executed, the printer is reset, or the power is turned off. |
| **Example** | None |

**Table 2-63 <function 65> Feed paper to the label peeling position**

| | |
|---|---|
| **Command name** | Feed paper to the label peeling position |
| **Command code** | ASCII: FS ( L pL pH fn m<br>Decimal: 28 40 76 02 00 65 m<br>Hexadecimal: 1C 28 4C 02 00 41 m |
| **Function description** | Feed paper to the label peeling position |
| **Parameter range** | pH=0, pL=2<br>fn=65<br>m=48 49 |
| **Default value** | no |

<table>
<tr><td>Notes</td><td>The meanings of m are as follows:
<table>
<tr><th>m</th><th>description</th></tr>
<tr><td>48</td><td>Feeds paper to the label peeling position, however, if the paper is already at the label peeling position, the printer does not feed</td></tr>
<tr><td>49</td><td>Feeds paper to the label peeling position, however, if the paper is already at the label peeling position, the printer feeds paper to the next label peeling position</td></tr>
</table>
This command is only used with label paper(sm=1, 2)<br>The paper feed operation ends when no paper is detected in the process of feeding paper<br>Label peeling position is the position where the label that just printing can be peeled off by hand<br>This commands needs to set the machinery parameter of the printer, please see FS(L<function 102> detailed in Table 2-66)</td></tr>
<tr><td>Example</td><td>None</td></tr>
</table>

**Table 2-64 <function 66> Feed paper to the cutting position**

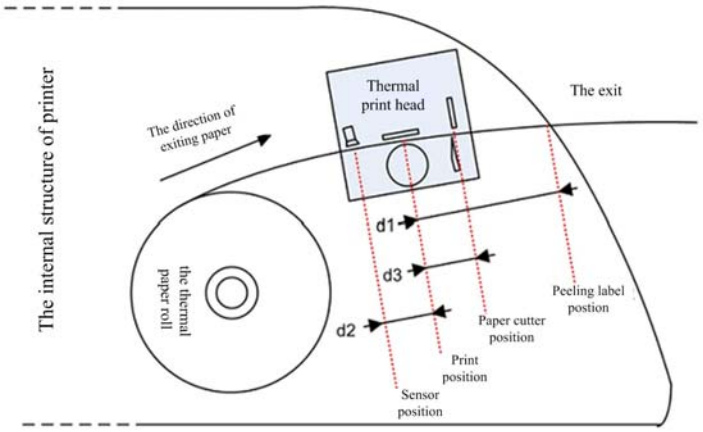
<table>
<tr><td>Command name</td><td>Feed paper to the cutting position of label paper black mark paper</td></tr>
<tr><td>Command code</td><td>ASCII: FS ( L pL pH fn m<br>Decimal: 28 40 76 02 00 66 m<br>Hexadecimal: 1C 28 4C 02 00 42 m</td></tr>
<tr><td>Function description</td><td>Feed paper to the cutting position of label paper black mark paper</td></tr>
<tr><td>Parameter range</td><td>pH=0, pL=2<br>fn=66<br>m=48, 49</td></tr>
<tr><td>Default value</td><td>no</td></tr>
<tr><td>Notes</td><td>The meanings of m are as follows:
<table>
<tr><th>m</th><th>description</th></tr>
<tr><td>48</td><td>Feeds paper to the cutting position, however, if the paper is already at the cutting position, the printer does not feed</td></tr>
<tr><td>49</td><td>Feeds paper to the cutting position, however, if the paper is already at the cutting position, the printer feeds paper to the next cutting position</td></tr>
</table>
This command is used for label paper/ black mark paper ( sm=1, 2,3)<br>The paper feed operation ends when no paper is detected in the process of feeding paper<br>This commands needs to set the cutting position parameter and the machinery parameter of the printer, please see FS(L<function 33> (detailed in Table 2-62) and <function 102> (detailed in Table</td></tr>
</table>

| | |
|---|---|
| | 2-66) |
| **Example** | None |

**Table 2-65 <function 67> Feed paper to the print starting position**

| | |
|---|---|
| **Command name** | Feed paper to the print starting position |
| **Command code** | ASCII: FS ( L pL pH fn m<br>Decimal: 28 40 76 02 00 67 m<br>Hexadecimal: 1C 28 4C 02 00 43 m |
| **Function description** | Feed paper to the print starting position |
| **Parameter range** | pH=0, pL=2<br>fn=67<br>m=48, 49, 50 |
| **Default value** | None |
| **Notes** | The meanings of m are as follows:<br>**m** / **explain**<br>48: Feed paper to the print starting position of label paper / black mark paper, but if it is already at the pint starting position, the printer does not feed<br>49: Feed paper to the print starting position of label paper / black mark paper, but if it is already at the pint starting position, the printer feeds paper to the next print starting position<br>50: Feeds paper to the label peeling position. However, if the paper is already at the label peeling position, the printer feeds paper to the next label peeling position. Feeds paper to the print starting position, however, if the paper is in already at the print starting position, the printer does not feed<br>This command is used for label paper/ black mark paper (sm=1, 2,3)<br>This command is valid when sm=1, 2. 3 and m=48, 49, or sm=1, 2 and m=50<br>The paper feed operation ends when no paper is detected in the process of feeding paper<br>This commands needs to set the parameters of the print starting position and the machinery parameter of the printer, please see FS(L<function 33> detailed in Table 2-62) and <function 102>(detailed in Table 2-66) |
| **Example** | None |

**Table 2-66 <function 102> Set the machinery parameters of printer**

| | |
|---|---|
| **Command name** | Set the machinery parameters of printer |
| **Command code** | ASCII: FS (L pL pH fn m [d1]; [d2]; [d3];<br>Decimal: 28 40 76 02 00 102 m [d1] 59 [d2 ]59 [d3] 59<br>Hexadecimal: 1C 28 4C 02 00 66 m [d1] 3B [d2] 3B [d3] 3B |
| **Function description** | Set the machinery parameters of printer |
| **Parameter range** | pH=0, 5≤pL≤17<br>fn=102<br>m=48<br>0≤d1~d3≤999 |
| **Default value** | None |
| **Notes** | The meanings of d1~d3 are shown as follows:<br>  <br><br>The values of parameters d1~d3 will affect the size of label paper and black mark paper, the requirements are as follows:<br>The height of label paper must be more than d1+d2(sm=1)<br>The height of black mark paper must be more than d2+d3(sm=3)<br>If the size of label paper / black mark paper can't meet those requirements above, then executing FS(L<function 65, 66, 67> command will fail, parameters d1~d3 can be omitted in the process of transferring this commands. Omitted settings are not changed. However, when omitting parameters ";" cannot be omitted.<br>For example: (d1 not changed) FS( L pL pH fn sm; d2; d3;<br>d1~d3 expressed as decimals are converted to text data and the high-order values are specified first<br>For example: setting value is 120, then the text mode is three bytes"120"[31H,32H,30H / decimal =49,80,48]<br>Settings of this function are effective until ESC @ is executed, the printer is reset, or the power is turned off. |
| **Example** | None |

## 2.1.6 States query commands

The states query commands are listed in Table 2-67 to Table 2-69.

**Table 2-67: Set the threshold for label/BM paper border checking**

| | |
|---|---|
| **Command name** | Set the threshold for label/BM paper border checking |
| **Command code** | ASCII: GS ( F pL pH a m nL nH<br>Decimal: 29 40 70 pL pH a m nL nH<br>Hexadecimal: 1D 28 46 pL pH a m nL nH |
| **Function description** | This command is effective only when BM sensor is active.<br>pL and pH specified parameter a is (pL + (pH×256))byte.<br>a is used to specify the setting values of print starting position and the paper cut position.<br>a: 1 — Set the setting value of print starting position<br>a: 2 — Set the setting value of paper cut position<br>M is used to specify the direction of the settings.<br>a: 1 — The direction of settings is paper feeding<br>a: 2 — The direction of settings is paper feeding back<br>nL and nH are used to specify the setting value to [(nL + nH×256)×0.125mm] |
| **Parameter range** | (pL + pH×256) = 4, （pL = 4，pH = 0）<br>1≤a≤2<br>0≤ m ≤1 or 48≤m≤49<br>0≤ (nL + nH×256) ≤65535, (0≤nL≤255, 0≤nH≤255) |
| **Default value** | All the threshold values are set to “0” |
| **Notes** | This command is used to set the print start position adjustment value |
| **Example** | None |

**Table 2-68 Query the states of printer (real time)**

| | |
|---|---|
| **Command name** | Query the states of the printer |
| **Command code** | ASCII: DLE EOT n<br>Decimal: 16 4 n<br>Hexadecimal: 10 04 n |
| **Function description** | Query the current states of printer, the printer will return a state byte after receiving the command , the meanings of bits are as follows:<br>Bit — description — active bit<br>0 — over voltage — 1<br>1 — platen open — 1<br>2 — paper end — 1<br>3 — overheat — 1<br>4 — fixed bit — 0<br>5 — cutter down — 1<br>6 — reserved — X |

| | |
|---|---|
| | 7 reserved X |
| **Parameter range** | n=5 |
| **Default value** | None |
| **Notes** | The printer would return the current state of printer when receiving this command, regardless of the master is ready or not. This is a real-time command that the printer return the current state of printer upon receiving it, regardless of the printer is working properly or not (paper end, over heat protection etc), that is real time response |
| **Example** | Query the statues of the printer (hex):<br>Sent (master - >printer):10 04 05<br>Receive(printer - >master): 06// platen open and paper end |

**Table 2-69 Set/cancel the printer states automatic back**

| | |
|---|---|
| **Command name** | Set / cancel the printer states automatic back |
| **Command code** | ASCII: GS a n<br>Decimal: 29 97 n<br>Hexadecimal: 1D 61 n |
| **Function description** | Set / cancel the printer states back automatically, the meanings of bits are as follows:<br>Bit description enable disable<br>0 over voltage 1 0<br>1 platen open 1 0<br>2 paper end 1 0<br>3 overheat 1 0<br>4 fixed bit 0 0<br>5 cutter down 1 0<br>6 reserved X X<br>7 reserved X X |
| **Parameter range** | None |
| **Default value** | n=0 |
| **Notes** | None |
| **Example** | None |

## 2.1.7 Miscellaneous commands

Miscellaneous commands are listed in Table 2-70~Table 2-79.

**Table 2-70: Transmit status (non-real-time)**

| | |
|---|---|
| **Command name** | Transmit status (non-real-time) |
| **Command code** | ASCII: GS r n<br>Decimal: 29 114 n<br>Hexadecimal: 1D 72 n |

<table>
<tr><td>Function description</td><td>Transmits the status using n as follows:
<table>
<tr><td>n</td><td>Function</td></tr>
<tr><td>1, 49</td><td>Transmits paper sensor status</td></tr>
</table></td></tr>
<tr><td>Parameter range</td><td>None</td></tr>
<tr><td>Default value</td><td>n = 0</td></tr>
<tr><td>Notes</td><td>Paper sensor status（n = 1, 49）
<table>
<tr><th>Bit</th><th>On/off</th><th>Hex</th><th>Decimal</th><th>Status</th></tr>
<tr><td rowspan="2">0, 1</td><td>Off</td><td>00</td><td>0</td><td>Paper near-end sensor: paper adequate</td></tr>
<tr><td>On</td><td>03</td><td>3</td><td>Paper near-end sensor: paper not present.</td></tr>
<tr><td rowspan="2">2, 3</td><td>Off</td><td>00</td><td>0</td><td>Paper near-end sensor: paper adequate</td></tr>
<tr><td>On</td><td>0C</td><td>12</td><td>Paper near-end sensor: paper not present.</td></tr>
<tr><td>4</td><td>Off</td><td>00</td><td>0</td><td>Not used. Fixed to Off.</td></tr>
<tr><td>5, 6</td><td>—</td><td>—</td><td>—</td><td>Undefined.</td></tr>
<tr><td>7</td><td>Off</td><td>00</td><td>0</td><td>Not used. Fixed to Off.</td></tr>
</table></td></tr>
<tr><td>Example</td><td>None</td></tr>
</table>

**Table 2-71 Initialize the printer**

| | |
|---|---|
| **Command name** | Initialize the printer |
| **Command code** | ASCII: ESC @<br>Decimal: 27 64<br>Hexadecimal: 1B 40 |
| **Function description** | Initializes the printer:<br>1.Clears the data in the print buffer;<br>2. Resets the printer modes to the modes that were in effect when the power was turned on. |
| **Parameter range** | None |
| **Default value** | None |
| **Notes** | None |
| **Example** | None |

**Table 2-72 Clear the printer buffer (real time)**

| | |
|---|---|
| **Command name** | Clear up the printer buffer (real time) |
| **Command code** | ASCII: DLE DC4 fn d1…d7<br>Decimal: 16 28 8 d1…d7<br>Hexadecimal: 10 14 08 d1…d7 |
| **Function description** | Clears all data stored in the receive buffer and the print buffer and transmits Clear response. |
| **Parameter range** | fn = 8, d1 = 1, d2 = 3, d3 = 20, d4 = 1, d5 = 6, d6 = 2, d7 = 8 |
| **Default value** | None |
| **Notes** | When receiving this command, the printer clears up the buffer |

| | |
|---|---|
| | immediately. |
| **Example** | None |

**Table 2-73 Feed paper and cut paper**

| | |
|---|---|
| **Command name** | Feed paper and cut paper |
| **Command code** | ASCII: GS V m n<br>Decimal: 29 86 m n<br>Hexadecimal: 1D 56 m n |
| **Function description** | Feed paper and cut paper, the meanings of parameters are as follows:<br>m: the type of cut paper<br>n: feed paper to n ×dots and execute a full cut |
| **Parameter range** | m = 0x41or 0x42, 0≤n≤255 |
| **Default value** | None |
| **Notes** | None |
| **Example** | None |

**Table 2-74 Set the configuration item for the serial interface**

| | |
|---|---|
| **Command name** | Set the configuration item for the serial interface |
| **Command code** | ASCII: GS ( E pL pH fn a d1...dk<br>Decimal: 29 40 69 pL pH 11 a d1...dk<br>hexadecimal：1D 28 45 pL pH 0B a d1...dk |
| **Function description** | Set the serial communication configuration item, including the baud rate and flow control. The meanings of each parameters are as follows:<br>pL, pH are the number of byte= 1 bit function type(fn)+1 bit function definition(a) + k bits active data(d1…dk), that is: pL + pH×256=k+2<br>Fn is the function type, hereby it is 11 indicating the serial communication setting<br>The followings are the function definitions of a:<br>1 baud rate supported<br>2 parity reserve<br>3 flow control supported<br>4 data length reserve<br>d1…dk(a=1) are baud rate data in character type, for example,”9600” is corresponding to hexadecimal 39 36 30 30<br>d(a=3) is flow control type (hardware steam control by default):<br>48 select the hardware flow control (RTS/CTS)<br>49 select the software flow control (Xon/Xoff) |
| **Parameter range** | Fn=11<br>When a=1,<br>3≤(pL + pH×256)≤8, (3≤pL≤8, pH = 0)<br>48≤d≤57 (1≤k≤6) |

| | |
|---|---|
| | When a = 3,<br>pL + pH×256= 3, (pL = 3, pH = 0)<br>48≤d≤49 (k = 1) |
| **Default value** | Baud rate: 9600<br>Flow control: hardware flow control |
| **Notes** | TTL baud rate range: 110 ~ 999999 Hz; RS232 baud rate range: 110 ~ 115200 Hz;<br>The changed baud rate will not be affected by ESC @ command<br>The baud rate will be reset to the default value 9600 on power up<br>Hardware flow control (RTS/CTS) will be reset to the default setting on power up or executing ESC @ command<br>Illegal commands do nothing.<br>Currently only baud rate settings (a=1,3) are supported, but other function can be added as requires. |
| **Example** | Set 9600 baud rate( hexadecimal):<br>Sent (master ->printer): 1D 28 45 06 00 0B 01 39 36 30 30<br>Set the software flow control(hexadecimal):<br>Sent (master ->printer): 1D 28 45 03 00 0B 03 31 |

**Table 2-75: Select printing control mode**

| | |
|---|---|
| **Command name** | Select printing control mode |
| **Command code** | ASCII: GS ( K pL pH n m<br>Decimal: 29 40 75 pL pH n m<br>Hexadecimal: 1D 28 4B pL pH n m |
| **Function description** | n is used to specify the printing density and printing control mode.<br>n \| Function Number \| Function<br>48 \| Function 48 \| Select printing control mode<br>49 \| Function 49 \| Set printing density |
| **Parameter range** | (pL + (pH × 256))= 2 (pL = 2, pH = 0)<br>1≤n≤255 |
| **Default value** | None |
| **Notes** | Settings of this function are effective until ESC @ is executed, the printer is reset, or the power is turned off. |
| **Example** | None |

**Table 2-76: <Function 48> Select printing control mode**

| | |
|---|---|
| **Command name** | Select printing control mode |
| **Command code** | ASCII: GS ( K pL pH n m<br>Decimal: 29 40 75 2 0 48 m<br>Hexadecimal: 1D 28 4B 02 00 30 m |

<table>
<tr><td>Function description</td><td>m is used to specify printer control mode.
<table>
<tr><td>m</td><td>Function</td></tr>
<tr><td>0, 48</td><td>Print mode when power is turned on</td></tr>
<tr><td>1, 49</td><td>Printer head should be power up once in one dot-line</td></tr>
<tr><td>2, 50</td><td>Printer head should be power up twice in one dot-line</td></tr>
<tr><td>3, 51</td><td>Printer head should be power up four times in one dot-line</td></tr>
</table></td></tr>
<tr><td>Parameter range</td><td>(pL + (pH × 256))= 2 (pL = 2, pH = 0)<br>1≤n≤255</td></tr>
<tr><td>Default value</td><td>None</td></tr>
<tr><td>Notes</td><td>Settings of this function are effective until ESC @ is executed, the printer is reset, or the power is turned off.</td></tr>
<tr><td>Example</td><td>None</td></tr>
</table>

**Table 2-77: Select printer head control mode**

<table>
<tr><td>Command name</td><td>Select printing control mode</td></tr>
<tr><td>Command code</td><td>ASCII: GS E n<br>Decimal: 29 69 n<br>Hexadecimal: 1D 45 n</td></tr>
<tr><td>Function description</td><td>n is used to select the printer head control mode:
<table>
<tr><td>n(Hex)</td><td>Function</td></tr>
<tr><td>00</td><td>Speed 1: up to 150mm/s</td></tr>
<tr><td>08</td><td>Speed 2: up to 100mm/s</td></tr>
<tr><td>10</td><td>Speed 3: up to 50mm/s</td></tr>
</table></td></tr>
<tr><td>Parameter range</td><td>1≤n≤255</td></tr>
<tr><td>Default value</td><td>00</td></tr>
<tr><td>Notes</td><td>Settings of this function are effective until ESC @ is executed, the printer is reset, or the power is turned off.</td></tr>
<tr><td>Example</td><td>None</td></tr>
</table>

**Table 2-78: Transmit printer ID**

<table>
<tr><td>Command name</td><td>Transmit printer ID</td></tr>
<tr><td>Command code</td><td>ASCII: GS I n<br>Decimal: 29 73 n<br>Hexadecimal: 1D 49 n</td></tr>
<tr><td>Function description</td><td>n specifies the ID type of the printer:
<table>
<tr><td>n</td><td>Printer ID type</td><td>Funciton</td></tr>
<tr><td>1, 49</td><td>Printer ID</td><td>27H</td></tr>
<tr><td>2, 50</td><td>Type ID</td><td>See the table below</td></tr>
<tr><td>3, 51</td><td>Firmware version ID</td><td>Fixed model</td></tr>
</table></td></tr>
</table>

<table>
<tr><td></td><td>
<table>
<tr><th>Bit</th><th>On/Off</th><th>Hex.</th><th>Decimal</th><th>Function</th></tr>
<tr><td rowspan="2">0</td><td>Off</td><td>00</td><td>0</td><td>Multi-byte character codes are not supported.</td></tr>
<tr><td>On</td><td>01</td><td>1</td><td>Multi-byte character codes are supported.</td></tr>
<tr><td rowspan="2">1</td><td>Off</td><td>00</td><td>0</td><td>Autocutter not installed.</td></tr>
<tr><td>On</td><td>02</td><td>2</td><td>Autocutter installed.</td></tr>
<tr><td rowspan="2">2</td><td>Off</td><td>00</td><td>0</td><td>BM sensor is disabled</td></tr>
<tr><td>On</td><td>04</td><td>4</td><td>BM sensor is enabled</td></tr>
<tr><td>3</td><td>Off</td><td>00</td><td>00</td><td>Unused</td></tr>
<tr><td>4</td><td>Off</td><td>00</td><td>0</td><td>Unused</td></tr>
<tr><td>5</td><td>-</td><td>-</td><td>-</td><td>Undefined</td></tr>
<tr><td>6</td><td>-</td><td>-</td><td>-</td><td>Undefined</td></tr>
<tr><td>7</td><td>Off</td><td>00</td><td>0</td><td>Unused</td></tr>
</table>
</td></tr>
<tr><td>Parameter range</td><td>1≤n≤3，49≤n ≤51</td></tr>
<tr><td>Default value</td><td>None</td></tr>
<tr><td>Notes</td><td></td></tr>
<tr><td>Example</td><td>None</td></tr>
</table>

**Table 2-79: Enter/exit the low power mode (real time)**

| | |
|---|---|
| **Command name** | Enter /exit the low power mode (real time) |
| **Command code** | ASCII: DLE DC4 fn a b<br>Decimal: 16 20 2 a b<br>Hexadecimal: 10 14 2 a b |
| **Function description** | Enter /exit low power mode, the meanings of parameters are as follows:<br>Fn is function type, hereby it is 2 indicating power control<br>a for function definition:<br>1: enter the low power mode<br>2: exit the low power mode<br>b for reserve parameter, it must be 8 |
| **Parameter range** | fn = 2, a = 1 or 2, b = 8 |
| **Default value** | None |
| **Notes** | The printer replies the Ack (0x30) when receiving “enter low power mode” command (0x10 0x14 0x02 0x01 0x08), and enters low power mode (the printer does not run, including the button and LED);<br>Under low power mode, when receiving “exit low power mode”, |

| | |
|---|---|
| | the printer recover to normal working mode, and replies the Ack (0x31).<br>Under low power mode, no serial port operation is allowed.<br>The printer would return the Ack when receiving this command, regardless of the master is ready or not.<br>This is a real-time command that the printer executes upon receiving it, regardless of the printer is working properly or not (paper end, over heat protection etc). |
| **Example** | Enter the low power mode ( hexadecimal ):<br>Sent (master ->printer): 10 14 2 1 8<br>Receive(printer->master): 30<br>Exit the low power mode(hexadecimal):<br>Sent (master ->printer): 10 14 2 2 8<br>Receive(printer->master): 31 |

**Table 2-80 Command A**

| m | Encode system | Barcode data (sp indicates space ) | | | |
|---|---|---|---|---|---|
| | | Data length | K | Character set | Data(d) |
| 0 | UPC-A | fixed | K=11,12 | 0~9 | 48≤d≤57 |
| 1 | UPC-E | fixed | 6≤d≤8<br>K=11,12 | 0~9 | 48≤d≤57<br>(d1=48 when k=7,8,11,12) |
| 2 | JAN13(EAN13) | fixed | K=12,13 | 0~9 | 48≤d≤57 |
| 3 | JAN8(EAN8) | fixed | K=7,8 | 0~9 | 48≤d≤57 |
| 4 | CODE39 | variable | 1≤k | 0~9, A~Z<br>SP,$,%,*, +,-,., | 48≤d≤57<br>65≤d≤90<br>D=32,36,37,42,43,45,46,47 |
| 5 | ITF<br>(Interleaved 2 of 5) | variable | 2≤k≤255<br>(even) | 0~9 | 48≤d≤57 |
| 6 | CODABAR<br>(NW-7) | variable | 1≤K | 0~9, A~D, a~d<br>$,+,-,.,/,: | 48≤d≤57<br>65≤d≤68<br>97≤d≤100<br>d=36,43,45,46,47,58<br>(65≤d1≤68<br>65≤dk≤68<br>97≤d1≤100<br>97≤dk≤100) |

**Table 2-81 Command B**

| m | Encode system | Barcode data (sp indicates space ) | | | |
|---|---|---|---|---|---|
| | | Data length | n | Character set | Data(d) |
| 65 | UPC-A | fixed | n=11,12 | 0~9 | 48≤d≤57 |
| 66 | UPC-E | fixed | 6≤d≤8<br>n=11,12 | 0~9 | 48≤d≤57<br>(d1=48 when k=7,8,11,12) |
| 67 | JAN13(EAN13) | fixed | n=12,13 | 0~9 | 48≤d≤57 |
| 68 | JAN8(EAN8) | fixed | n=7,8 | 0~9 | 48≤d≤57 |
| 69 | CODE39 | variable | 1≤n≤255 | 0~9, A~Z<br>SP,$,%,*, +,-,.,/ | 48≤d≤57<br>65≤d≤90<br>d=32,36,37,42,43,45,46,47 |
| 70 | ITF<br>(Interleaved 2 of 5) | variable | 2≤n≤255<br>(even) | 0~9 | 48≤d≤57 |
| 71 | CODABAR<br>(NW-7) | variable | 1≤n≤255 | 0~9, A~D, a~d<br>$,+,-,.,/,: | 48≤d≤57<br>65≤d≤68<br>97≤d≤100<br>d=36,43,45,46,47,58<br>(65≤d1≤68<br>65≤dk≤68<br>97≤d1≤100<br>97≤dk≤100) |
| 72 | CODE93 | variable | 1≤n≤255 | 00H~7FH | 0≤d≤127 |
| 73 | CODE128 | variable | 1≤n≤255 | 00H~7FH<br>C1H~C4H(FNC) | 0≤d≤127<br>D=193,194,195,196 |
| 74 | UCC/EAN128 | variable | 1≤n≤255 | 00H~7FH<br>C1H~C4H(FNC) | 0≤d≤127<br>D=193,194,195,196 |

**Table 2-82 Function explanation of two-dimension Barcode printing**

| cn | fn | Function code | Function description | See |
|---|---|---|---|---|
| 48 | 65 | Function 065 | PDF417: Set the number of columns of the data area | Table 2-45 |
| | 66 | Function 066 | PDF417: Set the number of rows | Table 2-46 |
| | 67 | Function 067 | PDF417: Unit width | Table 2-47 |
| | 68 | Function 068 | PDF417: Set line height | Table 2-48 |
| | 69 | Function 069 | PDF417: Set the levels of error correction | Table 2-49 |
| | 70 | Function 070 | PDF417: Set/cancel the truncation mode | Table 2-50 |
| | 80 | Function 080 | PDF417: Transfer data to encode buffer | Table 2-51 |
| | 81 | Function 081 | PDF417: Print the two-dimension code in encode buffer | Table 2-52 |
| 49 | 67 | Function 167 | QR code: Select the unit size | Table 2-53 |
| | 69 | Function 169 | QR code: Select the error correction levels | Table 2-54 |
| | 80 | Function 180 | QR code: Transfer data to encode buffer | Table 2-55 |
| | 81 | Function 181 | QR code: Print the two-dimension code in encode buffer | Table 2-56 |

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| | |
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