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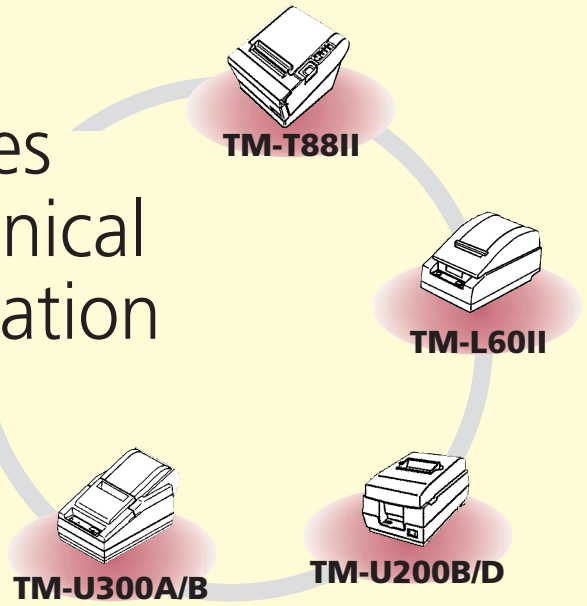
EPSON

Paper roll printers

- **Commands listed by function**
- **Commands listed in alphanumeric order**
- **Character code tables**
- **Usable application programs and tips**

Features
& Technical
Information



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EPSON

TM-T88II

- Features
- Specifications
- Self test
- Hex dump
- Supported commands

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TM-L60II

- Features
- Specifications
- Self test
- Hex dump
- Supported commands

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TM-U200B/D

- Features
- Specifications
- Self test
- Hex dump
- Supported commands

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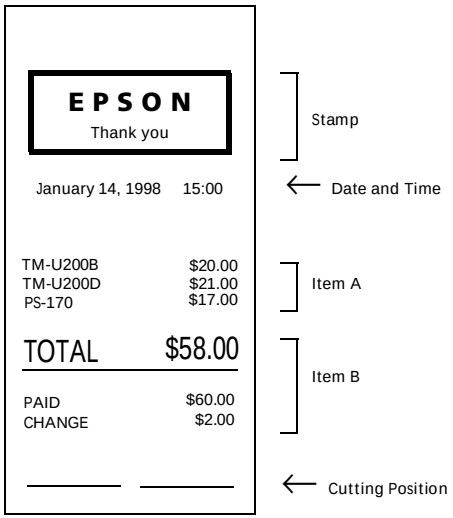
TM-U300A/B

- **Features**
- **Specifications**
- **Self test**
- **Supported commands**

System Processing

This example illustrates ESC/POS command functions and printing results. It shows a receipt issue processing and its procedure using the TM-U200B.

Print Sample



System Processing Procedure

Procedure	Commands used	Description
1. Stamp printing	**ESC 3, ESC a, ESC !, ESC U, ESC 2, LF, CR**	Specifies a print position to the center by using the **ESC a** command. Prints stamp data in the center of the paper roll in the unidirectional mode. Adjusts line spacing for line data being continuous.
2. Print date and time	**ESC a, ESC d**	Specifies a print position to the left by using the **ESC a** command after printing the date and time in the center of the paper roll.
3. Print Item A	**ESC !, LF**	Selects the 7 x 9 font by using the **ESC !** command and prints Item A.
4. Print Item B	**ESC !, ESC U, LF**	Specifies double-height by using the **ESC !** command, and prints “TOTAL” in the unidirectional mode. Cancels double-height and prints in the bidirectional mode for other lines.
5. Cut paper	**GS V**	Feeds the paper to the cutting position and executes cutting.

Programming Example

```
PRINT #1, CHR$(&H1B);"@"; ⟵ Initializes the printer

GOSUB stamp ⟵ Prints stamp

PRINT #1, CHR$(&H1B);"a";CHR$(1); ⟵ Specifies a centered printing position
PRINT #1, CHR$(&H1B);"!";CHR$(0); ⟵ Specifies 9 x 9 font
PRINT #1, CHR$(&H1B);"J";CHR$(4); ⟵ Adjusts line spacing
PRINT #1, “January 14, 1998  15:00”;
PRINT #1, CHR$(&H1B);"d";CHR$(3);
PRINT #1, CHR$(&H1B);"a";CHR$(0); ⟵ Selects the left print position

PRINT #1, CHR$(&H1B);"!";CHR$(1); ⟵ Selects 7 x 9 font
PRINT #1, "TM-U200B               $20.00";CHR$(&HA);
PRINT #1, "TM-U200D               $21.00";CHR$(&HA);
PRINT #1, "PS-170                 $17.00";CHR$(&HA);
PRINT #1, CHR$(&HA);

PRINT #1, CHR$(&H1B);”!”;CHR$(17); ⟵ Selects double-height mode
PRINT #1, CHR$(&H1B);”U”;CHR$(1); ⟵ Selects uni-directional printing
PRINT #1, "TOTAL                  $58.00";CHR$(&HA);
PRINT #1, CHR$(&H1B);"U";CHR$(0); ⟵ Cancels uni-directional printing
PRINT #1, CHR$(&H1B);”!”;CHR$(0); ⟵ Cancels double-height mode
PRINT #1, "----------------------------";CHR$(&HA);

PRINT #1, "PAID                   $60.00";CHR$(&HA);
PRINT #1, "CHANGE                 $ 2.00";CHR$(&HA);

PRINT #1, CHR$(&H1D);"V";CHR$(66);CHR$(0); ⟵ Feeds paper to the cutting position
                                            and cuts paper
END
```

Prints date and time

Item A

Item B

Programming Example (continued)

```
Stamp:
PRINT #1, CHR$(&H1B);"3";CHR$(18); ⟵ Sets line spacing
PRINT #1, CHR$(&H1B);"U";CHR$(1); ⟵ Selects uni-directional printing
PRINT #1, CHR$(&H1B);"a";CHR$(1); ⟵ Selects center print position

PRINT #1, CHR$(&H1B);"!";CHR$(48); ⟵ Selects double-height and double-width modes
For I = 1 T0 14*2                                                    Prints stamp
     READ d$: PRINT #1, CHR$(VAL (“&H”+d$));
NEXT I

PRINT #1, CHR$(&H1B);”!”;CHR$(0);⟵ Cancels double-height and double-width modes
PRINT #1, ”Thank you”;CHR$(&HD);⟵ Printing with CR
```

Programming Example (continued)

```
PRINT #1, CHR$ (&H1B);"!";CHR$(32); ← Selects double-height mode
FOR I =1 TO 14
     READ d$: PRINT #1, CHR$(VAL("&H"+d$));
NEXT I

PRINT #1, CHR$ (&H1B);"!";CHR$(48); ← Selects double-height and double-width modes
FOR I =1 TO 14
     READ d$: PRINT #1, CHR$(VAL("&H"+d$));
NEXT I

PRINT #1,CHR$(&H1B);"U";CHR$(0); ← Cancels uni-directional printing
PRINT #1,CHR$(&HB);"2";
RETURN


DATA C9, CD, CD, CD, CD, CD, CD, CD, CD, CD, CD, CD, BB, 0A
DATA BA, 20, 20, 20, 45, 50, 53, 4F, 4E, 20, 20, 20, BA, 0A
DATA BA, 20, 20, 20, 20, 20, 20, 20, 20, 20, 20, 20, BA, 0A
DATA C8, CD, CD, CD, CD, CD, CD, CD, CD, CD, CD, CD, BC, 0A
```

Prints stamp

Stamp data

more

Tips (Print commands)

These are the print commands. All the commands have the same printing result but an operation after printing differs depending on the command. Using the appropriate command enables you to easily make an effective program for issuing a receipt.

<**LF**: Print and line feed>

The command is used to print and feed one line.

<**CR**: Print and carriage return>

With a serial interface or a parallel interface with auto line feed disabled, if the printer has a serial dot head, printing on the same line is enabled. The program example shows a procedure for overwriting the previous line.

The program example illustrates printing with **CR** shown in lines 100, 120, and 140 and if you do not have any corrections, then you feed paper with **LF** shown in lines 110, and 150. When you have a correction, transmitting [character data + **LF**] to perform printing on the same line shown in line 130. Sending bit image data instead of character data enables execution of mesh printing.

Program Example

```
100 PRINT #1, "TM-U200B                    $20.00";CHR$(&HD); ← Print using CR
110 PRINT #1, CHR$(&HA); ← Line feed using LF
120 PRINT #1, "TM-U200D                    $24.00";CHR$(&HD); ← Print using CR
130 PRINT #1, "————————————————————————————";CHR$(&HA); ← Print and line feed using LF
140 PRINT #1, "TM-U200D                    $21.00";CHR$(&HD); ← Print using CR
150 PRINT #1, CHR$(&HA); ← Line feed using LF
```

Print Sample

TM-U200B $20.00
~~TM-U200D $24.00~~
TM-U200D $21.00

<**ESC d**: Print and feed ***n*** lines>

The command is used to feed paper continuously. The printing result is the same as when transmitting **LF *n*** times continuously. Using **ESC d** enables you to feed paper smoothly and to shorten paper feed time, since **LF** is used for repeating one line paper feed ***n*** times. However, **ESC d** is used to feed paper for ***n*** lines.

<**ESC J**: Print and feed paper>

This command is used to adjust line spacing. **ESC J *n*** has the same printing result as when transmitting **LF** after setting line spacing with **ESC 3**. If you use [**ESC 3** + **LF**], you need to reset line spacing when printing the next line. If you use **ESC J**, the current line spacing is not changed and it is possible to print the next line without resetting the line spacing.

<Other print commands>

Special print commands are shown below: Some printers support the commands.

- **ESC K** or **ESC e** is used to feed paper in the reverse direction.
- **FF** or **ESC FF** is used to print page mode data.
- **FF** or **GS FF** is used to print a label.

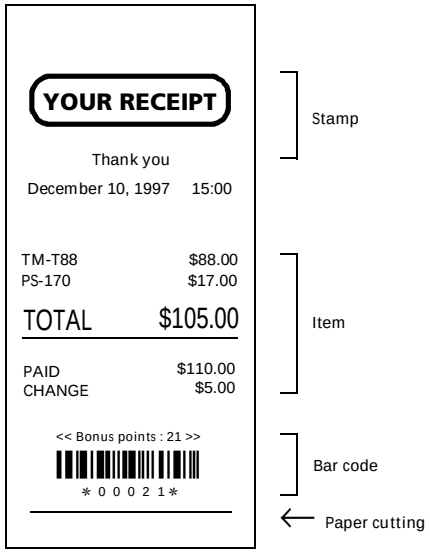
System Processing

This example illustrates ESC/POS command functions and printing results. It shows a receipt issue processing with a bar code and its procedure using the TM-T88II.

Set DIP switch 2-1 of the TM-T88II to On (customer display connected), insert the plug of the DM-D102 firmly into the customer display connector (DM-D) which is on the bottom of the printer, and then turn on the printer power.

Refer to **GS k** for a bar code printing in detail.

Print Sample



System Processing Procedure

Procedure	Commands used	Description
1. Set a default	**ESC @, ESC D, GS P**	Set a horizontal tab position and horizontal and vertical motion units.
2. Define stamp data	**GS ***	Define a downloaded bit image for a stamp.
3. Stamp	**ESC a, GS /, ESC J, LF, ESC d**	After selecting the center justification for the printing position with **ESC a** , print the stamp (downloaded bit image), date, and time.
4. Print an item	**ESC a, HT, LF, GS !, ESC d**	After selecting the left justification for the printing position with **ESC a**, print an item. Align the character columns with **HT**.
5. Print a bar code	**ESC a, ESC J, GS h, GS H, GS f, GS k**	Print a message “Bonus point” and a bar code. The example uses CODE39 bar code.
6. Paper cut	**GS V**	Execute cutting.

Programming Example

```
PRINT #1, CHR$(&H1B);"@"; ⟵ Initialize the printer
PRINT #1, CHR$(&H1B);"D";CHR$(34);CHR$(0) ⟵ Set horizontal tab position
PRINT #1, CHR$(&H1D);"P";CHR$(180);CHR$(180) ⟵ Set horizontal and vertical motion units
```

Set a default

```
PRINT #1, CHR$(&H1D);"*";CHR$(30);CHR$(5);
FOR i=1 TO 1200
   READ a$
   PRINT #1, CHR$(VAL("&H"+a$));
NEXT i
```

Define a downloaded bit image

```
PRINT #1, CHR$(&H1B);"a";CHR$(1); ⟵ Justification (center)
PRINT #1, CHR$(&H1D);"/";CHR$(2); ⟵ Print the downloaded bit image
PRINT #1, CHR$(&H1B);"J";CHR$(8); ⟵ Paper feed
PRINT #1, "Thank you"; CHR$(&HA);
PRINT #1, "December 10, 1997  15:00";
PRINT #1, CHR$(&H1B);"d";CHR$(3); ⟵ Print and 3-line paper feed
```

Stamp

```
PRINT #1, CHR$(&H1B);"a";CHR$(0); ⟵ Justification (left)
PRINT #1, "TM-T88";CHR$(&H9);" $88.00";CHR$(&HA);
PRINT #1, "PS-170";CHR$(&H9);" $17.00";CHR$(&HA);CHR$(&HA);
PRINT #1, CHR$(&H1D);"!";CHR$(1); ⟵ Select font size (double-height)
PRINT #1, "TOTAL";CHR$(&H9);"$105.00";CHR$(&HA);
PRINT #1, CHR$(&H1D);"!";CHR$(0); ⟵ Select font size (standard)
PRINT #1, "----------------------------------";CHR$(&HA);
PRINT #1, "PAID";CHR$(&H9);"$110.00";CHR$(&HA);
PRINT #1, "CHANGE";CHR$(&H9);"  $5.00";
PRINT #1, CHR$(&H1B);"d";CHR$(3); ⟵ Print and 3-line paper feed
```

Print an item

```
PRINT #1, CHR$(&H1B);"a";CHR$(1); ⟵ Justification (center)
PRINT #1, "<<Bonus points : 21>>";
PRINT #1, CHR$(&H1B);"J";CHR$(35); ⟵ Print and paper feed
PRINT #1, CHR$(&H1D);"h";CHR$(50); ⟵ Set bar code height
PRINT #1, CHR$(&H1D);"H";CHR$(2); ⟵ Select printing position of HRI characters
PRINT #1, CHR$(&H1D);"f";CHR$(1); ⟵ Select font for HRI characters
PRINT #1, CHR$(&H1D);"k";CHR$(4);"*00021*";CHR$(0); ⟵ Print bar code
```

Print a bar code

```
PRINT #1, CHR$(&H1D);"V";CHR$(66);CHR$(30); ⟵ Paper cut
END
```

Programming Example (continued)

```
DATA 15,55,55,55,50,2A,AA,AA,AA,A8,55,55,55,55,54,A0,00,00,00,0A,40,00,00,00,04
DATA 80,00,00,00,02,40,00,00,00,04,80,00,00,00,02,48,00,00,00,04,85,00,00,00,02
DATA 4A,A0,00,00,04,85,54,00,00,02,4A,AA,80,00,04,85,55,50,00,02,40,AA,A8,00,04
DATA 80,15,54,00,02,40,02,AA,AA,A4,80,00,55,55,42,40,00,0A,AA,A4,80,00,55,55,42
DATA 40,02,AA,AA,A4,80,15,54,00,02,40,AA,A8,00,04,85,55,50,00,02,4A,AA,80,00,04
DATA 85,54,00,00,02,4A,A0,00,00,04,85,00,00,00,02,48,00,00,00,04,80,00,00,00,02
DATA 40,2A,AA,A8,04,80,55,55,54,02,40,AA,AA,AA,04,81,55,55,55,02,42,AA,AA,AA,84
DATA 85,40,00,05,42,4A,80,00,02,A4,85,00,00,01,42,4A,80,00,02,A4,85,00,00,01,42
DATA 4A,80,00,02,A4,85,00,00,01,42,4A,80,00,02,A4,85,00,00,01,42,4A,80,00,02,A4
DATA 85,40,00,05,42,42,AA,AA,AA,84,81,55,55,55,02,40,AA,AA,AA,04,80,55,55,54,02
DATA 40,2A,AA,A8,04,80,00,00,00,02,40,00,00,00,04,80,00,00,00,02,4A,AA,AA,A8,04
DATA 85,55,55,54,02,4A,AA,AA,AA,04,85,55,55,55,02,4A,AA,AA,AA,84,80,00,00,05,42
DATA 40,00,00,02,A4,80,00,00,01,42,40,00,00,02,A4,80,00,00,01,42,40,00,00,02,A4
DATA 80,00,00,01,42,40,00,00,02,A4,80,00,00,01,42,40,00,00,02,A4,80,00,00,05,42
DATA 4A,AA,AA,AA,84,85,55,55,55,02,4A,AA,AA,AA,04,85,55,55,54,02,4A,AA,AA,A8,04
DATA 80,00,00,00,02,40,00,00,00,04,80,00,00,00,02,4A,AA,AA,AA,A4,85,55,55,55,42
DATA 4A,AA,AA,AA,A4,85,55,55,55,42,4A,AA,AA,AA,A4,85,00,14,00,02,4A,80,2A,00,04
DATA 85,00,14,00,02,4A,80,2A,00,04,85,00,15,00,02,4A,80,2A,80,04,85,00,15,40,02
DATA 4A,80,2A,AA,A4,85,55,55,55,42,42,AA,A8,AA,A4,81,55,50,55,42,40,AA,A0,2A,A4
DATA 80,55,40,00,02,40,00,00,00,04,80,00,00,00,02,40,00,00,00,04,80,00,00,00,02
DATA 40,00,00,00,04,80,00,00,00,02,40,00,00,00,04,80,00,00,00,02,4A,AA,AA,AA,A4
DATA 85,55,55,55,42,4A,AA,AA,AA,A4,85,55,55,55,42,4A,AA,AA,AA,A4,85,00,14,00,02
DATA 4A,80,2A,00,04,85,00,14,00,02,4A,80,2A,00,04,85,00,15,00,02,4A,80,2A,80,04
DATA 85,00,15,40,02,4A,80,2A,AA,A4,85,55,55,55,42,42,AA,A8,AA,A4,81,55,50,55,42
DATA 40,AA,A0,2A,A4,80,55,40,00,02,40,00,00,00,04,80,00,00,00,02,40,00,00,00,04
DATA 8A,AA,AA,AA,A2,45,55,55,55,44,8A,AA,AA,AA,A2,45,55,55,55,44,8A,AA,AA,AA,A2
DATA 45,00,50,01,44,8A,80,A8,02,A2,45,00,50,01,44,8A,80,A8,02,A2,45,00,50,01,44
DATA 8A,80,A8,02,A2,45,00,50,01,44,8A,80,A8,02,A2,45,00,00,01,44,8A,80,00,02,A2
DATA 40,00,00,00,04,80,00,00,00,02,40,00,00,00,04,80,15,55,50,02,40,2A,AA,A8,04
DATA 80,55,55,54,02,40,AA,AA,AA,04,81,55,55,55,02,42,A0,00,0A,84,85,40,00,05,42
DATA 4A,80,00,02,A4,85,00,00,01,42,4A,80,00,02,A4,85,00,00,01,42,4A,80,00,02,A4
DATA 85,00,00,01,42,4A,80,00,02,A4,85,00,00,01,42,4A,80,00,02,A4,80,00,00,00,02
DATA 40,00,00,00,04,80,00,00,00,02,4A,AA,AA,AA,A4,85,55,55,55,42,4A,AA,AA,AA,A4
```

Stamp data (downloaded bit image)

Programming Example (continued)

```
DATA 85,55,55,55,42,4A,AA,AA,AA,A4,85,00,50,01,42,4A,80,A8,02,A4,85,00,50,01,42
DATA 4A,80,A8,02,A4,85,00,50,01,42,4A,80,A8,02,A4,85,00,50,01,42,4A,80,A8,02,A4
DATA 85,00,00,01,42,4A,80,00,02,A4,80,00,00,00,02,40,00,00,00,04,80,00,00,00,02
DATA 40,00,00,00,04,8A,AA,AA,AA,A2,45,55,55,55,44,8A,AA,AA,AA,A2,45,55,55,55,44
DATA 8A,AA,AA,AA,A2,40,00,00,00,04,80,00,00,00,02,40,00,00,00,04,80,00,00,00,02
DATA 4A,AA,AA,AA,A4,85,55,55,55,42,4A,AA,AA,AA,A4,85,55,55,55,42,4A,AA,AA,AA,A4
DATA 85,00,14,00,02,4A,80,2A,00,04,85,00,14,00,02,4A,80,2A,00,04,85,00,14,00,02
DATA 4A,80,2A,00,04,85,00,14,00,02,4A,80,2A,00,04,85,55,54,00,02,42,AA,A8,00,04
DATA 81,55,50,00,02,40,AA,A0,00,04,80,55,40,00,02,40,00,00,00,04,80,00,00,00,02
DATA 4A,80,00,00,04,85,00,00,00,02,4A,80,00,00,04,85,00,00,00,02,4A,80,00,00,04
DATA 85,00,00,00,02,4A,80,00,00,04,85,00,00,00,02,4A,AA,AA,AA,A4,85,55,55,55,42
DATA 4A,AA,AA,AA,A4,85,55,55,55,42,4A,AA,AA,AA,A4,85,00,00,00,02,4A,80,00,00,04
DATA 85,00,00,00,02,4A,80,00,00,04,85,00,00,00,02,4A,80,00,00,04,85,00,00,00,02
DATA 4A,80,00,00,04,80,00,00,00,02,40,00,00,00,04,80,00,00,00,02,40,00,00,00,04
DATA A0,00,00,00,0A,55,55,55,55,54,2A,AA,AA,AA,A8,15,55,55,55,50,00,00,00,00,00
```

Stamp data (downloaded bit image)

Tips (bar code printing)

Some printers such as the TM-T88II and TM-L60II support bar code printing. ESC/POS supports UPC-A, UPC-E, JAN13(EAN13), JAN8(EAN8), CODE39, ITF (interleaved 2 of 5), CODABAR(NW7), CODE93, and CODE128.

When the standard mode is selected, a bar code and a character cannot be printed on the same printing line and a ladder bar code cannot be printed. Page mode, which has a flexible layout for printing a character, a bit image, and a bar code, should be selected when printing a bar code and a character on the same line or printing a ladder code. When page mode is selected, a character and a bar code can be overlapped but the bar code cannot be read. Be sure to check data layout so that a bar code can be scanned.

Basic processing for bar code printing (example):

Procedures:

1. Select a bar code height with **GS h**. The height of a HRI character cannot be selected by **GS h**.
2. Select a bar code width with **GS w**.
3. Select the printing position for HRI characters with **GS H**.
4. Select a font for HRI characters with **GS f**. The setting affects only the HRI characters.
5. Print a bar code with **GS k**.

Procedures 1 to 4 can be omitted. If there is no specified value, a default value is used. The settings from 1 to 4 are effective until the printer is initialized (**ESC @**), reset, or is turned off. **GS k** in procedure 5 supports both functions “storing a bar code data in the print buffer” and “printing.” Therefore, no print command is needed.

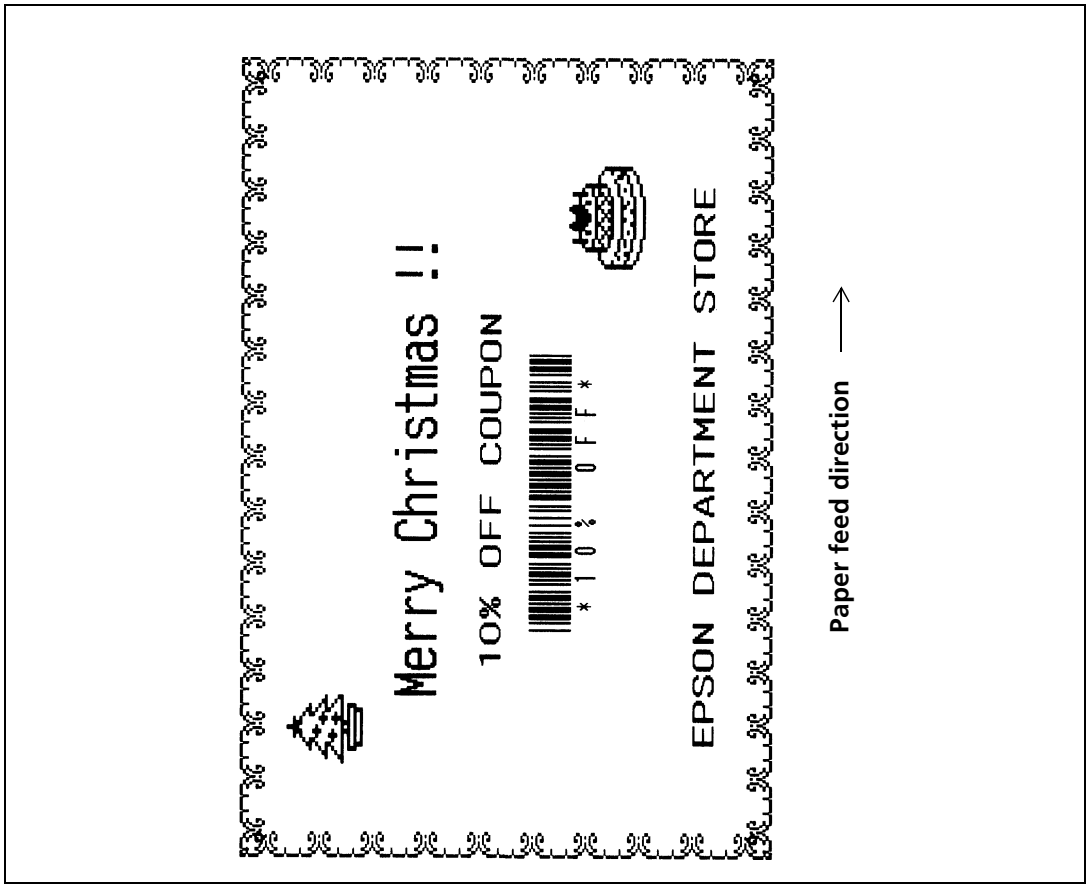
Causes for a bar code not printing:

1. The bar code width set by **GS w** is so large that not all data will fit in the current printing area.
2. There are so many bar code data set by **GS k** that not all data will fit in the current printing area.
3. There is character data which cannot be printed with a bar code set by **GS k**.
4. The number of bar code data is few when selecting UPC-A, UPC-E, JAN13(EAN13), or JAN8(EAN8) with **GS k**.
5. When selecting ITF bar code with **GS k**, bar code data is an odd number.
6. When selecting CODE128 with **GS k**, the first data is none of CODE A, CODE B, and CODE C. There might be character data which is not included in the specified code set.
7. When processing **GS k** in standard mode, there is already print data in the print buffer.
8. When processing **GS k** in page mode, the printing position is already outside of the printing area.

Page Mode Printing

This example illustrates ESC/POS command functions and printing results. The example shows a coupon issue processing and its procedure using page mode function with the TM-T88II. You can use the page mode to rotate data so that you can print characters, bar codes, and bit images that would not fit in the printable area in the standard mode.

Print Sample



more

System Processing Procedure

Procedure	Commands used	Description
1. Select page mode	**ESC L, GS P**	Select page mode. Change horizontal and vertical motion units to set normal dot units.
2. Transmit edge data	**ESC W, ESC T, ESC ✻**	Select the printing area for edge data with **ESC W** and the printing direction with **ESC T**. Transmit the edge data as bit image.
3. Transmit a message	**ESC W, ESC T, GS !, LF, ESC J**	Select the printing area for message data with **ESC W** and the printing direction with **ESC T**. Select a character size with **GS !** and transmit message data.
4. Transmit data for symbols A and B	**ESC W, ESC T, ESC 3, ESC ✻**	Select the printing area for symbol data with **ESC W** and the printing direction with **ESC T**. Transmit data for symbols A and B as bit image.
5. Transmit bar code data	**ESC W, ESC T, GS H GS f, GS h, GS w, GS $, GS k**	Select the printing area for a bar code with **ESC W** and the printing direction with **ESC T**. After setting bit images with **GS H** and **GS f** , etc., transmit data for CODE 39 bar code to the printing position set by **GS $**.
6. Printing all data	**ESC FF, GS V**	Print all data collectively in page mode and cut paper.
7. Return to standard mode	**ESC S**	Return to standard mode. All data in page mode are cleared.

When printing multiple coupons, transmits **ESC FF** and **GS V** times you want to print in procedure 6.

Program Example

```
PRINT #1, CHR$(&H1B);"@";          ← Initialize the printer

PRINT #1, CHR$(&H1B);"L";← Select page mode
PRINT #1, CHR$(&H1D);"P";CHR$(180);CHR&(180);← Set horizontal and vertical motion units

PRINT #1, CHR$(&H1B);"W";CHR$(6);CHR$(0);CHR$(0);CHR$(0);CHR$(244);CHR$(1);CHR$(238);CHR$(2);
PRINT #1, CHR$($H1B);"T";CHR$(0);← Select printing direction (left to right)
n=10: GOSUB Edge
PRINT #1, CHR$(&H1B);"T";CHR$(1);  ← Select printing direction (bottom to up)
n=15: GOSUB Edge
PRINT #1, CHR$(&H1B);"T";CHR$(2); ← Select printing direction (right to left)
n=10: GOSUB Edge
PRINT #1, CHR$(&H1B);"T";CHR$(3); ← Select printing direction (up to bottom)
n=15: GOSUB Edge

PRINT #1, CHR$(&H1B);"W";CHR$(140);CHR$(0);CHR$(118);CHR$(0);CHR$(104);CHR$(1);CHR$(16);CHR$(2);
PRINT #1, CHR$(&H1B);"T";CHR$(1);  ← Select printing direction (bottom to up)
PRINT #1, CHR$(&H1D);"!";CHR$(17);
PRINT #1, CHR$(&HA);" Merry Christmas !!";CHR$(&HA);CHR$(&HA);
PRINT #1, CHR$(&H1D);"!";CHR$(16);
PRINT #1, " 10% OFF COUPON";CHR$(&H1B);"J":CHR$(200);
PRINT #1, "EPSON DEPARTMENT STORE";


PRINT #1, CHR$(&H1B);"W";CHR$(50);CHR $(0);CHR$(76);CHR$(2);CHR$(72);CHR$(0);CHR$(68);CHR$(0);
PRINT #1, CHR$(&H1B);"T";CHR$(1);← Select printing direction (bottom to up)
PRINT #1, CHR$(&H1B);"3";CHR$(24);
PRINT #1, CHR$(&H1B);"*";CHR$(0);CHR$(34);CHR$(0)
  FOR c=1 to 34 READ a$: PRINT #1, CHR$(VAL("&H"+a$));:NEXT c
PRINT #1, CHR$(&H1B);"*";CHR$(0);CHR$(34);CHR$(0)
  FOR c=1 to 34 READ a$: PRINT #1, CHR$(VAL("&H"+a$));:NEXT c
PRINT #1, CHR$(&H1B);"*";CHR$(0);CHR$(34);CHR$(0)
  FOR c=1 to 34 READ a$: PRINT #1, CHR$(VAL("&H"+a$));:NEXT c
```

Transmit edge data

Transmit a message

Transmit data for symbol A

(Continued on next page)

Program Example (continued)

```
PRINT #1, CHR$(&H1B);"W";CHR$(58);CHR $(1);CHR$(102);CHR$(0);CHR$(72);CHR$(0);CHR$(96);CHR$(0);
PRINT #1, CHR$(&H1B);"T";CHR$(1);<-- Select printing direction (bottom to up)
PRINT #1, CHR$(&H1B);"*";CHR$(0);CHR$(48);CHR$(0)
  FOR c=1 to 48 READ a$: PRINT #1, CHR$(VAL("&H"+a$));:NEXT c
PRINT #1, CHR$(&H1B);"*";CHR$(0);CHR$(48);CHR$(0)
  FOR c=1 to 48 READ a$: PRINT #1, CHR$(VAL("&H"+a$));:NEXT c
PRINT #1, CHR$(&H1B);"*";CHR$(0);CHR$(48);CHR$(0)
  FOR c=1 to 48 READ a$: PRINT #1, CHR$(VAL("&H"+a$));:NEXT c

PRINT #1, CHR$(&H1B);"W";CHR$(20);CHR $(1);CHR$(226);CHR$(0);CHR$(70);CHR$(0);CHR$(56);CHR$(1);
PRINT #1, CHR$(&H1B);"T";CHR$(1);<-- Select printing direction (bottom to up)
PRINT #1, CHR$(&H1D);"H";CHR$(2);<-- Select printing position of HRI characters (bottom)
PRINT #1, CHR$(&H1D);"f";CHR$(1);<-- Select font for HRI characters (font B)
PRINT #1, CHR$(&H1D);"h";CHR$(40);<-- Set bar code height
PRINT #1, CHR$(&H1D);"w";CHR$(2);<-- Set bar code width
PRINT #1, CHR$(&H1D);"$";CHR$(40);CHR$(0);<-- Set absolute vertical print position
PRINT #1, CHR$(&H1D);"k";CHR$(4);"*10% OFF*";CHR$(0);
PRINT #1, CHR$(&H1B);CHR$(&HC); <-- Print data collectively
PRINT #1, CHR$(&H1D);"V";CHR$(66);CHR$(80); <--Cut paper
PRINT #1, CHR$(&H1B);"S"; <--Return to standard mode
END

Edge
FOR i=1 To n
PRINT #1, CHR$(&H1B);"*";CHR$(0);CHR$(25);CHR$(0);
  PRINT #1, CHR$(128);CHR$(128);CHR$(128);CHR$(96);CHR$(128);
  PRINT #1, CHR$(128);CHR$(128);CHR$(166);CHR$(165);CHR$(81);
  PRINT #1, CHR$(78);CHR$(32);CHR$(26);CHR$(32);CHR$(78);
  PRINT #1, CHR$(81);CHR$(165);CHR$(166);CHR$(128);CHR$(128);
  PRINT #1, CHR$(128);CHR$(96);CHR$(128);CHR$(128);CHR$(128);
NEXT i
RETURN
```

Transmit data for symbol B

Transmit bar code

Subroutine for transmitting the edge data

Program Example (continued)

```
DATA 00,00,00,00,00,00,01,01,03,03,05,05,28,28,38,38
DATA F0,F0,38,38,28,28,05,05,03,03,01,01,00,00,00,00,00,00
DATA 00,00,08,08,19,19,2A,2A,4C,4C,82,82,47,47,E2,E2
DATA 40,40,11,11,3B,3B,91,91,4C,4C,2A,2A,19,19,08,08,00,00
DATA 40,40,C0,C0,40,40,5C,5C,57,57,55,55,55,55,75,75
DATA 55,55,75,75,D5,D5,55,55,57,57,5C,5C,40,40,C0,C0,40,40
```

Data for symbol A

```
DATA 00,00,00,00,00,00,00,00,07,07,09,09,7D,7D,10,10,16,16,78,F8,FC,7C,3E,3E
DATA 3E,3E,7C,FC,F8,78,16,16,10,10,7D,7D,09,09,07,07,00,00,00,00,00,00,00,00
DATA 1F,1F,24,24,41,41,42,42,F1,F1,29,29,49,49,AC,AC,94,94,AC,AC,C4,C4,AC,AC
DATA 94,94,AC,AC,C4,C4,AC,AC,94,94,69,69,49,49,F1,F1,42,42,41,41,24,24,1F,1F
DATA F0,F0,48,48,24,24,64,64,12,12,52,52,52,52,89,89,A9,A9,89,89,99,99,C9,C9
DATA 89,89,99,99,C9,C9,A9,A9,89,89,12,12,52,52,12,12,24,24,A4,A4,C8,C8,F0,F0
```

Data for symbol B

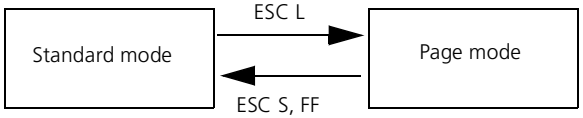
Tips (standard mode/page mode)

Some of the TM printers, such as the TM-T88II and the TM-L60II, support two different print modes: standard mode and page mode.

The standard mode is supported by all printers and in this mode, the printers print data in the print buffer by executing the print commands (such as **LF**, **CR**, and **ESC J**) or when the buffer is full.

The standard mode is the print mode which prints data one line at a time.

The page mode executes batch printing with **FF** or **ESC FF** for all data in the print buffer stored after the page mode is selected with **ESC L**. In this mode, the print commands other than **FF** or **ESC FF**, such as **LF**, **CR**, or **ESC J**, only move the printing position and do not execute actual printing. Executing **ESC S** or **FF** returns to standard mode. The page mode is the print mode which prints data one page at a time.



Basic processing procedure for the page mode:

1. Select the page mode with **ESC L** (standard mode is changed to page mode).
2. Set the position and size for the printing area with **ESC W**.
3. Select the starting position and the direction for data development with **ESC T**.
4. Store print data (such as characters or bit images) in the print buffer.
5. Print all data in the print buffer collectively with **ESC FF**.
6. Return to standard mode with **ESC S**.

(You can skip procedure 6 if you use **FF** instead of **ESC FF** in procedure 5.)

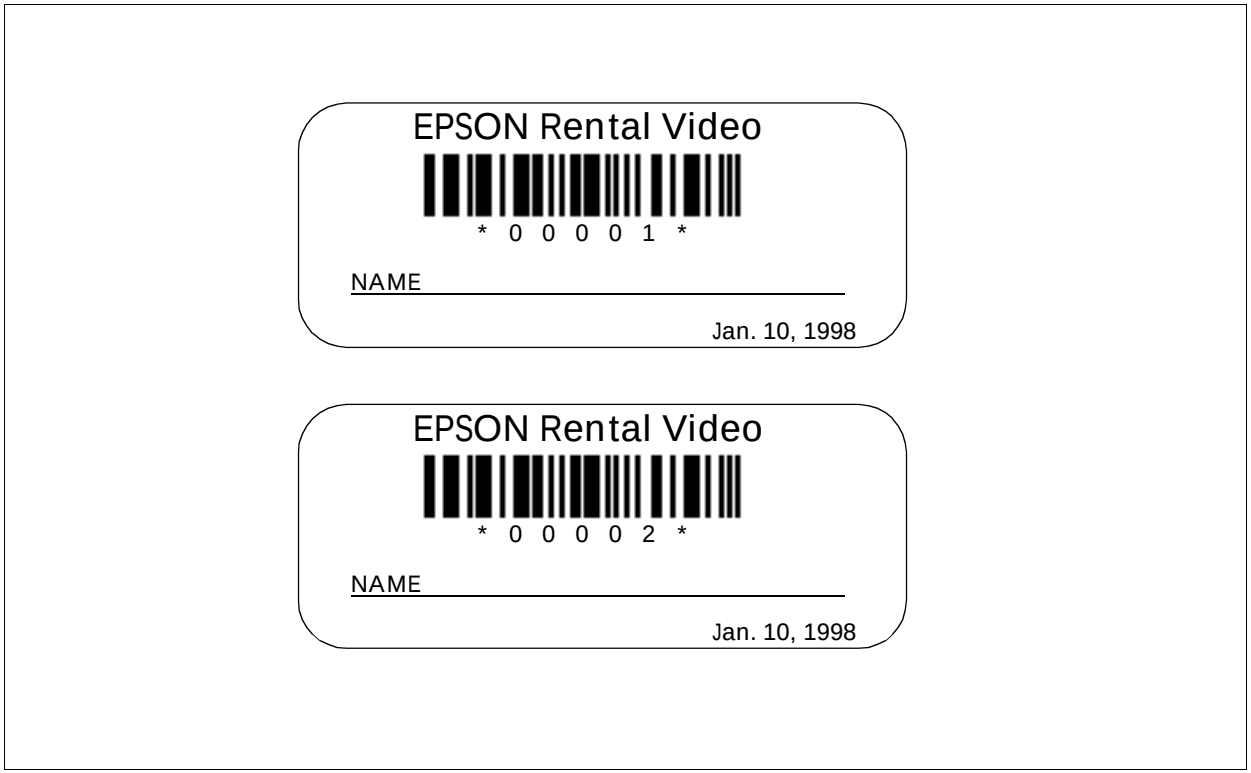
Characteristics of the page mode

- The flexible layout enables you to execute printing which you cannot accomplish in the standard mode.
  - Downloaded bit images or bar codes can be printed on the same line with characters at the same time.
  - Ladder bar code printing is possible.
  - Characters and bit images can be rotated (90× clockwise, 180× clockwise (upside down), or 90× counterclockwise).
- Data can be processed only in normal dot units.
  - Data cannot be processed in half dot units in the page mode.
- Copy printing is possible.
  - Because printing with **ESC FF** enables storing of data in the print buffer, executing **ESC FF** repeatedly results in the same printing. It is also possible to print repeated data with changes in some parts.

System Processing

This example illustrates ESC/POS command functions and printing results. The example shows how to issue a label containing bar codes.

Print Sample



Bar Codes Label Issuing

Procedure	Commands used	Description
1. Print label title	**ESC a, ESC !, LF, GS !, ESC E**	Sets the print position to the center with **ESC a** and prints a label title with **LF**.
2. Print bar code	**GS H, GS f, GS h, GS k, ESC J**	Prints bar code after selecting the height of the bar code with **GS h**, the printing position of the HRI characters with **GS H** and the font with **GS f**.
3. Print NAME	**ESC -, ESC J**	Prints “NAME” using **ESC J**. Adds an underline to “NAME.”
4. Print date	**ESC a, ESC ! , GS FF**	Sets the print position to the right using **ESC a**, selects font B (9 x 17) with **ESC !**, and prints the date with **GS FF**. *The paper LED blinks when the label is fed forward to the position where the label can be peeled off. Press the PAPER FEED button and peel off the label. The next label feeds to the starting position.

Programming Example


```
PRINT #1, CHR$(&H1B);"@"; ⟵ Initializes the printer

NO$="00001" : GOSUB start
NO$="00002" : GOSUB start
END

start:
   PRINT #1, CHR$(&H1B);"a";CHR$(1); ⟵ Selects center print position
   PRINT #1, CHR$(&H1B);"!";CHR$(40); ⟵ Selects character print mode
                                        (emphasized + double-height + double-width)

   PRINT #1, "EPSON";
   PRINT #1, CHR$(&H1B);"!";CHR$(8); ⟵ Cancels double-width
   PRINT #1, "Rental Video"; CHR$(&HA);
   PRINT #1, CHR$(&H1B);"!";CHR$(0); ⟵ Cancels emphasized

   PRINT #1, CHR$(&H1D);"H";CHR$(2); ⟵ Selects printing position for HRI characters
   PRINT #1, CHR$(&H1D);"f";CHR$(1); ⟵ Selects HRI characters
   PRINT #1, CHR$(&H1D);"h";CHR$(35); ⟵ Sets bar code height
   PRINT #1, CHR$(&H1D);"k";CHR$(4);"*";NO$;"*";CHR$(0);
   PRINT #1, CHR$(&H1B);"J";CHR$(5);

   PRINT #1, CHR$(&H1B);"-";CHR$(2); ⟵ Sets underline width to 2 dots
   PRINT #1, "NAME                    ";
   PRINT #1, CHR$(&H1B);"J";CHR$(70);
   PRINT #1, CHR$(&H1B);"-";CHR$(0); ⟵ Cancels previous character print mode

   PRINT #1, CHR$(&H1B);"a";CHR$(2); ⟵ Selects right print position
   PRINT #1, CHR$(&H1B);"!";CHR$(1); ⟵ Selects font B (9 x 24)
   PRINT #1, "Jan. 10, 1998";
   PRINT #1, CHR$(&H1D);CHR$(HC); ⟵ Prints and feeds the label to the print starting
                                    position

   W$=INPUT$(1) ⟵ Ready to input (waiting to input)
   RETURN
```

Prints a label title

Prints bar code

Prints “NAME”

Prints the date and feeds the label to the print starting position

Tips (label printer)

Some TM printers, such as the TM-L60II, can print on labels. ESC/POS has label commands for the mechanism control function type, such as ejecting a label or feeding paper to the print starting position and has commands such as a serial number counter that apply to the label printers.

Printing on one label

If you want to repeat the flow of the operation of printing on a label, peeling it off, and pasting it, use **GS FF** for the last print command line in your program. The printer executes the following:

1. Executes printing the last line on the label.
2. Ejects the label to the position where it can be peeled off.
3. Blinks the paper LED.
4. Waits for the paper feed button to be pressed.
5. After the paper feed button is pressed, it feeds the label to the print starting position using reverse paper feed.

Be sure to press the paper feed button after peeling the label off as shown in procedure 4. If you use **GS FF**, you will not waste labels.

Continuous printing on labels

When printing on labels continuously, **FF** is used for the last print command line for one label, which enables the printer to feed the next label to the print starting position. When printing on the last label, **GS FF** is used for not wasting a label.

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Serial number counter

Features for the serial number counter function:

1. Operation is possible in the range of the counter values from 1 to 65535.
2. There are two counter modes, count-up and count-down.
3. Printing styles such as the number of print columns and print position of the counter value can be set by a command.
4. Incrementing or decrementing of the counter value, such as step amount or the number of repetition, can be set by the command.
5. Various settings for the serial counter number can be set by using a number or a character string.
   - **GS C 1** and **GS C 2** are used for setting using a number.
   - **GS C ;** is used for setting using a character string.
6. Character data, bit image data, and serial counter can be printed on the same printing line.

Example for using the serial counter (when making labels with a different number for each)

Procedures:

1. **GS C 0** sets print columns, print position, and print style for the serial counter.
2. **GS C 1** sets the minimum value, maximum value, and the number of the step amount for increment and decrement, and the repetition number of the same counter.
3. **GS C 2** sets the counter value.
4. **GS c** sets the serial counter value in the print buffer and increments or decrements the counter value.
5. **GS FF** prints the data, ejects a label, and feeds the next label to the print starting position.

GS c in procedure 4 is the only command which cannot print the counter value. A print command is needed as described in procedure 5 for printing the counter value. In procedure 4, transmitting character data enables you to make a label combining character data and serial counter.

CHARACTER CODE TABLES

SP in a table represents space. Refer to Using the Character Code Tables for information on how to read these tables.

Page 0 (PC437: U.S.A., Standard Europe) (International character set: U.S.A)

HEX	BIN	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
	HEX	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
	BIN	0000	0001	0010	0011	0100	0101	0110	0111	1000	1001	1010	1011	1100	1101	1110	1111
0	0000	NUL 00	DLE 16	SP 32	0 48	@ 64	P 80	` 96	p 112	Ç 128	É 144	á 160	▒ 176	└ 192	╨ 208	α 224	≡ 240
1	0001	01	17	! 33	1 49	A 65	Q 81	a 97	q 113	ü 129	æ 145	í 161	▒ 177	┴ 193	╤ 209	ß 225	± 241
2	0010	02	18	" 34	2 50	B 66	R 82	b 98	r 114	é 130	Æ 146	ó 162	▒ 178	┬ 194	╥ 210	Γ 226	≥ 242
3	0011	03	19	# 35	3 51	C 67	S 83	c 99	s 115	â 131	ô 147	ú 163	│ 179	├ 195	╙ 211	π 227	≤ 243
4	0100	EOT 04	20	$ 36	4 52	D 68	T 84	d 100	t 116	ä 132	ö 148	ñ 164	┤ 180	─ 196	╘ 212	Σ 228	⌠ 244
5	0101	ENQ 05	21	% 37	5 53	E 69	U 85	e 101	u 117	à 133	ò 149	Ñ 165	╡ 181	┼ 197	╒ 213	σ 229	⌡ 245
6	0110	06	22	& 38	6 54	F 70	V 86	f 102	v 118	å 134	û 150	ª 166	╢ 182	╞ 198	╓ 214	µ 230	÷ 246
7	0111	07	23	' 39	7 55	G 71	W 87	g 103	w 119	ç 135	ù 151	º 167	╖ 183	╟ 199	╫ 215	τ 231	≈ 247
8	1000	08	CAN 24	(40	8 56	H 72	X 88	h 104	x 120	ê 136	ÿ 152	¿ 168	╕ 184	╚ 200	╪ 216	Φ 232	° 248
9	1001	HT 09	25	) 41	9 57	I 73	Y 89	i 105	y 121	ë 137	Ö 153	⌐ 169	╣ 185	╔ 201	┘ 217	Θ 233	• 249
A	1010	LF 10	26	* 42	: 58	J 74	Z 90	j 106	z 122	è 138	Ü 154	¬ 170	║ 186	╩ 202	┌ 218	Ω 234	· 250
B	1011	11	ESC 27	+ 43	; 59	K 75	[91	k 107	{ 123	ï 139	¢ 156	½ 171	╗ 187	╦ 203	▉ 219	δ 235	√ 251
C	1100	FF 12	FS 28	, 44	< 60	L 76	\ 92	l 108	¦ 124	î 140	£ 156	¼ 172	╝ 188	╠ 204	▄ 220	∞ 236	n 252
D	1101	CR 13	GS 29	− 45	= 61	M 77	] 93	m 109	} 125	ì 141	¥ 157	¡ 173	╜ 189	═ 205	▌ 221	ø 237	² 253
E	1110	14	30	. 46	> 62	N 78	^ 94	n 110	~ 126	Ä 142	Pt 158	« 174	╛ 190	╬ 206	▐ 222	∈ 238	■ 254
F	1111	15	31	/ 47	? 63	O 79	_ 95	o 111	SP 127	Å 143	ƒ 159	» 175	┐ 191	╧ 207	▀ 223	∩ 239	SP 255

Page 1 (Katakana)

	HEX	8	9	A	B	C	D	E	F
HEX	BIN	1000	1001	1010	1011	1100	1101	1110	1111
0	0000	ー 128	144	SP 160	176	タ 192	ミ 208	二 224	× 240
1	0001	ー 129	145	。 161	ア 177	チ 193	ム 209	卜 225	円 241
2	0010	▬ 130	146	「 162	イ 178	ツ 194	メ 210	丰 226	年 242
3	0011	▬ 131	147	」 163	ウ 179	テ 195	モ 211	刊 227	月 243
4	0100	■ 132	148	、 164	エ 180	ト 196	ヤ 212	◢ 228	日 244
5	0101	■ 133	一 149	・ 165	オ 181	ナ 197	ユ 213	◣ 229	時 245
6	0110	■ 134	丨 150	ヲ 166	カ 182	ニ 198	ヨ 214	◥ 230	分 246
7	0111	■ 135	丨 151	ァ 167	キ 183	ヌ 199	ラ 215	◤ 231	秒 247
8	1000	丨 136	「 152	ィ 168	ク 184	ネ 200	リ 216	♠ 232	〒 248
9	1001	▌ 137	┐ 153	ゥ 169	ケ 185	ノ 201	ル 217	♥ 233	市 249
A	1010	▌ 138	└ 154	ェ 170	コ 186	ハ 202	レ 218	✦ 234	区 250
B	1011	▌ 139	┘ 155	ォ 171	サ 187	ヒ 203	ロ 219	♣ 235	町 251
C	1100	▌ 140	┌ 156	ャ 172	シ 188	フ 204	ワ 220	● 236	村 252
D	1101	▌ 141	┐ 157	ュ 173	ス 189	ヘ 205	ン 221	○ 237	人 253
E	1110	▌ 142	└ 158	ョ 174	セ 190	ホ 206	゛ 222	／ 238	▒ 254
F	1111	┼ 143	┘ 159	ッ 175	ソ 191	マ 207	゜ 223	＼ 239	SP 255

Page 2 (PC850: Multilingual)

	HEX	8	9	A	B	C	D	E	F
HEX	BIN	1000	1001	1010	1011	1100	1101	1110	1111
0	0000	Ç 128	É 144	á 160	▒ 176	└ 192	ð 208	Ó 224	— 240
1	0001	ü 129	æ 145	í 161	▒ 177	┴ 193	Ð 209	ß 225	± 241
2	0010	é 130	Æ 146	ó 162	▒ 178	┬ 194	Ê 210	Ô 226	‗ 242
3	0011	â 131	ô 147	ú 163	│ 179	├ 195	Ë 211	Ò 227	¾ 243
4	0100	ä 132	ö 148	ñ 164	┤ 180	─ 196	È 212	õ 228	¶ 244
5	0101	à 133	ò 149	Ñ 165	Á 181	┼ 197	ı 213	Õ 229	§ 245
6	0110	å 134	û 150	ª 166	Â 182	ã 198	Í 214	µ 230	÷ 246
7	0111	ç 135	ù 151	º 167	À 183	Ã 199	Î 215	þ 231	¸ 247
8	1000	ê 136	ÿ 152	¿ 168	© 184	╚ 200	Ï 216	Þ 232	° 248
9	1001	ë 137	Ö 153	® 169	╣ 185	╔ 201	┘ 217	Ú 233	¨ 249
A	1010	è 138	Ü 154	¬ 170	║ 186	╩ 202	┌ 218	Û 234	· 250
B	1011	ï 139	ø 155	½ 171	╗ 187	╦ 203	■ 219	Ù 235	¹ 251
C	1100	î 140	£ 156	¼ 172	╝ 188	╠ 204	▄ 220	ý 236	³ 252
D	1101	ì 141	Ø 157	¡ 173	¢ 189	═ 205	¦ 221	Ý 237	² 253
E	1110	Ä 142	× 158	« 174	¥ 190	╬ 206	Ì 222	¯ 238	■ 254
F	1111	Å 143	ƒ 159	» 175	┐ 191	¤ 207	▀ 223	´ 239	SP 255

Page 3 (PC860: Portuguese)

	HEX	8	9	A	B	C	D	E	F
HEX	BIN	1000	1001	1010	1011	1100	1101	1110	1111
0	0000	Ç 128	É 144	á 160	▒ 176	└ 192	╨ 208	α 224	≡ 240
1	0001	ü 129	À 145	í 161	▒ 177	┴ 193	╤ 209	ß 225	± 241
2	0010	é 130	È 146	ó 162	▒ 178	┬ 194	╥ 210	Γ 226	≥ 242
3	0011	â 131	ô 147	ú 163	│ 179	├ 195	╙ 211	π 227	≤ 243
4	0100	ã 132	õ 148	ñ 164	┤ 180	─ 196	╘ 212	Σ 228	⌠ 244
5	0101	à 133	ò 149	Ñ 165	╡ 181	┼ 197	╒ 213	σ 229	⌡ 245
6	0110	Á 134	Ú 150	ª 166	╢ 182	╞ 198	╓ 214	µ 230	÷ 246
7	0111	ç 135	ù 151	º 167	╖ 183	╟ 199	╫ 215	τ 231	≈ 247
8	1000	ê 136	Ì 152	¿ 168	╕ 184	╚ 200	╪ 216	Φ 232	° 248
9	1001	Ê 137	Õ 153	⌐ 169	╣ 185	╔ 201	┘ 217	Θ 233	• 249
A	1010	è 138	Ü 154	¬ 170	║ 186	╩ 202	┌ 218	Ω 234	· 250
B	1011	í 139	¢ 155	½ 171	╗ 187	╤ 203	■ 219	δ 235	√ 251
C	1100	Ô 140	£ 156	¼ 172	╝ 188	╠ 204	▄ 220	∞ 236	n 252
D	1101	ì 141	Ù 157	¡ 173	╜ 189	═ 205	▌ 221	ø 237	² 253
E	1110	Ã 142	₧ 158	« 174	╛ 190	╬ 206	▐ 222	∈ 238	■ 254
F	1111	Â 143	Ó 159	» 175	┐ 191	╧ 207	▀ 223	∩ 239	SP 255

	HEX	8	9	A	B	C	D	E	F
HEX	BIN	1000	1001	1010	1011	1100	1101	1110	1111
0	0000	Ç 128	É 144	¦ 160	░ 176	└ 192	╨ 208	α 224	≡ 240
1	0001	ü 129	È 145	´ 161	▒ 177	┴ 193	╤ 209	ß 225	± 241
2	0010	é 130	Ê 146	ó 162	▓ 178	┬ 194	╥ 210	Γ 226	≥ 243
3	0011	â 131	ô 147	ú 163	│ 179	├ 195	╙ 211	π 227	≤ 243
4	0100	Â 132	Ë 148	¨ 164	┤ 180	─ 196	╘ 212	Σ 228	⌠ 244
5	0101	à 133	Ï 149	¸ 165	╡ 181	┼ 197	╒ 213	σ 229	⌡ 245
6	0110	¶ 134	û 150	ª 166	╢ 182	╞ 198	╓ 214	µ 230	÷ 246
7	0111	ç 135	ù 151	¯ 167	╖ 183	╟ 199	╫ 215	τ 231	≈ 247
8	1000	ê 136	¤ 152	Î 168	╕ 184	╚ 200	╪ 216	Φ 232	° 248
9	1001	ë 137	Ô 153	⌐ 169	╣ 185	╔ 201	┘ 217	θ 233	• 249
A	1010	è 138	Ü 154	¬ 170	║ 186	╩ 202	┌ 218	Ω 234	· 250
B	1011	ï 139	¢ 155	½ 171	╗ 187	╦ 203	■ 219	δ 235	√ 251
C	1100	î 140	£ 156	¼ 172	╝ 188	╠ 204	▄ 220	∞ 236	n 252
D	1101	═ 141	Ù 157	¾ 173	╜ 189	═ 205	▌ 221	ø 237	² 253
E	1110	À 142	Û 158	« 174	╛ 190	╬ 206	▐ 222	∈ 238	■ 254
F	1111	§ 143	ƒ 159	» 175	┐ 191	╧ 207	▀ 223	∩ 239	SP 255

CONFIDENTIAL

Page 5 (PC865: Nordic)

	HEX	8	9	A	B	C	D	E	F
HEX	BIN	1000	1001	1010	1011	1100	1101	1110	1111
0	0000	Ç 128	É 144	á 160	▒ 176	└ 192	╨ 208	α 224	≡ 240
1	0001	ü 129	æ 145	í 161	▒ 177	┴ 193	╤ 209	ß 225	± 241
2	0010	é 130	Æ 146	ó 162	▒ 178	┬ 194	╥ 210	Γ 226	≥ 242
3	0011	â 131	ô 147	ú 163	│ 179	├ 195	╙ 211	π 227	≤ 243
4	0100	ä 132	ö 148	ñ 164	┤ 180	─ 196	╘ 212	Σ 228	⌠ 244
5	0101	à 133	ò 149	Ñ 165	╡ 181	┼ 197	╒ 213	σ 229	⌡ 245
6	0110	å 134	û 150	ª 166	╢ 182	╞ 198	╓ 214	µ 230	÷ 246
7	0111	ç 135	ù 151	º 167	╖ 183	╟ 199	╫ 215	τ 231	≈ 247
8	1000	ê 136	ÿ 152	¿ 168	╕ 184	╚ 200	╪ 216	Φ 232	° 248
9	1001	ë 137	Ö 153	⌐ 169	╣ 185	╔ 201	┘ 217	Θ 233	• 249
A	1010	è 138	Ü 154	¬ 170	║ 186	╩ 202	┌ 218	Ω 234	· 250
B	1011	ï 139	ø 155	½ 171	╗ 187	╦ 203	■ 219	δ 235	√ 251
C	1100	î 140	£ 156	¼ 172	╝ 188	╠ 204	▄ 220	∞ 236	n 252
D	1101	ì 141	Ø 157	¡ 173	╜ 189	═ 205	▌ 221	ø 237	² 253
E	1110	Ä 142	₧ 158	« 174	╛ 190	╬ 206	▐ 222	∈ 238	■ 254
F	1111	Å 143	ƒ 159	¤ 175	┐ 191	╧ 207	▀ 223	∩ 239	SP 255

USING THE CHARACTER CODE TABLES

The example below uses Page 0 (PC437) to illustrate the use of the character code tables.

You can find the character "A" in Page 0 as follows:

The decimal value for the character "A" is 65.

Follow its column straight up to find the digits.

Hexadecimal 4

Binary 0100

These numbers are the most significant bits of the ASCII code.

Follow its row to the left to find the digits.

Hexadecimal 1

Binary 0001

These numbers are the least significant bits of the ASCII code.

The combination of the numbers above is the ASCII code for character "A".

Decimal 65

Hexadecimal 41

Binary 01000001

FEATURES

The TM-T88II and TM-T88IIP are high-quality POS printers that can print on a paper roll. The printers have the following features:

- High speed printing: approximately 28.4 lines/second (1/6 inch feed).
- Low-noise thermal printing.
- High reliability due to a stable mechanism.
- Command protocol based on the ESC/POS standard.
- Various layouts are possible by using page mode.
- Characters can be scaled up to 64 times as large as the standard size. Smoothing is also possible.
- Bar code printing is possible by using a bar code command. Bar codes can be printed both in the vertical direction (fence bar code) and in the horizontal direction (ladder bar code).
- Repeated operation and copy printing are possible by using macro definitions.
- Character font size (12 × 24 font or 9 × 17 font) can be selected using a command.
- Easy paper roll setting.
- Equipped with an autocutter.
- The printer allows easy maintenance for tasks such as head cleaning.
- Selectable receive buffer size (4K bytes or 45 bytes).
- Four different print densities can be selected by DIP switches.
- The built-in interface provides control capability for two drawers.
- Non-volatile 256 KB bit image buffer size available.
- User NV (non-volatile) memory size 1 KB available.

SPECIFICATIONS

- Printing specifications

  Printing method: Thermal line printing

  Printing speed: *High speed mode:*
  28.4 lines/second maximum (1/6 inch feed) (at 24V, 20°C, Density level 2)
  120 mm/second maximum (4.72 inches/second maximum)
  Speeds are switched automatically depending on the applied voltage to the printer and head temperature conditions.
  Lower power consumption mode:
  Approximately 16.5 lines/second (1/6 inch feed)
  Approximately 70 mm/second (approximately 2.76 inches/second)
  When a ladder bar code is printed:
  Approximately 42 mm/second (approximately 1.7 inches/second)

  Dot density: 180 dpi (W) × 180 dpi (H) (the number of dots per 25.4 mm)

  Printing width: 72 mm (512 dot positions)

- Character specifications

  Character fonts: Font A (12 × 24) / Font B (9 × 17)

  Characters per line: 42 / 56

  Character size: 1.41 mm (W) × 3.39 mm (H) / 0.99 mm (W) × 3.39 mm (H)

  Character sets: ASCII: 95 characters
  International: 32 characters
  Extended graphics: 128 characters × 6 pages

- Paper specifications

  Paper type: Specified thermal roll paper, NTP080-80

  Paper size: 79 to 80 mm (W) × 83 mm diameter

- Panel button: FEED: Feed paper roll (this button also can be used for the self test, hexadecimal dump printing, and macro printing).

- Panel LEDs:

  POWER (green):
  Off when the printer is off.
  On when the printer is on.

  ERROR (red):
  Off when the printer is in normal operation.
  On when the printer is off-line (except during paper feed using the FEED button, self test printing, and the error state).
  Blinks when an error occurs.

  PAPER OUT (red):
  Off when the paper roll is adequate.
  On when paper roll is near-end.
  Blinks when the printer is waiting for the button to be pressed.

- Interface:

  RS-232 (TM-T88II: serial interface)
  IEEE 1284 (TM-T88IIP: parallel interface)
  RS-485 (dealer option)

- Receive buffer:

  - 4K or 45 bytes (selectable by DIP switch)
  - NV (non-volatile) bit image buffer: 256 KB
  - User NV (non-volatile) memory: 1K byte
  - User-defined buffer (both for user-defined characters and user-defined bit images): 12K bytes
  - Macro buffer: 2K bytes

DIP SWITCH FUNCTIONS

Serial Interface (TM-T88II)

DIP switch 1

SW	Function	ON	OFF
1-1	Data receive error	Ignored	Convert data to “?”
1-2	Receive buffer capacity	45 bytes	4K bytes
1-3	Handshaking	XON/XOFF	DTR/DSR
1-4	Data word length	7 bits	8 bits
1-5	Parity check	Enabled	Disabled
1-6	Parity selection	Even	Odd
1-7	Transmission speed		
1-8			

Transmission speed

Transmission speed bits per second (BPS)	SW 1-7	SW 1-8
2400	ON	ON
4800	OFF	ON
9600	ON	OFF
19200	OFF	OFF

DIP switch 2

SW	Function	ON	OFF
2-1	BUSY condition	Receive buffer full	Off line or receive buffer full
2-2	Reserved (Do not change settings)	Fixed to Off	
2-3	Selects print density/Low power consumption mode		
2-4			
2-5	Reserved (Do not change settings)	Fixed to Off	
2-6	Reserved (Do not change settings)	Fixed to Off	
2-7	I/F pin 6 reset signal	Enabled	Disabled
2-8	I/F pin 25 reset signal	Enabled	Disabled

Print density

Print density		SW 2-3	SW 2-4
	Low power consumption mode	ON	ON
1	Print density (Normal)	OFF	OFF
2	↕	ON	OFF
3	Print density (Dark)	OFF	ON

Parallel Interface (TM-T88IIP)

DIP switch 1

SW	Function	ON	OFF
1-1	Auto line feed	Always enabled	Always disabled
1-2	Receive buffer capacity	45 bytes	4K bytes
1-3 ~1-8	Undefined	—	—

DIP switch 2

SW	Function	ON	OFF
2-1	BUSY condition	Receive buffer full or reading data	Off line, receive buffer full, or reading data
2-2	Reserved (Do not change settings)	Fixed to Off	
2-3	Selects print density/Low power consumption mode		
2-4			
2-5 ~ 2-7	Reserved (Do not change settings)	Fixed to Off	
2-8	I/F pin 31 reset signal (Do not change settings)	Fixed to On	

Print density

Print density		SW 2-3	SW 2-4
	Low power consumption mode	ON	ON
1	Print density (Normal)	OFF	OFF
2	↕	ON	OFF
3	Print density (Dark)	OFF	ON

ERRORS

- Automatically recoverable errors:
  - Print head high temperature error
  - Cover open error during printing
- Recoverable errors:
  - Auto cutter error
- Unrecoverable errors:
  - R/W error in memory or gate array
  - High voltage error
  - Low voltage error
  - CPU execution error
  - Internal circuit connection error
- Data receive errors:
  If the following errors occur with a serial interface, the printer processes data depending on the setting of DIP switch 1-1.
  - Parity error
  - Framing error
  - Overrun error

OPTIONS

- EPSON power supply unit, PS-170.
- Affixing tapes (model: DF-10).
- RS-485 interface board is a dealer option.

SELF TEST FOR THE TM-T88II

The self test lets you know if your printer is operating properly. It checks the control circuits, printer mechanisms, print quality, ROM version, and DIP switch setting. This test is independent of any other equipment or software.

Running the self test with a paper roll

1. Make sure the printer is turned off and the printer covers are closed properly.
2. While holding down the FEED button, turn on the printer using the power switch to begin the self test. The self test prints the printer settings and then prints the following, cuts the paper, and pauses. (The PAPER OUT light blinks.)

```
Self test printing.
Please press the Paper feed button.
```

3. Press the FEED button to continue printing. The printer prints a pattern using the resident characters.
4. The self test automatically ends and cuts the paper after printing the following:

```
***completed***
```

The printer is ready to receive data as soon as it completes the self test.

HEXADECIMAL DUMP FOR THE TM-T88II

This feature allows experienced users to see exactly what data has been received. This can be useful in finding software problems. When you turn on the hexadecimal dump function, the printer prints all commands and other data in hexadecimal format on paper roll to help you find specific commands.

To use the hexadecimal dump feature, follow these steps:

1. After you make sure that the printer is off, open the cover.
2. Hold down the FEED button while you turn on the printer.
3. Close the cover.
4. Run any software program that sends data to the printer. The printer prints “Hexadecimal Dump” and then all the codes it receives in a two-column format. The first column contains the hexadecimal codes and the second column gives the ASCII characters that correspond to the codes.

Hexadecimal Dump

```
1B   21   00   1B   26   02   40   40      .  !  .  .  &  .  @  @
1B   25   01   1B   63   34   00   1B      .  %  .  .  c  4  .  .
41   42   43   44   45   46   47   48     A  B  C  D  E  F  G  H
```

- A period (.) is printed for each code that has no ASCII equivalent.
- During the hexadecimal dump all commands except **DLE EOT** and **DLE ENQ** do not function.

5. Press the FEED button so that the printer will print the last line.
6. Turn off the printer or reset it to turn off the hexadecimal dump mode.

TM-T88II SUPPORTED COMMANDS

Command	Name	Function Type	Classification		Range	Default
			Executing Cmds	Setting Cmds		
HT	Horizontal tab	Print position	O		—	—
LF	Print and line feed	Print	O		—	—
FF	Print and return to standard mode (in page mode)	Print	O		—	—
CR	Print and carriage return	Print	O		—	—
CAN	Cancel print data in page mode	Character	O		—	—
DLE EOT	Real-time status transmission	Status	O		$1 \le n \le 4$	—
DLE ENQ	Real-time request to printer	Miscellaneous function	O		$1 \le n \le 2$	—
DLE DC 4	Generate pulse at real-time	Miscellaneous function	O		n=1 m=0,1 $1 \le t \le 8$	—
ESC FF	Print data in page mode	Print	O		—	—
ESC SP	Set right-side character spacing	Character		O	$0 \le n \le 255$	n=0
ESC !	Select print mode(s)	Character		O	$0 \le n \le 255$	n=0

Command	Name	Function Type	Classification		Range	Default
			Executing Cmds	Setting Cmds		
ESC $	Set absolute print position	Print position	O		0 ≤ ***nL*** ≤ 255, 0 ≤ ***nH*** ≤ 255	—
ESC %	Select/cancel user-defined character set	Character		O	0 ≤ ***n*** ≤ 255	***n***=0
ESC &	Define user-defined characters	Character		O	32 ≤ ***c1*** ≤ ***c2*** ≤ 126 0 ≤ ***x*** ≤ 12 (font A) 0 ≤ ***x*** ≤ 9 (font B) 0 ≤ ***d*** ≤ 255 ***y***=3	—
ESC *	Select bit-image mode	Bit image	O		0 ≤ ***nL*** ≤ 255, 0 ≤ ***nH*** ≤ 3 0 ≤ ***d*** ≤ 255 ***m***=0, 1, 32, 33	—
ESC –	Turn underline mode on/off	Character		O	0 ≤ ***n*** ≤ 2, 48 ≤ ***n*** ≤ 50	***n***=0
ESC 2	Select default line spacing	Line spacing		O	—	—
ESC 3	Set line spacing	Line spacing		O	0 ≤ ***n*** ≤ 255	***n***=1/6 inch
ESC =	Select peripheral device	Miscellaneous function		O	1 ≤ ***n*** ≤ 255	***n***=1
ESC ?	Cancel user-defined characters	Character		O	32 ≤ ***n*** ≤ 126	—

Command	Name	Function Type	Classification		Range	Default
			Executing Cmds	Setting Cmds		
ESC @	Initialize printer	Miscellaneous function	O	O	—	—
ESC D	Set horizontal tab positions	Print position		O	$1 \le n \le 255$ $0 \le k \le 32$	*n*=8, 16, 24... (every eight characters for font A)
ESC E	Turn emphasized mode on/off	Character		O	$0 \le n \le 255$	*n*=0
ESC G	Turn double-strike mode on/off	Character		O	$0 \le n \le 255$	*n*=0
ESC J	Print and feed paper	Print	O		$0 \le n \le 255$	—
ESC L	Select page mode	Miscellaneous function	O		—	—
ESC M	Select character	Character		O	*n*=0,1,48,49	
ESC R	Select an international character set	Character		O	$0 \le n \le 10$	*n*=0
ESC S	Select standard mode	Miscellaneous function	O		—	—
ESC T	Select print direction in page mode	Print position		O	$0 \le n \le 3$, $48 \le n \le 51$	*n*=0

Command	Name	Function Type	Classification		Range	Default
			Executing Cmds	Setting Cmds		
ESC V	Turn 90° clockwise rotation mode on/off	Character		O	0 ≤ ***n*** ≤ 1, 48 ≤ ***n*** ≤ 49	***n***=0
ESC W	Set printing area in page mode	Print position		O	0 ≤ ***xL*** ≤ 255, 0 ≤ ***xH*** ≤ 255 0 ≤ ***yL*** ≤ 255, 0 ≤ ***yH*** ≤ 255 0 ≤ ***dxL*** ≤ 255, 0 ≤ ***dxH*** ≤ 255 0 ≤ ***dyL*** ≤ 255, 0 ≤ ***dyH*** ≤ 255 (except ***dxL***=***dxH***=0 or ***dyL***=***dyH***=0)	***xL***=0, ***xH***=0 ***yL***=0, ***yH***=0 ***dxL***=0, ***dxH***=2 ***dyL***=126, ***dyH***=6
ESC \	Set relative print position	Print position	O		0 ≤ ***nL*** ≤ 255, 0 ≤ ***nH*** ≤ 255	—
ESC a	Select justification	Print position		O	0 ≤ ***n*** ≤ 2, 48 ≤ ***n*** ≤ 50	***n***=0
ESC c 3	Select paper sensor(s) to output paper-end signals	Paper sensor		O	0 ≤ ***n*** ≤ 255	***n***=15
ESC c 4	Select paper sensor(s) to stop printing	Paper sensor		O	0 ≤ ***n*** ≤ 255	***n***=0
ESC c 5	Enable/disable panel buttons	Panel button		O	0 ≤ ***n*** ≤ 255	***n***=0

Command	Name	Function Type	Classification		Range	Default
			Executing Cmds	Setting Cmds		
ESC d	Print and feed ***n*** lines	Print	O		$0 \le n \le 255$	—
ESC p	Generate pulse	Miscellaneous function	O		$0 \le m \le 1$, $48 \le m \le 49$ $0 \le t1 \le 255$, $0 \le t2 \le 255$	—
ESC t	Select character code table	Character		O	$0 \le n \le 5$, $n=255$	$n=0$
ESC {	Turn upside-down printing mode on/off	Character		O	$0 \le n \le 255$	$n=0$
FS g 1	Write to user NV	Miscellaneous function		O	$m=0$ $0 \le (a1 + (a2 \times 256) + (a3 \times 65536) + (a4 \times 16777216)) \le 1023$ $1 \le (nL + (nH \times 256) \le 1024$	

Command	Name	Function Type	Classification		Range	Default
			Executing Cmds	Setting Cmds		
FS g 2	Read from user NV memory	Miscellaneous function	O		***m***=0 0 ≤ (***a1*** + (***a2*** × ***256***) + (***a3*** x 65536) + (***a4*** × 16777216)) ≤ 1023 1 ≤ (***nL*** + (***nH*** × 256) ≤ 80	
FS p	Print NV bit image	Bit-image	O		1 ≤ ***n*** ≤ 255 0 ≤ ***m*** ≤ 3,48 ≤ ***m*** ≤ 51	

Command	Name	Function Type	Classification		Range	Default
			Executing Cmds	Setting Cmds		
FS q	Define NV bit image	Bit-image		O	$1 \le n \le 255$ $0 \le xL \le 255$ $0 \le xH \le 3$ (when $1 \le xL + xH \times 256) \le 1023$ $0 \le yL \le 1$ (when $1 \le yL + yH \times 256) \le 288$ $1 \le d \le 255$ $k = (xL + xH \times 256) \times (yL + yH \times 256) \times 8$ Total defined area = 2M bits (256 KB)	
GS !	Select character size	Character		O	$0 \le n \le 255$	n=0
GS $	Set absolute vertical print position in page mode	Print position	O		$0 \le nL \le 255$ $0 \le nH \le 255$	—
GS *	Define downloaded bit image	Bit image		O	$1 \le x \le 255$, $0 \le d \le 255$ $1 \le y \le 48$,	—

Command	Name	Function Type	Classification		Range	Default
			Executing Cmds	Setting Cmds		
GS (A	Execute test print	Miscellaneous	O		(***pL*** + (***pH*** x 256)) = 2 (when ***pL*** = 2, ***pH*** = 0) 0 ≤ ***n*** ≤ 2,48 ≤ ***n*** ≤ 50 1 ≤ ***m*** ≤ 3,49 ≤ ***m*** ≤ 51	
GS /	Print downloaded bit image	Bit image	O		0 ≤ ***m*** ≤ 3, 48 ≤ ***m*** ≤ 51	—
GS :	Start/end macro definition	Macro function	O	O	—	—
GS B	Turn white/black reverse printing mode on/off	Character		O	0 ≤ ***n*** ≤ 255	***n***=0
GS H	Select printing position of HRI characters	Bar code		O	0 ≤ ***n*** ≤ 3, 48 ≤ ***n*** ≤ 51	***n***=0
GS I	Transmit printer ID	Miscellaneous function	O		1 ≤ ***n*** ≤ 3, 49 ≤ ***n*** ≤ 51	—
GS L	Set left margin	Print position		O	0 ≤ ***nL*** ≤ 255, 0 ≤ ***nH*** ≤ 255	***nL***=0, ***nH***=0
GS P	Set horizontal and vertical motion units	Miscellaneous function		O	0 ≤ ***x*** ≤ 255 0 ≤ ***y*** ≤ 255	***x***=180, ***y***=360

Command	Name	Function Type	Classification		Range	Default
			Executing Cmds	Setting Cmds		
GS V	Select cut mode and cut paper	Mechanism control	O		***m***=1, 49 ***m***=66, 0 ≤ n ≤ 255	—
GS W	Set printing area width	Print position		O	0 ≤ ***nL*** ≤ 255 0 ≤ ***nH*** ≤ 255	***nL***=0, ***nH***=2
GS \	Set relative vertical print position in page mode	Print position	O		0 ≤ ***nL*** ≤ 255 0 ≤ ***nH*** ≤ 255	—
GS ^	Execute macro	Macro function	O		0 ≤ ***r*** ≤ 255, 0 ≤ ***t*** ≤ 255 0 ≤ ***m*** ≤ 1	—
GS a	Enable/disable Automatic Status Back (ASB)	Status	O	O	0 ≤ ***n*** ≤ 255	***n***=0 or n=2
GS b	Turn smoothing mode on/off	Character		O	0 ≤ ***n*** ≤ 255	***n***=0
GS f	Select font for HRI characters	Bar code		O	***n***=0, 1, 48, 49	***n***=0
GS h	Set bar code height	Bar code		O	1 ≤ ***n*** ≤ 255	***n***=162

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Command	Name	Function Type	Classification		Range	Default
			Executing Cmds	Setting Cmds		
GS k	Print bar code	Bar code	O		$0 \le m \le 6$ ***k*** and ***d*** depend on a bar code $65 \le m \le 73$ ***n*** and ***d*** depend on a bar code	—
GS r	Transmit status	Status	O		$1 \le n \le 2$, $49 \le n \le 50$	—
GS v 0	Print raster bit image	Bit image	O		$0 \le m \le 3$, $48 \le m \le 51$ $0 \le xL \le 255$ $0 \le xH \le 255$ $0 \le yL \le 255$ $0 \le d \le 255$ $k = (xL + xH \times 256) \times (yL \times yH \times 256)$ $(k \neq 0)$	—
GS w	Set bar code width	Bar code		O	$2 \le n \le 6$	***n***=3

FEATURES

more

The TM-L60II and TM-L60IIP are line thermal printers that can print on roll paper and thermal labels. The printers have the following features:

- Light weight and ultra-compact size.
- High-speed printing: 12 lines per second.
- Low-noise thermal printing.
- High reliability due to a stable mechanism.
- Easy maintenance for tasks such as head cleaning.
- Easy paper insertion with semi-auto loading for both roll paper and labels.
- Label ejection commands prevent extraneous label feeding.
- Serial numbers can be printed on labels.
- Command protocol based on the ESC/POS standard.
- Various layouts possible using page mode.
- Font selection (font A (12 × 24) or font B (9 × 17)) possible using a command.
- Character extension (up to 64 times the standard size) and character smoothing.
- Four different print densities selectable via DIP switch settings.
- Four-way routing of the interface, drawer control, and power cables: on either side, underneath, or from the back of the case.
- Water-resistant operation panel.
- Bar code printing possible both in the vertical direction (fence bar code) and horizontal direction (ladder bar code in page mode) using a command.
- Repeated operation and copy printing possible using macro definitions.
- Control capability for two drawers via the built-in interface.

CONFIDENTIAL

- The power switch is on the front panel of the printer, allowing easy operation.
- Bidirectional parallel interface based on the IEEE 1284 Nibble/Byte Modes standard.
- Thermal paper or thermal label can be selected via DIP switch settings.

SPECIFICATIONS

more

Printing specifications

Printing method:	Thermal line printing
Printing speed:	Approximately 12 LPS (1/6-inch feed)
Dot density:	180 dpi × 180 dpi
Printing width:	Thermal paper: 54.19 mm (2.13”), 384 dot positions
	Thermal label: 51.93 mm (2.04”), 368 dot positions

Character specifications

Character fonts:	Font A (12 × 24) / Font B (9 × 17)
Characters per line:	Thermal paper: 32 / 42
	Thermal label: 30/40
Character size:	1.41 mm (W) × 3.39 mm (H) / .99 mm (W) × 3.39 mm (H)
Character sets:	ASCII: 95 characters
	International: 32 characters
	Extended graphics: 128 characters × 6 pages

Paper specifications

Paper type:	Paper roll:	Specified thermal paper: Nakagawa Seisakujo, NTP080-80
	Thermal label:	Specified thermal paper (1-inch long (25.4 mm) label): Nakagawa Seisakujo, NTL 060-80)
Paper size:	Paper roll:	59.0 to 60.0 mm (W) × 83.0 mm diameter
	Thermal label:	59.5 to 60.2 mm (W) × 83.0 mm diameter

- Panel button

  PAPER FEED:

  Feed paper (this button also can be used for the self test, hexadecimal dump printing, macro printing, and GS FF execution standby mode).

- Panel LEDs:

  POWER (green):

  Off when the printer is turned off.
  On when the printer is turned on.

  PAPER (red):

  Off when the paper roll is adequate.
  On when the paper roll is near-end or at end.
  Blinks when the printer is waiting for the PAPER FEED button to be pressed in the following:

  - Self test standby state
  - GS ^ execution standby state
  - GS FF execution standby state

  ERROR (red):

  Off when the printer is in normal operation.
  On when the printer is off-line (except during paper feed using the PAPER FEED button and during the self test).
  Blinks when an error occurs.

- Interface:

  RS-232 (TM-L60II: serial interface)
  IEEE-1284 (TM-L60IIP: parallel interface)

- Receive buffer:

  4K or 45 bytes (selectable by DIP switch)

DIP SWITCH FUNCTIONS

Serial Interface (TM-L60II)

DIP switch 1

SW	Function	ON	OFF
1-1	Data receive error	Ignored	Convert data to “?”
1-2	Receive buffer capacity	45 bytes	4K bytes
1-3	Handshaking	XON/XOFF	DTR/DSR
1-4	Data word length	7 bits	8 bits
1-5	Parity check	Enabled	Disabled
1-6	Parity selection	Even	Odd
1-7	Transmission speed		
1-8			

Transmission speed

Transmission speed bits per second (BPS)	SW 1-7	SW 1-8
2400	ON	ON
4800	OFF	ON
9600	ON	OFF
19200	OFF	OFF

DIP switch 2

SW	Function	ON	OFF
2-1	Handshaking operation	Receive buffer full	Off line or receive buffer full
2-2	Selects print density		
2-3			
2-4	Reserved (Setting must not be changed)	Fixed to Off	
2-5		Fixed to On	
2-6	Paper selection	Thermal label	Thermal paper
2-7	I/F pin 6 reset signal	Enabled	Disabled
2-8	I/F pin 25 reset signal	Enabled	Disabled

Print density

Print density	SW 2-2	SW 2-3
1 (Light)	ON	ON
2	OFF	OFF
3	ON	OFF
4 (Dark)	OFF	ON

Parallel Interface (TM-L60IIP)

DIP switch 1

SW	Function	ON	OFF
1-1	Auto line feed	Always enabled	Always disabled
1-2	Receive buffer capacity	45 bytes	4K bytes
1-3	Handshaking (BUSY condition)	Receive buffer full or reading data	Off line, receive buffer full, or reading data
1-4	Select print density		
1-5			
1-6	Reserved (Setting must not be changed)	Fixed to On	
1-7	Paper selection	Thermal label	Thermal paper
1-8	Undefined	—	—

Print density

Print density	SW 1-2	SW 1-3
1 (Light)	ON	ON
2	OFF	OFF
3	ON	OFF
4 (Dark)	OFF	ON

ERRORS

- Automatically recoverable errors:
  Print head high temperature error
- Recoverable errors:
  Label detection error
- Unrecoverable errors:
  R/W error in memory or gate array
  High voltage error
  Low voltage error
  CPU execution error
  Thermistor error
- Data receive errors:

  If the following errors occur with a serial interface, the printer processes data depending on the setting of DIP switch 1-1.

  Parity error
  Framing error
  Overrun error

OPTIONS

- EPSON power supply unit, PS-150.

SELF TEST FOR THE TM-L60II

The self test lets you know if your printer is operating properly. It checks the control circuits, printer mechanisms, print quality, ROM version, and DIP switch setting. This test is independent of any other equipment or software.

Running the self test with a paper roll

1. Make sure the printer is turned off and the printer covers are closed properly.
2. While holding down the PAPER FEED button, turn on the printer using the power switch to begin the self test. The self test prints the printer settings and then prints the following and pauses. (The PAPER light blinks.)

```
Self test printing.
Please press the Paper feed button.
```

3. Press the PAPER FEED button to continue printing. The printer prints a pattern using the resident characters.
4. The self test automatically ends and feeds the paper to a manual cutting position after printing the following:

```
***completed***
```

The printer is ready to receive data as soon as it completes the self test.

HEXADECIMAL DUMP FOR THE TM-L60II

This feature allows experienced users to see exactly what data has been received. This can be useful in finding software problems. When you turn on the hexadecimal dump function, the printer prints all commands and other data in hexadecimal format on paper roll to help you find specific commands.

To use the hexadecimal dump feature, follow these steps:

1. After you make sure that the printer is off, open the cover.
2. Hold down the PAPER FEED button while you turn on the printer.
3. Close the cover.
4. Run any software program that sends data to the printer. The printer prints “Hexadecimal Dump” and then all the codes it receives in a two-column format. The first column contains the hexadecimal codes and the second column gives the ASCII characters that correspond to the codes.

Hexadecimal Dump

```
1B   21   00   1B   26   02   40   40      .  !  .  .  &  .  @  @
1B   25   01   1B   63   34   00   1B      .  %  .  .  c  4  .  .
41   42   43   44   45   46   47   48     A  B  C  D  E  F  G  H
```

- A period (.) is printed for each code that has no ASCII equivalent.
- During the hexadecimal dump all commands except **DLE EOT** do not function.

5. Press the PAPER FEED button so that the printer will print the last line.
6. Turn off the printer or reset it to turn off the hexadecimal dump mode.

more

TM-L60II SUPPORTED COMMANDS

Command	Name	Function Type	Classification		Range	Default
			Executing Cmds	Setting Cmds		
HT	Horizontal tab	Print position	O		—	—
LF	Print and line feed	Print	O		—	—
FF	① Print and return to standard mode (in page mode) ② Print and feed label to print starting position (on label)	Print	O		—	—
CR	Print and carriage return	Print	O		—	—
CAN	Cancel print data in page mode	Character	O		—	—
DLE EOT	Real-time status transmission	Status	O		1≤ ***n*** ≤ 4	—
ESC FF	Print data in page mode	Print	O		—	—
ESC SP	Set right-side character spacing	Character		O	0 ≤ ***n*** ≤ 255	***n***=0
ESC !	Select print mode(s)	Character		O	0 ≤ ***n*** ≤ 255	***n***=0
ESC $	Set absolute print position	Print position	O		0 ≤ ***nL*** ≤ 255, 0 ≤ ***nH*** ≤ 255	—

Command	Name	Function Type	Classification		Range	Default
			Executing Cmds	Setting Cmds		
ESC %	Select/cancel user-defined character set	Character		O	0 ≤ ***n*** ≤ 255	***n***=0
ESC &	Define user-defined characters	Character		O	***y***=3 32 ≤ ***c1*** ≤ ***c2*** ≤ 126 0 ≤ ***x*** ≤ 12 (12 × 24 font) 0 ≤ ***x*** ≤ 9 (9 × 24 font) 0 ≤ ***d*** ≤ 255 ***k***=***c2***–***c1***+1	—
ESC *	Select bit-image mode	Bit image	O		***m***=0, 1, 32, 33 0 ≤ ***nL*** ≤ 255 0 ≤ ***nH*** ≤ 3 0 ≤ ***d*** ≤ 255	—
ESC –	Turn underline mode on/off	Character		O	0 ≤ ***n*** ≤ 2 48 ≤ ***n*** ≤ 50	***n***=0
ESC 2	Select default line spacing	Line spacing		O	—	—
ESC 3	Set line spacing	Line spacing		O	0 ≤ ***n*** ≤ 255	***n***=60 (1/6 inch)
ESC =	Select peripheral device	Miscellaneous function		O	0 ≤ ***n*** ≤ 255	***n***=1

Command	Name	Function Type	Classification		Range	Default
			Executing Cmds	Setting Cmds		
ESC ?	Cancel user-defined characters	Character		O	32 ≤ ***n*** ≤ 126	—
ESC @	Initialize printer	Miscellaneous function	O	O	—	—
ESC D	Set horizontal tab positions	Print position		O	1 ≤ ***n*** ≤ 255 0 ≤ ***k*** ≤ 32	***n***=8, 16, 24, 32...(every eight characters for 12×24 font)
ESC E	Turn emphasized mode on/off	Character		O	0 ≤ ***n*** ≤ 255	***n***=0
ESC G	Turn double-strike mode on/off	Character		O	0 ≤ ***n*** ≤ 255	***n***=0
ESC J	Print and feed paper	Print	O		0 ≤ ***n*** ≤ 255	—
ESC L	Select page mode	Miscellaneous function	O		—	—
ESC R	Select an international character set	Character		O	0 ≤ ***n*** ≤ 10	***n***=0
ESC S	Select standard mode	Miscellaneous function	O		—	—
ESC T	Select print direction in page mode	Print position		O	0 ≤ ***n*** ≤ 3, 48 ≤ ***n*** ≤ 51	***n***=0

Command	Name	Function Type	Classification		Range	Default
			Executing Cmds	Setting Cmds		
ESC V	Turn 90° clockwise rotation mode on/off	Character		O	0 ≤ ***n*** ≤ 1, 48 ≤ ***n*** ≤ 49	***n***=0
ESC W	Set printing area in page mode	Print position		O	0 ≤ ***xL*** ≤ 255 0 ≤ ***xH*** ≤ 255 0 ≤ ***yL*** ≤ 255 0 ≤ ***yH*** ≤ 255 0 ≤ ***dxL*** ≤ 255 0 ≤ ***dxH*** ≤ 255 0 ≤ ***dyL*** ≤ 255 0 ≤ ***dyH*** ≤ 255 (except ***dxL***=***dxH*** = 0 or ***dyL***=***dyH*** = 0)	***xL***=0 ***xH***=0 ***yL***=0 ***yH***=0 ***dxL***=0 ***dxH***=2 ***dyL***=126 ***dyH***=6
ESC \	Set relative print position	Print position	O		0 ≤ ***nL*** ≤ 255 0 ≤ ***nH*** ≤ 255	—
ESC a	Select justification	Print position		O	0 ≤ ***n*** ≤ 2, 48 ≤ ***n*** ≤ 50	***n***=0
ESC c 3	Select paper sensor(s) to output paper-end signals	Paper sensor		O	0 ≤ ***n*** ≤ 255	***n***=3
ESC c 4	Select paper sensor(s) to stop printing	Paper sensor		O	0 ≤ ***n*** ≤ 255	***n***=0

Command	Name	Function Type	Classification		Range	Default
			Executing Cmds	Setting Cmds		
ESC c 5	Enable/disable panel buttons	Panel button		O	0 ≤ ***n*** ≤ 255	***n***=0
ESC d	Print and feed ***n*** lines	Print	O		0 ≤ ***n*** ≤ 255	—
ESC p	Generate pulse	Miscellaneous function	O		***m***=0, 1, 48, 49 0 ≤ ***t1*** ≤ 255 0 ≤ ***t2*** ≤ 255	—
ESC t	Select character code table	Character		O	***n***=255 0 ≤ ***n*** ≤ 5	***n***=0
ESC u	Transmit peripheral device status	Status	O		***n***=0,48	—
ESC v	Transmit paper sensor status	Status	O		—	—
ESC {	Turn upside-down printing mode on/off	Character		O	0 ≤ ***n*** ≤ 255	***n***=0
GS FF	Print and eject label	Print	O		—	—
GS !	Set character size	Character		O	0 ≤ ***n*** ≤ 255	***n***=0
GS $	Set absolute vertical print position in page mode	Print position	O		0 ≤ ***nL*** ≤ 255 0 ≤ ***nH*** ≤ 255	—

Command	Name	Function Type	Classification		Range	Default
			Executing Cmds	Setting Cmds		
GS *	Define downloaded bit image	Bit image		O	$1 \le x \le 255$ $1 \le y \le 48$ $x \times y \le 1536$ $0 \le d \le 255$	—
GS /	Print downloaded bit image	Bit image	O		$0 \le m \le 3$, $48 \le m \le 51$	—
GS :	Start/end macro definition	Macro function	O	O	—	—
GS <	Initialize printer mechanism	Miscellaneous function	O		—	—
GS A	Adjust label print starting position	Miscellaneous function	O	O	$0 \le m \le 255$, $0 \le n \le 255$	m=0 n=0
GS B	Turn white/black reverse printing mode on/off	Character		O	$0 \le n \le 255$	n=0
GS C 0	Select counter print mode	Miscellaneous function		O	$0 \le n \le 5$, $0 \le m \le 2$, $48 \le m \le 50$	m=0 n=0

Command	Name	Function Type	Classification		Range	Default
			Executing Cmds	Setting Cmds		
GS C 1	Select count mode (A)	Miscellaneous function		O	0 ≤ ***aL*** ≤ 255, 0 ≤ ***aH*** ≤ 255, 0 ≤ ***bL*** ≤ 255 0 ≤ ***bH*** ≤ 255, 0 ≤ ***n*** ≤ 255, 0 ≤ ***r*** ≤ 255	***aL***=1, ***aH***=0 ***bL***=255, ***bH***=255, ***n***=1, ***r***=1
GS C 2	Set counter	Miscellaneous		O	0 ≤ ***nL*** ≤ 255, 0 ≤ ***nH*** ≤ 255	***nL***=1, ***nH***=0
GS C ;	Select count mode (B)	Miscellaneous function		O	"0"≤***sa***≤"65535", "0"≤***sb***≤"65535", "0"≤***sn***≤"255", "0"≤***sr***≤"255", "0"≤***sc***≤"65535"	***sa***="1", ***sb***="65535", ***sn***="1", ***sr***="1", ***sc***="1"
GS H	Select printing position of HRI characters	Bar code		O	0 ≤ ***n*** ≤ 3, 48 ≤ ***n*** ≤ 51	***n***=0
GS I	Transmit printer ID	Miscellaneous function	O		1 ≤ ***n*** ≤ 3, 49 ≤ ***n*** ≤ 51	—
GS L	Set left margin	Print position		O	0 ≤ ***nL*** ≤ 255 0 ≤ ***nH*** ≤ 255	***nL***=0 ***nH***=0
GS P	Set horizontal and vertical motion units	Miscellaneous function		O	0 ≤ ***x*** ≤ 255 0 ≤ ***y*** ≤ 255	***x***=180 ***y***=360

Command	Name	Function Type	Classification		Range	Default
			Executing Cmds	Setting Cmds		
GS W	Set printing area width	Print position		O	0 ≤ ***nL*** ≤ 255 0 ≤ ***nH*** ≤ 255	Thermal paper: ***nL***=128, ***nH***=1 Thermal label: ***nL***=112, ***nH***=1
GS \	Set relative vertical print position in page mode	Print position	O		0 ≤ ***nL*** ≤ 255 0 ≤ ***nH*** ≤ 255	—
GS ^	Execute macro	Macro function	O		1 ≤ ***r*** ≤ 255, 0 ≤ ***t*** ≤ 255, 0 ≤ ***m*** ≤ 1	—
GS a	Enable/disable Automatic Status Back (ASB)	Status	O	O	0 ≤ ***n*** ≤ 255	***n***=0 or ***n***=2
GS b	Turn smoothing mode on/off	Character		O	0 ≤ ***n*** ≤ 255	***n***=0
GS c	Print counter	Miscellaneous function	O		—	—
GS f	Set font for HRI characters	Bar code		O	***n*** = 0, 1, 48, 49	***n***=0
GS h	Select bar code height	Bar code		O	1 ≤ ***n*** ≤ 255	***n***=162

Command	Name	Function Type	Classification		Range	Default
			Executing Cmds	Setting Cmds		
GS k	Print bar code	Bar code	O		0 ≤ ***m*** ≤ 6 (***k*** and ***d*** depend on the bar code system used) 65 ≤ ***m*** ≤ 73 (***n*** and ***d*** depend on the bar code system used)	—
GS r	Transmit status	Status	O		1 ≤ ***n*** ≤ 2, 49 ≤ ***n*** ≤ 50	—
GS w	Set bar code width	Bar code		O	2 ≤ ***n*** ≤ 6	***n*** = 3

FEATURES

The TM-U200B, TM-U200PB, TM-U200D, and TM-U200PD are high-quality POS printers that can print on a paper roll. The printer has the following features:

- Compact and lightweight.
- High-speed printing through logical seeking control.
- Excellent reliability and long life due to adoption of stepping motor, both for moving the carriage and for paper feeding.
- Flexible paper feed pitch setting permits printing in accordance with any user-defined format.
- Command protocol based on the ESC/POS standard.
- Built-in drawer-kick interface provides capability to drive two drawers.
- Selectable character fonts (7×9, 9×9).
- Semi-automatic paper loading capability.
- AC adapter provides compact power supply.
- Automatic status back (ASB) function that automatically transmits changes in printer status.
- Two-color printing (black and red) (two-color version only).
- Auto cutter is equipped (TM-U200B only).

SPECIFICATIONS

■ Printing specifications

Printing method:	9-pin, serial impact dot matrix
Printing speed:	Approximately 3.5 LPS (40 columns, 16 cpi)
	Approximately 6.4 LPS (16 columns, 16 cpi)

■ Character specifications

Character fonts:	7 × 9 font / 9 × 9 font
Characters per line:	40 / 33 (with 3 half dots), 42 / 35 (with 2 half dots)
Character pitch:	16 / 13.3 (with 3 half dots) CPI, 17.8 / 14.5 (with 2 half dots) CPI
Character size:	ANK: 1.2 mm (W) × 3.1 mm (H) / 1.6 mm (W) × 3.1 mm (H)
	Graphics: 1.7 mm (W) × 3.1 mm (H) / 2.0 mm (W) × 3.1 mm (H) (with 3 half dots spacing)
	1.6 mm (W) × 3.1 mm (H) / 1.9 mm (W) × 3.1 mm (H) (with 0 dots spacing)
Character sets:	ASCII: 95 characters
	International: 32 characters
	Extended graphics: 128 characters × 6 pages

■ Paper specifications

Paper type:	Paper roll:
	① Normal paper
	② Pressure-sensitive paper:
	Number of copies: Original 1 sheet + one copy sheet (U200B)
	Original 1 sheet + up to two copy sheets (U200D)
Paper size:	Paper roll: 75.5 – 76.5 mm (W) × 83.0 mm diameter
Thickness:	Normal paper: 0.06 mm – 0.085 mm
	Pressure-sensitive paper: 0.05 mm – 0.08 mm (for one sheet)
	Total thickness must be 0.2 mm or less.

- Panel buttons:

  FEED:

  Feed paper roll (this button also can be used for the self test and the hexadecimal dump printing).

- Panel LEDs:

  POWER (green):

  Off when the printer is turned off.
  On when the printer is turned on.

  PAPER OUT (red):

  Off when the paper roll is adequate.
  On when the paper roll is near-end or at end.
  Blinks when the printer is in the self test printing standby state or in the on-line recovery wait time state after automatic paper feed.

  ERROR (red):

  Off when the printer is in normal operation.
  On when the printer is off-line (except during paper feed using the FEED button and during the self test).
  Blinks when an error occurs.

- Interface:

  RS-232 (TM-U200B/TM-U200D: serial interface)
  IEEE 1284 (TM-U200PB/TM-U200PD: parallel interface)
  RS-485 (dealer option)

- Receive buffer:

  1K bytes or 40 bytes

DIP SWITCH FUNCTIONS

Serial Interface

DIP switch 1

SW	Function	ON	OFF
1-1	Data receive error	Ignored	Convert data to “?”
1-2	Receive buffer capacity	40 bytes	1K bytes
1-3	Handshaking	XON/XOFF	DTR/DSR
1-4	Data word length	7 bits	8 bits
1-5	Parity check	Enabled	Disabled
1-6	Parity selection	Even	Odd
1-7	Baud rate selection	4800 bps	9600 bps
1-8	BUSY condition	When the receive buffer is full	When the receive buffer is full at an off-line state

DIP switch 2

SW	Function	ON	OFF
2-1	Selects number of characters per line (CPL) 7 × 9 font/9 × 9 font	42 CPL/35 CPL	40 CPL/33 CPL
2-2	Print head unit	Ab type	Ca type
2-3	Pin 6 reset signal	Used	Not used
2-4	Pin 25 reset signal	Used	Not used

ERRORS

- Automatically recoverable errors:
  Print head high temperature error
- Recoverable errors:
  Home position detection error
  Auto cutter error
- Unrecoverable errors:
  High voltage error
  Low voltage error
  CPU execution error
  Print head temperature detection circuit error
- Data receive errors:

  If the following errors occur with a serial interface, the printer processes data depending on the setting of DIP switch 1-1.

  Parity error
  Framing error
  Overrun error

OPTIONS

- EPSON power supply unit, PS-170.
- Paper roll near-end detector (a dealer option).
- Printer fastening tape (Model No. DF-10)

SELF TEST FOR THE TM-U200B/D

The self test lets you know if your printer is operating properly. It checks the control circuits, printer mechanisms, print quality, ROM version, and DIP switch setting. This test is independent of any other equipment or software.

Running the self test with a paper roll

1. Make sure the printer is turned off and the printer covers are closed properly.
2. While holding down the FEED button, turn on the printer using the power switch to begin the self test. The self test prints the printer settings and then pauses. (The PAPER OUT light blinks.)

```
Self test printing.
Please press the Paper feed button.
```

3. Press the FEED button to continue printing. The printer prints a pattern using the resident characters.
4. The self test automatically ends after printing the following:

```
***completed***
```

The printer is ready to receive data as soon as it completes the self test.

HEXADECIMAL DUMP FOR THE TM-U200B/D

This feature allows experienced users to see exactly what data has been received. This can be useful in finding software problems. When you turn on the hexadecimal dump function, the printer prints all commands and other data in hexadecimal format on paper roll to help you find specific commands.

To use the hexadecimal dump feature, follow these steps:

1. After you make sure that the printer is off, open the cover.
2. Hold down the FEED button while you turn on the printer.
3. Close the cover.
4. Run any software program that sends data to the printer. The printer prints “Hexadecimal Dump” and then all the codes it receives in a two-column format. The first column contains the hexadecimal codes and the second column gives the ASCII characters that correspond to the codes.

Hexadecimal Dump

```
1B  21  00  1B  26  02  40  40      .  !  .  .  &  .  @  @
1B  25  01  1B  63  34  00  1B      .  %  .  .  c  4  .  .
41  42  43  44  45  46  47  48     A  B  C  D  E  F  G  H
```

- A period (.) is printed for each code that has no ASCII equivalent.
- During the hexadecimal dump all commands except **DLE EOT** and **DLE ENQ** do not function.

5. Press the FEED button so that the printer will print the last line.
6. Turn off the printer or reset it to turn off the hexadecimal dump mode.

TM-U200B/D SUPPORTED COMMANDS

Command	Name	Function Type	Classification		Range	Default
			Executing Cmds	Setting Cmds		
HT	Horizontal tab	Print position	O		—	—
LF	Print and line feed	Print	O		—	—
CR	Print and carriage return	Print	O		—	—
DLE EOT	Real-time status transmission	Status	O		$1 \le n \le 4$	—
DLE ENQ	Real-time request to printer	Miscellaneous function	O		$n = 0, 2$	—
ESC SP	Set right-side character spacing	Character		O	$0 \le n \le 255$	n=0
ESC !	Select print mode(s)	Character		O	$0 \le n \le 255$	n=1
ESC %	Select/cancel user-defined character set	Character		O	$0 \le n \le 255$	n=0
ESC &	Define user-defined characters	Character		O	y=2 $32 \le c1 \le c2 \le 126$ $0 \le x \le 12$ (9 × 9 font) $0 \le x \le 9$ (7 × 9 font) $0 \le d \le 255$ $k = c2 - c1 + 1$	—

Command	Name	Function Type	Classification		Range	Default
			Executing Cmds	Setting Cmds		
ESC *	Select bit-image mode	Bit image	O		***m***=0, 1 0 ≤ ***nL*** ≤ 255 0 ≤ ***nH*** ≤ 3 0 ≤ ***d*** ≤ 255	—
ESC –	Turn underline mode on/ off	Character		O	***n***=0, 1, 48, 49	***n***=0
ESC 2	Select default line spacing	Line spacing		O	—	—
ESC 3	Set line spacing	Line spacing		O	0 ≤ ***n*** ≤ 255	***n***=24
ESC <	Return home	Mechanism control	O		—	—
ESC =	Select peripheral device	Miscellaneous function		O	1 ≤ ***n*** ≤ 3	***n***=1
ESC ?	Cancel user-defined characters	Character		O	32 ≤ ***n*** ≤ 126	—
ESC @	Initialize printer	Miscellaneous function	O	O	—	—
ESC D	Set horizontal tab positions	Print position		O	1 ≤ ***n*** ≤ 255 0 ≤ ***k*** ≤ 32	***n***=8, 16, 24, 32...(every eight characters for 7×9 font)

Command	Name	Function Type	Classification		Range	Default
			Executing Cmds	Setting Cmds		
ESC E	Turn emphasized mode on/off	Character		O	0 ≤ ***n*** ≤ 255	***n***=0
ESC G	Turn double-strike mode on/off	Character		O	0 ≤ ***n*** ≤ 255	***n***=0
ESC J	Print and feed paper	Print	O		0 ≤ ***n*** ≤ 255	—
ESC K	Print and reverse feed	Print	O		0 ≤ ***n*** ≤ 48	—
ESC R	Select an international character set	Character		O	0 ≤ ***n*** ≤ 10	***n***=0
ESC U	Turn unidirectional printing mode on/off	Mechanism control		O	0 ≤ ***n*** ≤ 255	***n***=0
ESC a	Select justification	Print position		O	0 ≤ ***n*** ≤ 2, 48 ≤ ***n*** ≤ 50	***n***=0
ESC c 3	Select paper sensor(s) to output paper-end signals	Paper sensor		O	0 ≤ ***n*** ≤ 255	***n***=15
ESC c 4	Select paper sensor(s) to stop printing	Paper sensor		O	0 ≤ ***n*** ≤ 255	***n***=0
ESC c 5	Enable/disable panel buttons	Panel button		O	0 ≤ ***n*** ≤ 255	***n***=0
ESC d	Print and feed ***n*** lines	Print	O		0 ≤ ***n*** ≤ 255	—
ESC e	Print and reverse feed ***n*** lines	Print	O		0 ≤ ***n*** ≤ 2	—

Command	Name	Function Type	Classification		Range	Default
			Executing Cmds	Setting Cmds		
ESC p	Generate pulse	Miscellaneous function	O		***m***=0, 1, 48, 49 0 ≤ ***t1*** ≤ 255 0 ≤ ***t2*** ≤ 255	—
ESC r	Select print color	Print		O	***m***=0, 1, 48, 49	***n***=0
ESC t	Select character code table	Character		O	0 ≤ ***n*** ≤ 5, ***n***=254, 255	***n***=0
ESC {	Turn upside-down printing mode on/off	Character		O	0 ≤ ***n*** ≤ 255	***n***=0
GS I	Transmit printer ID	Miscellaneous function	O		1 ≤ ***n*** ≤ 3, 49 ≤ ***n*** ≤ 51	—
GS V	Select cut mode and cut paper	Mechanism control	O		***m***=1, 49 ***m***=66, 0 ≤ ***n*** ≤ 255	—
GS a	Enable/disable Automatic Status Back (ASB)	Status	O	O	0 ≤ ***n*** ≤ 255	***n***=0 or ***n***=2
GS r	Transmit status	Status	O		1 ≤ ***n*** ≤ 2, 49 ≤ ***n*** ≤ 50	—
GS z 0	Set on-line recovery wait time	Status		O	0 ≤ ***t1*** ≤ 255, 0 ≤ ***t2*** ≤ 255	***t1***=6, ***t2***=0

FEATURES

The TM-U300A, TM-U300B, TM-U300PA, and TM-U300PB are high-quality POS printers that can print on a paper roll. The printers have the following features:

- High speed printing using logic seeking.
- High reliability and long life due to the use of stepping motors for both carriage return and paper feed.
- Selectable paper feed pitch for various formats.
- Command protocol based on the ESC/POS standard.
- The built-in interface provides control capability for two drawers.
- Selectable character font (7×9 or 9×9).
- Compact and light-weight.
- Semi-automatic paper loading.
- Compact AC adapter power supply.
- With an autocutter, executes a full-cut or partial-cut of the paper by selecting a command.
- Full cut and partial cut are selectable by a command for an autocutter equipped model.
- Selectable black or red printing (for a two color print model).
- Roll paper take-up device.

SPECIFICATIONS

■ Printing specifications

Printing method:	Serial impact dot matrix
Printing speed:	Approximately 3.5 lines/second (40 columns, 16 CPI)
	Approximately 5.8 lines/second (20 columns, 16 CPI)

■ Character specifications

Character fonts:	Font A (7 × 9) / Font B (9 × 9)
Characters per line:	40 / 33
Character size:	ANK:1.24 mm (W) × 3.1 mm (H) / 1.56 mm (W) × 3.1 mm (H)
	(with 3 half dots spacing)
	Graphics:1.59 mm (W) × 3.1 mm (H) / 1.91 mm (W) × 3.1 mm (H)
Character sets:	ASCII: 95 characters
	International: 32 characters
	Extended graphics: 128 characters × 6 pages

■ Paper specifications

Paper type:	Paper roll:
	① Normal paper
	② Pressure-sensitive paper:
	Number of copies: maximum 1 original + 2copies
Paper size:	75.5 to 76.5 mm (W) × 83 mm diameter

■ Panel button: FEED:Feed paper roll (this button also can be used for the self test printing).

- Panel LEDs:

  POWER (green):

  Off when the printer is off.
  On when the printer is on.

  PAPER (red):

  Off when the paper roll is adequate.
  On when paper roll is near-end.
  Blinks when the printer detects an error; the printer is in the self test standby state; or printing stops because of exceeding the allowable print duty cycle.

- Interface:

  RS-232 (TM-U300A and TM-U300B: serial interface)
  Centronics compatible (TM-U300PA and TM-U300PB: parallel interface)

- Receive buffer:

  With a serial interface: 1K or 40 bytes (selectable by DIP switch)
  With a parallel interface: 1K or 0 bytes (selectable by DIP switch)

DIP SWITCH FUNCTIONS

Serial Interface (TM-U300A and TM-U300B)

DIP switch 1

SW	Function	ON	OFF
1-1	Data receive error	Ignored	Convert data to “?”
1-2	Receive buffer capacity	40 bytes	1K bytes
1-3	Handshaking	XON/XOFF	DTR/DSR
1-4	Data word length	7 bits	8 bits
1-5	Parity check	Enabled	Disabled
1-6	Parity selection	Even	Odd
1-7	Transmission speed		
1-8			
1-9	Internal use	Do not change the settings	
1-10			

Transmission speed

Transmission speed bits per second (BPS)	SW 1-7	SW 1-8
1200	ON	ON
2400	OFF	ON
4800	ON	OFF
9600	OFF	OFF

Parallel Interface (TM-U300PA and TM-U300PB)

DIP switch 1

SW	Function	ON	OFF
1-1	Auto line feed	Always enabled	Depends on $\overline{\text{AUTO FEED XT}}$ signal
1-2	Receive buffer capacity	0 byte	1K bytes
1-3 ~1-8	Internal use	Do not use the settings of DIP switches	

ERRORS

- Home position detection error
  Auto cutter position detection error
- Data receive errors:
  If the following errors occur with a serial interface, the printer processes data depending on the setting of DIP switch 1-1.
  - Parity error
  - Framing error
  - Overrun error

OPTIONS

- No options.

SELF TEST FOR THE TM-U300A/B

The self test lets you know if your printer is operating properly. It checks the control circuits, printer mechanisms, print quality, ROM version, and DIP switch setting. This test is independent of any other equipment or software.

Running the self test with a paper roll

1. Make sure the printer is turned off and the printer covers are closed properly.
2. While holding down the FEED button, turn on the printer using the power switch to begin the self test. The self test prints the printer settings and then prints the following and pauses. (The PAPER light blinks.)

```
Self test printing.
Please press the Paper feed button.
```

3. Press the FEED button to continue printing. The printer prints a pattern using the resident characters.
4. The self test automatically ends after printing the following:

```
***completed***
```

The printer is ready to receive data as soon as it completes the self test.

more

TM-U300A/B SUPPORTED COMMANDS

Command	Name	Function Type	Classification		Range	Default
			Executing Cmds	Setting Cmds		
HT	Horizontal tab	Print position	O		—	—
LF	Print and line feed	Print	O		—	—
CR	Print and carriage return	Print	O		—	—
ESC SP	Set right-side character spacing	Character		O	$0 \le n \le 32$	n=0
ESC !	Select print mode(s)	Character		O	$0 \le n \le 255$	n=1
ESC %	Select/cancel user-defined character set	Character		O	$0 \le n \le 255$	n=0
ESC &	Define user-defined characters	Character		O	$32 \le c1 \le c2 \le 126$ $0 \le x \le 12$ (font A) $0 \le x \le 10$ (font B) $0 \le d \le 255$ y=2	—
ESC *	Select bit-image mode	Bit image	O		$0 \le nL \le 255$, $0 \le nH \le 3$ $0 \le d \le 255$ m=0, 1	—
ESC –	Turn underline mode on/off	Character		O	$0 \le n \le 1$	n=0

Command	Name	Function Type	Classification		Range	Default
			Executing Cmds	Setting Cmds		
ESC 2	Select default line spacing	Line spacing		O	—	—
ESC 3	Set line spacing	Line spacing		O	0 ≤ ***n*** ≤ 255	***n***=24(1/6 inch)
ESC <	Return home	Mechanism control	O		—	—
ESC @	Initialize printer	Miscellaneous function	O	O	—	—
ESC D	Set horizontal tab positions	Print position		O	1 ≤ ***n*** ≤ 255 0 ≤ ***k*** ≤ 32	***n***=8, 16, 24... (every eight characters for font A)
ESC E	Turn emphasized mode on/off	Character		O	0 ≤ ***n*** ≤ 255	***n***=0
ESC G	Turn double-strike mode on/off	Character		O	0 ≤ ***n*** ≤ 255	***n***=0
ESC J	Print and feed paper	Print	O		0 ≤ ***n*** ≤ 255	—
ESC K	Print and reverse feed	Print	O		0 ≤ ***n*** ≤ 48	—
ESC R	Select an international character set	Character		O	0 ≤ ***n*** ≤ 10	***n***=0
ESC U	Turn unidirectional printing mode on/off	Mechanism control		O	0 ≤ ***n*** ≤ 255	***n***=0

Command	Name	Function Type	Classification		Range	Default
			Executing Cmds	Setting Cmds		
ESC c 3	Select paper sensor(s) to output paper-end signals	Paper sensor		O	0 ≤ ***n*** ≤ 255	***n***=3
ESC c 4	Select paper sensor(s) to stop printing	Paper sensor		O	0 ≤ ***n*** ≤ 255	***n***=0
ESC c 5	Enable/disable panel buttons	Panel button		O	0 ≤ ***n*** ≤ 255	***n***=0
ESC d	Print and feed ***n*** lines	Print	O		0 ≤ ***n*** ≤ 255	—
ESC e	Print and reverse feed ***n*** lines	Print	O		0 ≤ ***n*** ≤ 2	—
ESC i	partial cut (one point left uncut)	Mechanism control	O		—	—
ESC m	Partical cut (three points left uncut)	Mechanism	O		—	—
ESC p	Generate pulse	Miscellaneous function	O		0 ≤ ***m*** ≤ 1 0 < ***t1*** ≤ ***t2*** ≤ 255	—
ESC r	Select print color	Character		O	***n***=0, 1	***n***=0

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Command	Name	Function Type	Classification		Range	Default
			Executing Cmds	Setting Cmds		
ESC t	Select character code table	Character		O	0 ≤ ***n*** ≤ 5, ***n***=255	***n***=0
ESC u	Transmit peripheral device status	Status	O		***n***=0	—
ESC v	Transmit paper sensor status	Status	O		—	—
ESC {	Turn upside-down printing mode on/off	Character		O	0 ≤ ***n*** ≤ 255	***n***=0
GS E	Select head control method	Miscellaneous function		O	0 ≤ ***n*** ≤ 255	***n***=1

COMMAND LIST

- Commands Arranged by Function
- Commands in Alphanumeric Order

COMMANDS ARRANGED BY FUNCTION

The print samples are images of the printing results of the program examples; they do not represent actual printing.

In this table, click any item to see the command description with program examples and print samples. You can also use the bookmarks on the left side of the screen.

Print	**Bit-image**
Line spacing	**Status**
Character	**Bar code**
Panel button	**Macro function**
Paper sensor	**Mechanism control**
Print position	**Miscellaneous function**

COMMANDS FOR PAPER ROLL PRINTERS

This table gives (in alphanumeric order) all of the commands for paper roll printers. In this table, click any name to see the command description with program examples and print samples.

The print samples are images of the printing results of the program examples; they do not represent actual printing.

Command	Name	Function Type
HT	Horizontal tab	Print position
LF	Print and line feed	Print
FF	① Print and return to standard mode (in page mode) ② Print and feed label to print starting position (on label)	Print
CR	Print and carriage return	Print
CAN	Cancel print data in page mode	Character
DLE EOT	Real-time status transmission	Status
DLE ENQ	Real-time request to printer	Miscellaneous function
DLE DC4	Generate pulse at real time	Miscellaneous function
ESC FF	Print data in page mode	Print
ESC SP	Set right-side character spacing	Character
ESC !	Select print mode(s)	Character
ESC $	Set absolute print position	Print position
ESC %	Select/cancel user-defined character set	Character

Command	Name	Function Type
ESC &	Define user-defined characters	Character
ESC *	Select bit-image mode	Bit image
ESC –	Turn underline mode on/off	Character
ESC 2	Select default line spacing	Line spacing
ESC 3	Set line spacing	Line spacing
ESC <	Return home	Mechanism control
ESC =	Select peripheral device	Miscellaneous function
ESC ?	Cancel user-defined characters	Character
ESC @	Initialize printer	Miscellaneous function
ESC D	Set horizontal tab positions	Print position
ESC E	Turn emphasized mode on/off	Character
ESC G	Turn double-strike mode on/off	Character
ESC J	Print and feed paper	Print
ESC K	Print and reverse feed	Print
ESC L	Select page mode	Miscellaneous function
ESC M	Select character	Character
ESC R	Select an international character set	Character
ESC S	Select standard mode	Miscellaneous function
ESC T	Select print direction in page mode	Print position

Command	Name	Function Type
ESC U	Turn unidirectional printing mode on/off	Mechanism control
ESC V	Turn 90° clockwise rotation mode on/off	Character
ESC W	Set printing area in page mode	Print position
ESC \	Set relative print position	Print position
ESC a	Select justification	Print position
ESC c 3	Select paper sensor(s) to output paper-end signals	Paper sensor
ESC c 4	Select paper sensor(s) to stop printing	Paper sensor
ESC c 5	Enable/disable panel buttons	Panel button
ESC d	Print and feed ***n*** lines	Print
ESC e	Print and reverse feed ***n*** lines	Print
ESC i	Partial cut (one point left uncut)	Mechanism control
ESC m	Partial cut (three points left uncut)	Mechanism control
ESC p	Generate pulse	Miscellaneous function
ESC r	Select print color	Character
ESC t	Select character code table	Character
ESC u	Transmit peripheral device status	Status
ESC v	Transmit paper sensor status	Status
ESC {	Turn upside-down printing mode on/off	Character
FS g 1	Write to user NV memory	Miscellaneous function

Command	Name	Function Type
FS g 2	Read from user NV memory	Miscellaneous function
FS p	Print non-volatile bit image	Bit image
FS q	Define non-volatile bit image	Bit image
GS FF	Print and eject label	Print
GS !	Select character size	Character
GS $	Set absolute vertical print position in page mode	Print position
GS *	Define downloaded bit image	Bit image
GS (A	Execute test print	Miscellaneous function
GS /	Print downloaded bit image	Bit image
GS :	Start/end macro definition	Macro function
GS <	Initial printer mechanism	Miscellaneous function
GS A	Adjust label print starting position	Miscellaneous function
GS B	Turn white/black reverse printing mode on/off	Character
GS C 0	Select counter print mode	Miscellaneous function
GS C 1	Select count mode (A)	Miscellaneous function
GS C 2	Set counter	Miscellaneous function
GS C ;	Select count mode (B)	Miscellaneous function
GS E	Select head control method	Miscellaneous function
GS H	Select printing position of HRI characters	Bar code

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Command	Name	Function Type
GS I	Transmit printer ID	Miscellaneous function
GS L	Set left margin	Print position
GS P	Set horizontal and vertical motion units	Miscellaneous function
GS V	Select cut mode and cut paper	Mechanism control
GS W	Set printing area width	Print position
GS \	Set relative vertical print position in page mode	Print position
GS ^	Execute macro	Macro function
GS a	Enable/disable Automatic Status Back (ASB)	Status
GS b	Turn smoothing mode on/off	Character
GS c	Print counter	Miscellaneous function
GS f	Select font for HRI characters	Bar code
GS h	Set bar code height	Bar code
GS k	Print bar code	Bar code
GS r	Transmit status	Status
GS v 0	Print raster bit image	Bit image
GS w	Set bar code width	Bar code
GS z 0	Set on-line recovery wait time	Status

PRINT COMMANDS

Command	Name
LF	Print and line feed
CR	Print and carriage return
ESC J *n*	Print and feed paper
ESC K *n*	Print and reverse feed
ESC d *n*	Print and feed ***n*** lines
ESC e *n*	Print and reverse feed ***n*** lines
FF	(1) Print and return to standard mode (in page mode)
	(2) Print and feed label to print starting position (on label)
ESC FF	Print data in page mode
GS FF	Print and eject label

CONFIDENTIAL

LF

[Name] Print and line feed

[Format] ASCII LF
Hex 0A
Decimal 10

[Range] None

[Default] None

[Printers not featuring this command] None

[Description] Prints the data in the print buffer and feeds one line.

[Notes]
- The amount of paper fed per line is based on the value set using the line spacing command (**ESC 2** or **ESC 3**).
- After printing, the printing position moves the beginning of the line.
- When this command is processed in page mode, only the printing position moves and the printer does not perform actual printing.

[Model-dependent variations] None

Program Example for all printers

```
PRINT #1, "AAAAA"; CHR$(&HA);
PRINT #1, "BBBBB"; CHR$(&HA);
```

Print Sample

```
AAAAA
BBBBB
```

CR

[Name] Print and carriage return

[Format] ASCII CR

Hex 0D

Decimal 13

[Range] None

[Default] None

[Printers not featuring this command] None

[Description]

Print head	**When auto line feed is enabled**	**When auto line feed is disabled**
Line thermal	Executes printing and one line feed as **LF**	This command is ignored
Serial dot head	Executes printing and one line feed as **LF**	Prints data in print buffer and does not feed the paper

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[Notes]

- With a serial interface, auto line feed is disabled.
- With a parallel interface, whether enabling or disabling the auto line feed can be selected by the DIP switch (Auto line feed).
- After printing, the printing position moves to the beginning of the line.
- When this command is processed in page mode, only the printing position moves and the printer does not perform actual printing.

[Model-dependent variations] **TM-T88II** **TM-L60II** **TM-U200B/D** **TM-U300A/B**

Program Example (Line thermal)

```
PRINT #1, "AAAAA";CHR$(&HD);
PRINT #1, "     BBBBB";CHR$(&HA);
```

Print Sample (Line thermal)

```
AAAAA        ←Auto line feed enabled
     BBBBB
AAAAA      BBBBB ←Auto line feed disabled
```

Program Example (Serial dot head)

```
PRINT #1, "AAAAA";CHR$(&HD);
PRINT #1, "     BBBBB";CHR$(&HA);
```

Print Sample (Serial dot head)

```
AAAAA
     BBBBB    ←Auto line feed enabled
AAAAABBBBB    ←Auto line feed disabled
```

TM-T88II

Auto line feed for a parallel interface is selected by DIP switch 1-1.

This printer has only a line thermal head.

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TM-L60II

Auto line feed for a parallel interface is selected by DIP switch 1-1.

This printer has only a line thermal head.

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TM-U200B/D

Auto line feed for a parallel interface is selected by DIP switch 1-1.

This printer has only a serial dot head.

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TM-U300A/B

Auto line feed for a parallel interface is selected by DIP switch 1-1.

This printer has only a serial dot head.

ESC J *n*

[Name] Print and feed paper

[Format]

ASCII	ESC	J	*n*
Hex	1B	4A	*n*
Decimal	27	74	*n*

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

[Default] None

[Printers not featuring this command] None

[Description] Prints the data in the print buffer and feeds the paper ***n*** × (vertical or horizontal motion unit).

[Notes]

- The maximum paper feed amount is 40 inches. If the specified amount exceeds 40 inches, the paper feed amount is automatically set to 40 inches.
- When standard mode is selected, the vertical motion unit is used.
- When page mode is selected, the vertical or horizontal motion unit is used for the print direction set by **ESC T**.
  - When the starting position is set to the upper left or lower right of the printing area using **ESC T**, the vertical motion unit is used.
  - When the starting position is set to the upper right or lower left of the printing area using **ESC T**, the horizontal motion unit is used.
- After printing, the printing position moves to the beginning of the line.

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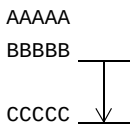
- When this command is processed in page mode, only the printing position moves and the printer does not perform actual printing.
- This command is used to temporarily feed a specific length without changing the line spacing set by other commands.

[Model-dependent variations] **TM-T88II** **TM-L60II** **TM-U200B/D** **TM-U300A/B**

Program Example for all printers

```
PRINT #1, CHR$(&H1D);"P";CHR$(180);CHR$(180);
PRINT #1, "AAAAA"; CHR$(&HA);
PRINT #1, "BBBBB"; CHR$(&H1B);"J";CHR$(100);
PRINT #1, "CCCCC"; CHR$(&HA);
PRINT #1, "DDDDD"; CHR$(&HA);
```

Print Sample



ESC J used to print one line and advance the paper by 100/180 inch

CONFIDENTIAL

TM-T88II

The vertical or horizontal motion unit is specified by **GS P**.

CONFIDENTIAL

TM-L60II

The vertical or horizontal motion unit is specified by **GS P**.

When a label is selected in standard mode and a paper feed amount that exceeds the length of one label is set, the printer feeds the label to the next print starting position.

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TM-U200B/D

The vertical motion unit is 1/144 inches (the minimum movement amount). This value equals a half dot pitch. This command does not use the horizontal motion unit because the printer does not support Page mode.

CONFIDENTIAL

TM-U300A/B

The vertical motion unit is 1/144 inches (the minimum movement amount). This value equals a half dot pitch. This command does not use the horizontal motion unit because the printer does not support Page mode.

ESC K *n*

[Name] Print and reverse feed

[Format]

ASCII	ESC	K	*n*
Hex	1B	4B	*n*
Decimal	27	75	*n*

[Range] **TM-U200B/D : $0 \leq n \leq 48$**

[Default] None

[Printers not featuring this command] **TM-T88II, TM-L60II, TM-U300A/B**

[Description] Prints the data in the print buffer and feeds the paper ***n*** × (vertical motion unit) in the reverse direction.

[Notes]

- The maximum paper feed amount depends on the printer model.
- After printing, the printing position moves to the beginning of the line.
- This command is used to temporarily feed a specific length without changing the line spacing set by other commands.

[Model-dependent variations] **TM-U200B/D**

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Program Example for all printers

```
PRINT #1, CHR$(&H1D);"P";CHR$(180);CHR$(180);
PRINT #1, "AAAAA"; CHR$(&HA);
PRINT #1, "BBBBB"; CHR$(&H1B);"K";CHR$(30);
PRINT #1, "     CCCCC"; CHR$(&HA);
```

Print Sample

```
AAAAACCCCC
BBBBB
```

ESC K used to print one line and then reverse feed the paper by

30/180 inch

CONFIDENTIAL

TM-U200B/D

This command must not be executed continuously more than two times. The vertical motion unit is 1/144 inches (the minimum movement amount). This value equals a half dot pitch. In the reverse direction, the maximum paper feed amount is 48/144 inches. If the specified amount exceeds 48/144 inches, the printer only prints the data and does not feed the paper.

ESC d *n*

[Name] Print and feed ***n*** lines

[Format]

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

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

[Default] None

[Printers not featuring this command] None

[Description] Prints the data in the print buffer and feeds ***n*** lines.

[Notes]

- The amount of paper fed per line is based on the value set using the line spacing command (**ESC 2** or **ESC 3**).
- The maximum paper feed amount is 40 inches. If the specified amount exceeds 40 inches, the paper feed amount is automatically set to 40 inches.
- After printing, the printing position moves to the beginning of the line.
- When this command is processed in page mode, only the printing position moves and the printer does not perform actual printing.
- This command is used to temporarily feed a specific line without changing the line spacing set by other commands.

[Model-dependent variations] **TM-L60II**

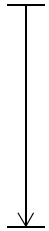
CONFIDENTIAL

Program Example for all printers

```
PRINT #1, "AAAAA"; CHR$(&HA);
PRINT #1, "BBBBB"; CHR$(&H1B);"d";CHR$(6);
PRINT #1, "CCCCC"; CHR$(&HA);
```

Print Sample

AAAAA
BBBBB



ESC d used to print one line and advance the paper by six lines

CCCCC

CONFIDENTIAL

TM-L60II

The vertical or horizontal motion unit is specified by **GS P**.

When a label is selected in standard mode and a paper feed amount that exceeds the length of one label is set, the printer feeds the label to the next print starting position.

ESC e *n*

[Name] Print and reverse feed ***n*** lines

[Format]

ASCII	ESC	e	*n*
Hex	1B	65	*n*
Decimal	27	101	*n*

[Range] **TM-U200B/D** : $0 \leq n \leq 2$

[Default] None

[Printers not featuring this command] **TM-T88II, TM-L60II, TM-U300A/B**

[Description] Prints the data in the print buffer and feeds ***n*** lines in the reverse direction.

[Notes]

- The amount of paper fed per line is based on the value set using the line spacing command (**ESC 2** or **ESC 3**).
- The maximum paper feed amount depends on the printer model.
- After printing, the printing position moves to the beginning of the line.
- This command is used to temporarily feed a specific line without changing the line spacing set by other commands.

[Model-dependent variations] **TM-U200B/D**

CONFIDENTIAL

Program Example for all printers

```
PRINT #1, "AAAAA"; CHR$(&HA);
PRINT #1, "BBBBB"; CHR$(&H1B);"e";CHR$(1);
PRINT #1, "     CCCCC"; CHR$(&HA);
```

Print Sample

```
AAAAACCCCC
BBBBB
```

Paper reverse fed one line after printing the line of Bs

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TM-U200B/D

This command must not be executed continuously more than two times. In the reverse direction, the maximum paper feed amount is 48/144 inches. If the specified amount exceeds 48/144 inches, the printer only prints the data and does not feed the paper.

FF

[Name] (1) Print and return to standard mode (in page mode)

[Format]

ASCII	FF
Hex	0C
Decimal	12

[Default] None

[Range] None

[Printers not featuring this command] **TM-U200B/D, TM-U300A/B**

[Description] In page mode, prints the data in the print buffer collectively and returns to standard mode.

[Notes]

- This command is enabled only in page mode.
- The data is deleted in the printing area after being printed.
- This command returns the values set by **ESC W** to the default values.
- The value set by **ESC T** is maintained.
- After printing, the printing position moves to the beginning of the line.

[Model-dependent variations] None

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Program Example for all printers

```
PRINT #1, CHR$(&H1B);"L"; ←Select page mode
PRINT #1, CHR$(&H1D);"P";CHR$(180);CHR$(180);
PRINT #1, CHR$(&H1B);"W";CHR$(0);CHR$(0);CHR$(0);
CHR$(0);CHR$(60);CHR$(0);CHR$(90);CHR$(0);
PRINT #1, CHR$(&H1B);"T";CHR$(0);
PRINT #1, "AAAAA"; CHR$(&HA); ←Store characters for printing
PRINT #1, "BBBBB"; CHR$(&HA); ←Store characters for printing
PRINT #1, "CCCCC"; CHR$(&HC); ←Batch print
```

Print Sample

AAAAA
BBBBB
CCCCC

FF

[Name] (2) Print and feed label to print starting position (on label)

[Format]

ASCII	FF
Hex	0C
Decimal	12

[Default] None

[Range] None

[Printers not featuring this command] **TM-T88II, TM-U200B/D, TM-U300A/B**

[Description] Prints the data in the print buffer and feeds the next label to the print starting position.

[Notes]

- This command is enabled only when a label is selected in standard mode. Printer operation differs when page mode is selected.
- The data is deleted in the printing area after being printed.
- This command returns the values set by **ESC W** to the default values.
- The value set by **ESC T** is maintained.
- After printing, the printing position moves to the beginning of the line.

[Model-dependent variations] **TM-L60II**

CONFIDENTIAL

Program Example for all printers

```
PRINT #1, "AAAAA"; CHR$(&HA);
PRINT #1, "BBBBB"; CHR$(&HC);
```

Print Sample

AAAAA
BBBBB

TM-L60II

A thermal label is selected when DIP switch 2-6 is ON with a serial interface.

A thermal label is selected when DIP switch 1-7 is ON with a parallel interface.

ESC FF

[Name] Print data in page mode

[Format]

ASCII	ESC	FF
Hex	1B	0C
Decimal	27	12

[Range] None

[Default] None

[Printers not featuring this command] **TM-U200B/D, TM-U300A/B**

[Description] In page mode, prints all buffered data in the printable area collectively.

[Notes]

- This command is enabled only in page mode.
- After printing, the printer does not clear the buffered data, the printing position, or values set by other commands.
- The printer returns to standard mode with **FF**, **ESC S**, and **ESC @**. When it returns to standard mode by **ESC @**, all settings are canceled.
- This command is used when the data in page mode is printed repeatedly.

[Model-dependent variations] None

CONFIDENTIAL

Program Example for all printers

```
PRINT #1, CHR$(&H1B);"L"; ← Select page mode
PRINT #1, CHR$(&H1D);"P";CHR$(180);CHR$(180);
PRINT #1, CHR$(&H1B);"W";CHR$(0);CHR$(0);CHR$(0);
CHR$(0);CHR$(120);CHR$(0);CHR$(170);CHR$(0);
PRINT #1, CHR$(&H1B);"T";CHR$(0); ← Select print direction
PRINT #1, "AAAAA"; CHR$(&HA); ← Store characters for printing
PRINT #1, "BBBBB"; CHR$(&HA); ← Store characters for printing
PRINT #1, "CCCCC"; CHR$(&H1B);CHR$(&HC); ← Batch print
PRINT #1, CHR$(&HC); ← Batch print and return to standard mode
```

Print Sample

```
AAAAA
BBBBB
CCCCC


AAAAA
BBBBB
CCCCC
```

GS FF

[Name] Print and eject label

[Format]

ASCII	GS	FF
Hex	1D	0C
Decimal	29	12

[Default] None

[Range] None

[Printers not featuring this command] **TM-T88II, TM-U200B/D, TM-U300A/B**

[Description] Prints the data in the print buffer and ejects the label.

[Notes]

- This command is enabled only when a label is selected.
- This command is enabled only when standard mode is selected.
- When the label is advanced, the following processes are performed:
  - After printing, the label is advanced so that it can be peeled off.
  - The paper LED blinks waiting for the paper feed button to be pressed (press the button after peeling the label off).
  - When the paper feed button is pressed, the next label is fed in reverse direction to the print starting position. When a left margin is set, the printing position is set to the left margin.

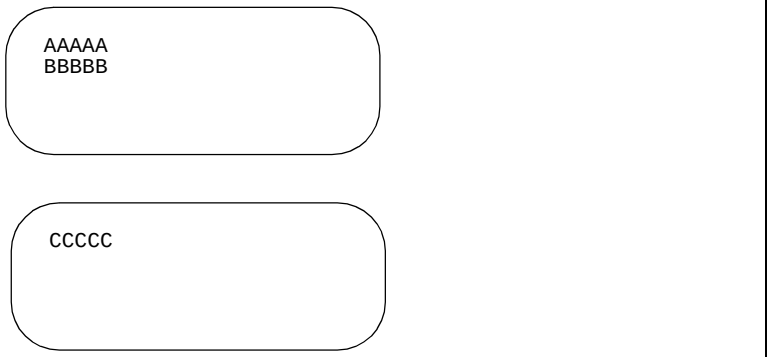
- When panel buttons are disabled by **ESC c 5**, the paper feed button is enabled temporarily when the paper LED blinks to indicate that the printer is waiting for the paper feed button to be pressed (but a label cannot be fed).
- LEDs and buttons differ depending on the printer models.

[Model-dependent variations] **TM-L60II**

Program Example for all printers

```
PRINT #1, "AAAAA"; CHR$(&HA);
PRINT #1, "BBBBB"; CHR$(&H1D);CHR$(&HC);
PRINT #1, "CCCCC"; CHR$(&HA);
```

Print Sample



TM-L60II

Paper LED blinks waiting for a label being peeled off. Paper feed button is used for feeding a label.

A thermal label is selected when DIP switch 2-6 is ON with a serial interface.

A thermal label is selected when DIP switch 1-7 is ON with a parallel interface.

LINE SPACING COMMANDS

Command	Name
ESC 2	Select default line spacing
ESC 3 *n*	Set line spacing

ESC 2

[Name] Select default line spacing

[Format]

ASCII	ESC	2
Hex	1B	32
Decimal	27	50

[Range] None

[Default] None

[Printers not featuring this command] None

[Description] Sets the line spacing to 1/6 inch.

[Notes]
- The line spacing can be set independently in standard mode and in page mode.

[Model-dependent variations] **TM-T88II** **TM-L60II** **TM-U200B/D** **TM-U300A/B**

See program example for **ESC 2** and **ESC 3 *n***.

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TM-T88II

1/6 inch is equivalent to 30 dots.

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TM-L60II

1/6 inch is equivalent to 30 dots.

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TM-U200B/D

1/6 inch is equivalent to 12 dots.

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TM-U300A/B

1/6 inch is equivalent to 12 dots.

ESC 3 *n*

[Name] Set line spacing

[Format]

ASCII	ESC	3	*n*
Hex	1B	33	*n*
Decimal	27	51	*n*

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

[Default] 1/6 inch or equivalent

TM-T88II, TM-L60II: *n*=60

TM-U200B/D, TM-U300A/B: *n* = 24

[Printers not featuring this command] None

[Description] Sets the line spacing to ***n*** × (vertical or horizontal motion unit).

[Notes]

- The maximum line spacing is 40 inches. If the specified amount exceeds 40 inches, the line spacing is automatically set to 40 inches.
- When standard mode is selected, the vertical motion unit is used.
- When page mode is selected, the vertical or horizontal motion unit is used for the print direction set by **ESC T**.
  - When the starting position is set to the upper left or lower right of the printing area using **ESC T**, the vertical motion unit is used.
  - When the starting position is set to the upper right or lower left of the printing area using **ESC T**, the horizontal motion unit is used.
- The line spacing can be set independently in standard mode and in page mode.

[Model-dependent variations] **TM-T88II** **TM-L60II** **TM-U200B/D** **TM-U300A/B**

See program example for **ESC 2** and **ESC 3 *n***.

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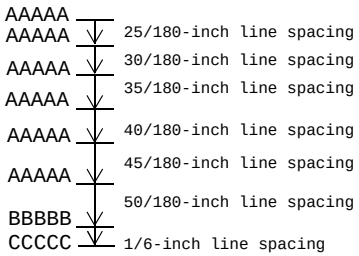
Program example for **ESC 2** and **ESC 3 *n***

Program Example

```
PRINT #1, CHR$(&H1D);"P";CHR$(180);CHR$(180);
FOR n=25 TO 50 STEP 5
  PRINT #1, CHR$(&H1B);"3";CHR$(n); ← Set line spacing
  PRINT #1, "AAAAA"; CHR$(&HA);
NEXT n

PRINT #1, CHR$(&H1B);"2"; ← Set the default
PRINT #1, "BBBBB"; CHR$(&HA);
PRINT #1, "CCCCC"; CHR$(&HA);
```

Print Sample



TM-T88II

The vertical or horizontal motion unit is specified by **GS P**.

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TM-L60II

The vertical or horizontal motion unit is specified by **GS P**.

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TM-U200B/D

The vertical motion unit is 1/144 inches (the minimum movement amount). This value equals a half dot pitch. This command does not use the horizontal motion unit because this printer does not support Page mode.

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TM-U300A/B

The vertical motion unit is 1/144 inches (the minimum movement amount). This value equals a half dot pitch. This command does not use the horizontal motion unit because this printer does not support Page mode.

CHARACTER COMMANDS

Command	Name
ESC SP *n*	Set right-side character spacing
ESC % *n*	Select/cancel user-defined character set
ESC & *y c1 c2 [x1 d1 ... d(y × x1)] ... [xk d1 ... d(y × xk)]*	Define user-defined characters
ESC ? *n*	Cancel user-defined characters
ESC R *n*	Select an international character set
ESC t *n*	Select character code table
ESC ! *n*	Select print mode(s)
ESC – *n*	Turn underline mode on/off
ESC E *n*	Turn emphasized mode on/off
ESC M *n*	Select character font
GS ! *n*	Select character size
GS b *n*	Turn smoothing mode on/off
ESC G *n*	Turn double-strike mode on/off
ESC { *n*	Turn upside-down printing mode on/off
ESC V *n*	Turn 90° clockwise rotation mode on/off
GS B *n*	Turn white/black reverse printing mode on/off
CAN	Cancel print data in page mode
ESC r *n*	Select print color

ESC SP *n*

[Name] Set right-side character spacing

[Format]

ASCII	ESC	SP	*n*
Hex	1B	20	*n*
Decimal	27	32	*n*

[Range] **TM-T88II, TM-L60II, TM-U200B/D:** $0 \leq n \leq 255$

TM-U300A/B: $0 \leq n \leq 32$

[Default] $n = 0$

[Printers not featuring this command] None

[Description] Sets the right-side character spacing to ***n*** × (horizontal or vertical motion unit).

[Notes]

- The right-side character spacing set by this command is effective for all characters (except for HRI characters).
- When characters are enlarged, the right-side character spacing is ***n*** times normal value. The right-side character spacing for double-width mode is twice the normal value.
- When standard mode is selected, the horizontal motion unit is used.

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- When page mode is selected, the vertical or horizontal motion unit is used for the print direction set by **ESC T**.
  - When the starting position is set to the upper left or lower right of the printing area using **ESC T**, the horizontal motion unit is used.
  - When the starting position is set to the upper right or lower left of the printing area using **ESC T**, the vertical motion unit is used.
- The right-side character spacing can be set independently in standard mode and in page mode.
- It is used to change the spacing between characters.

[Model-dependent variations] **TM-T88II** **TM-L60II** **TM-U200B/D** **TM-U300A/B**

Program Example for all printers

```
PRINT #1, CHR$(&H1D);"P";CHR$(180);CHR$(180);
PRINT #1, CHR$(&H1B);" ";CHR$(0); ← Character spacing set to 0
PRINT #1, "AAAAA"; CHR$(&HA);
PRINT #1, CHR$(&H1B);" ";CHR$(6); ← Character spacing set to 6
PRINT #1, "BBBBB"; CHR$(&HA);
PRINT #1, CHR$(&H1B);" ";CHR$(12); ← Character spacing set to 12
PRINT #1, "CCCCC"; CHR$(&HA);
```

Print Sample

```
AAAAA ← 0-inch character spacing
BBBBB ← 6/180-inch character spacing
C C C C C ← 12/180-inch character spacing
```

TM-T88II

The vertical or horizontal motion unit is specified by **GS P**.

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TM-L60II

The vertical or horizontal motion unit is specified by **GS P**.

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TM-U200B/D

The horizontal motion unit is 1/160 inches (the minimum movement amount). This value equals a half dot pitch. This command does not use the vertical motion unit because the printer does not support Page mode.

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TM-U300A/B

The horizontal motion unit is 1/160 inches (the minimum movement amount). This value equals a half dot pitch. This command does not use the vertical motion unit because the printer does not support Page mode.

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ESC % *n*

[Name] Select/cancel user-defined character set

[Format]

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

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

[Default] $n = 0$

[Printers not featuring this command] None

[Description] Selects or cancels the user-defined character set.

- When the LSB of ***n*** is 0, the user-defined character set is canceled.
- When the LSB of ***n*** is 1, the user-defined character set is selected.

[Note]

- When the user-defined character set is canceled, the resident character set is automatically selected.

[Model-dependent variations] **TM-U200B/D**

See program example for **ESC %**, **ESC &** and **ESC ?**.

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TM-U200B/D

This command is effective only when the receive buffer capacity is 40 bytes (when DIP switch 1-2 is ON).

ESC & *y c1 c2 [x1 d1 ... d(y × x1)] ... [xk d1 ... d(y × xk)]*

[Name] Define user-defined characters

[Format]

ASCII	ESC	&	*y c1 c2 [x1 d1 ... d(y × x1)] ... [xk d1 ... d(y × xk)]*
Hex	1B	26	*y c1 c2 [x1 d1 ... d(y × x1)] ... [xk d1 ... d(y × xk)]*
Decimal	27	38	*y c1 c2 [x1 d1 ... d(y × x1)] ... [xk d1 ... d(y × xk)]*

[Range]

TM-T88II:
- $y = 3$
- $32 \le 1 \le c2 \le 126$
- $0 \le x \le 12$ (Font A (12×24))
- $0 \le x \le 9$ (Font B (9×24))
- $0 \le d \le 255$
- $k = c2 - c1 + 1$

TM-L60II:
- $y = 3$
- $32 \le c1 \le c2 \le 126$
- $0 \le x \le 12$ (Font A (12×24))
- $0 \le x \le 9$ (Font B (9×24))
- $0 \le d \le 255$
- $k = c2 - c1 + 1$

TM-U200B/D:
- $y = 2$
- $32 \le c1 \le c2 \le 126$
- $0 \le x \le 12$ (Font A (9×9))
- $0 \le x \le 10$ (Font B (7×9))
- $0 \le d1 \ldots d\,(y \times x) \le 255$
- $k = c2 - c1 + 1$

TM-U300A/B: $y = 2$

$32 \leq c1 \leq c2 \leq 126$

$0 \leq x \leq 12$ (Font A (9×9))

$0 \leq x \leq 10$ (Font B (7×9))

$0 \leq d \leq 255$

$k = c2 - c1 + 1$

[Default] None

[Printers not featuring this command] None

[Description] Defines user-defined characters from character code check ***c1*** to ***c2***.

- ***y*** specifies the number of bytes in the vertical direction.
- ***x*** specifies the number of dots in the horizontal direction.
- ***d*** is the dot data for the user-defined characters.

[Notes]

- Character codes from the alphanumeric characters (20H (decimal 32) to 7EH (decimal 126)) can be defined.
- Data (***d***) specifies a bit printed to 1 and not printed to 0. The dot pattern is in the horizontal direction from the left side. Any remaining dots on the right side are blank.
- The data to define a user-defined character is (***y*** × ***x***) bytes.
- This command can define user-defined characters for each font independently. To select a font, use **ESC !** or **ESC M**.

- A user-defined character and downloaded bit image cannot be defined simultaneously. When this command is executed, the downloaded bit image is cleared.
- Once the user-defined characters have been defined, they are available until **ESC ?**, **GS ***, or **ESC @**, is executed; the user-defined characters are redefined; the power is turned off; or the printer is reset.
- The user-defined characters are not defined at the default and the resident characters are printed.

[Model-dependent variations] **TM-U200B/D** **TM-U300A/B**

See program example for **ESC %**, **ESC &** and **ESC ?**.

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TM-U200B/D

The dots adjoining each other horizontally cannot be printed. Only the MSB can be printed in the second byte for vertical direction.

This command is effective only when the receive buffer capacity is 40 bytes (when DIP switch 1-2 is ON). The maximum number of user-defined characters is 19.

TM-U300A/B

The dots adjoining each other horizontally cannot be printed. Only the MSB can be printed in the second byte for vertical direction.

The maximum number of user-defined characters differs depending on the receive buffer capacity as described below. When the maximum number of user-defined characters is defined, it is possible to redefine user-defined characters for the defined ASCII code, but not for the new ASCII code.

Receive buffer capacity	Maximum number of user-defined characters
1k bytes	9
40 bytes	44
0 bytes	44

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ESC ? *n*

[Name] Cancel user-defined characters

[Format]

ASCII	ESC	?	*n*
Hex	1B	3F	*n*
Decimal	27	63	*n*

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

[Default] None

[Printers not featuring this command] **TM-U300A/B**

[Description] Cancels the user-defined characters defined for the character code ***n***.

[Notes]

- After the user-defined characters are canceled, the resident character set is printed.
- This command can cancel user-defined characters for each font independently. To select a font, use **ESC !** or **ESC M**.

[Model-dependent variations] **TM-U200B/D**

See program example for **ESC %**, **ESC &** and **ESC ?**.

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Program example for ESC %, ESC &, and ESC ?

Program Example

```
PRINT #1, CHR$(&H1B);"&";CHR$(2);"AC";
 PRINT #1, CHR$(9);
  FOR i=1 TO 2*9
   READ d: PRINT #1, CHR$(d);
  NEXT i
 PRINT #1, CHR$(9);
  FOR i=1 TO 2*9
   READ d: PRINT #1, CHR$(d);
  NEXT i
 PRINT #1, CHR$(10);
  FOR i=1 TO 2*10
   READ d: PRINT #1, CHR$(d);
  NEXT i
PRINT #1, CHR$(&H1B);"%";CHR$(0); ← Select resident character
PRINT #1, "A B C D E"; CHR$(&HA);
PRINT #1, CHR$(&H1B);"%";CHR$(1); ← Select user-defined character
PRINT #1, "A B C D E"; CHR$(&HA):
PRINT #1, CHR$(&H1B);"?";"A"; ←Cancel the user-defined character
PRINT #1, "A B C D E"; CHR$(&HA);
```

Defines the user-defined characters as "A","B",and "C"

Program Example (continued)

```
DATA &H18,&H00,&H00,&H00,&H3C,&H00,&H00,&H00
DATA &H7E,&H00,&H00,&H00,&H3C,&H00,&H00,&H00
DATA &H18,&H00
DATA &H18,&H00,&H00,&H00,&H24,&H00,&H00,&H00
DATA &H42,&H00,&H00,&H00,&H24,&H00,&H00,&H00
DATA &H18,&H00
DATA &H00,&H00,&H10,&H00,&H20,&H00,&H5F,&H00
DATA &H00,&H00,&H81,&H00,&H00,&H00,&H5F,&H00
DATA &H20,&H00,&H10,&H00
```

Print Sample

```
A B C D E  ← Characters from resident character set
♦ ◊ ⇧ D E  ←Characters from user-defined character set
A ◊ ⇧ D E  ← Characters from user-defined character set (cancel one character)
```

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TM-U200B/D

This command is effective only when the receive buffer capacity is 40 bytes (when DIP switch 1-2 is ON).

ESC R *n*

[Name]	Select an international character set			
[Format]	ASCII	ESC	R	*n*
	Hex	1B	52	*n*
	Decimal	27	82	*n*
[Range]	$0 \leq n \leq 10$			
[Default]	$n = 0$			
[Printers not featuring this command]	None			

[Description] Selects an international character set ***n*** as follows:

n	**Country**	**ASCII code**											
		Hex	**23**	**24**	**40**	**5B**	**5C**	**5D**	**5E**	**60**	**7B**	**7C**	**7D**	**7E**
		Dec	**35**	**36**	**64**	**91**	**92**	**93**	**94**	**96**	**123**	**124**	**125**	**126**
0	U.S.A.		#	$	@	[	\	]	^	`	{	¦	}	~
1	France		#	$	à	°	ç	§	^	`	é	ù	è	¨
2	Germany		#	$	§	Ä	Ö	Ü	^	`	ä	ö	ü	ß
3	U.K.		£	$	@	[	\	]	^	`	{	¦	}	~
4	Denmark I		#	$	@	Æ	Ø	Å	^	`	æ	ø	å	~
5	Sweden		#	¤	É	Ä	Ö	Å	Ü	é	ä	ö	å	ü
6	Italy		#	$	@	°	\	é	^	ù	à	ò	è	ì
7	Spain		Pt	$	@	¡	Ñ	¿	^	`	¨	ñ	}	~
8	Japan		#	$	@	[	¥	]	^	`	{	¦	}	~
9	Norway		#	¤	É	Æ	Ø	Å	Ü	é	æ	ø	å	ü
10	Denmark II		#	$	É	Æ	Ø	Å	Ü	é	æ	ø	å	ü

[Model-dependent variations] None

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Program Example for all printers

```
FOR n=0 TO 10
  PRINT #1, CHR$(&H1B);"R";CHR$(n);
  PRINT #1, "# $ @ [ \ ] ^ ` { ¦ } ~"; CHR$(&HA);
NEXT n
```

Print Sample

#	$	@	[	\	]	^	`	{	¦	}	~	← ***n***=0 (Default setting)
#	$	à	°	ç	§	^	`	é	ù	è	¨	← ***n***=1
#	$	§	Ä	Ö	Ü	^	`	ä	ö	ü	ß	← ***n***=2
£	$	@	[	\	]	^	`	{	¦	}	~	← ***n***=3
#	$	@	Æ	Ø	Å	^	`	æ	ø	å	~	← ***n***=4
#	¤	É	Ä	Ö	Å	Ü	é	ä	ö	å	ü	← ***n***=5
#	$	@	°	\	é	^	ù	à	ò	è	ì	← ***n***=6
Pt	$	@	¡	Ñ	¿	^	`	¨	ñ	}	~	← ***n***=7
#	$	@	[	¥	]	^	`	{	¦	}	~	← ***n***=8
#	¤	É	Æ	Ø	Å	Ü	é	æ	ø	å	ü	← ***n***=9
#	$	É	Æ	Ø	Å	Ü	é	æ	ø	å	ü	← ***n***=10

ESC t *n*

[Name] Select character code table

[Format]

ASCII	ESC	t	*n*
Hex	1B	74	*n*
Decimal	27	116	*n*

[Range] **TM-T88II, TM-L60II, TM-U300A/B: $0 \leq n \leq 5$, $n = 255$**

TM-U200B/D: $0 \leq n \leq 5$, $n = 254, 255$

[Default] $n = 0$

[Printers not featuring this command] None

[Description] Selects a page ***n*** from the character code table as follows:

n	**Character Code Table**
0	Page 0 [PC437 (U.S.A. , Standard Europe)]
1	Page 1 [Katakana]
2	Page 2 [PC850 (Multilingual)]
3	Page 3 [PC860 (Portuguese)]
4	Page 4 [PC863 (Canadian-French)]
5	Page 5 [PC865 (Nordic)]
254	Page 254 [Space page]
255	Page 255 [Spave page]

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[Note] ■ The alphanumeric characters (20H (decimal 32) to 7FH (decimal 127)) are the same for each page. The extended characters (80H (decimal 128) to FFH (decimal 255)) are different for each page.

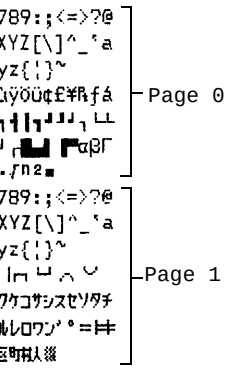
[Model-dependent variations] None

Program Example for all printers

```
PRINT #1, CHR$(&H1B);"t";CHR$(0); ← Select page 0
GOSUB printing
PRINT #1, CHR$(&H1B);"t";CHR$(1); ← Select page 1
GOSUB printing
END

printing:
  FOR i=&H20 TO &H7F
    PRINT #1, CHR$(i);
  NEXT i
  PRINT #1, CHR$(&HA);
  FOR i=&H80 TO &HFF
    PRINT #1, CHR$(i);
  NEXT i
  PRINT #1, CHR$(&HA);
  RETURN
```

Print Sample



ESC ! *n*

[Name] Select print mode(s)

[Format]

ASCII	ESC	!	*n*
Hex	1B	21	*n*
Decimal	27	33	*n*

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

[Default] **TM-T88II, TM-L60II: *n* = 0**

TM-U200B/D, TM-U300A/B: *n* = 1

[Printers not featuring this command] None

[Description] Selects or cancels print modes collectively using ***n*** as follows:

Bit	Off/On	Hex	Decimal	Function
0	Off	00	0	Character font A selected.
	On	01	1	Character font B selected.
1, 2	—	—	—	Undefined.
3	Off	00	0	Emphasized mode not selected.
	On	08	8	Emphasized mode selected.
4	Off	00	0	Double-height mode not selected.
	On	10	16	Double-height mode selected.
5	Off	00	0	Double-width mode not selected.
	On	20	32	Double-width mode selected.
6	–	–	–	Undefined.
7	Off	00	0	Underline mode not selected.
	On	80	128	Underline mode selected.

... how to use this table

[Notes]

- Functions for each bit can also be executed by the following commands:

  Bit 0 (character font): **ESC M**

  Bit 3 (Emphasized mode): **ESC E**

  Bit 4, 5 (character size): **GS !**

  Bit 7 (underline mode): **ESC –**
- Configurations of Font A and Font B are different, depending on the printer model.
- The print modes set by this command are effective for all characters (except for HRI characters).
- When some characters in a line are double-height, all characters on the line are aligned at the baseline.
- When double-width mode is turned on, the characters are enlarged to the right, based on the left side of the character.
- When both double-height and double-width modes are turned on, quadruple size characters are printed.
- In standard mode, the character is enlarged in the paper feed direction when double-height mode is selected, and it is enlarged perpendicular to the paper feed direction when double-width mode is selected. However, when character orientation changes in 90° clockwise-rotated mode, the relationship between double-height and double-width is reversed.

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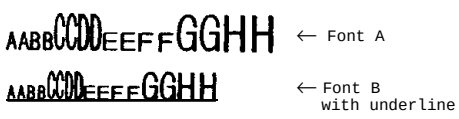
- In page mode, double-height and double-width are on the character orientation.
- The underline thickness is that specified by **ESC –**, regardless of the character size.
- When underline mode is turned on, 90° clockwise-rotated characters and white/black reverse characters cannot be underlined.
- The printer cannot underline the space set by **HT**, **ESC $**, and **ESC **.

[Model-dependent variations] **TM-T88II** **TM-L60II** **TM-U200B/D** **TM-U300A/B**

Program Example for all printers

```
PRINT #1, CHR$(&H1B);"!";CHR$(0); "AA";
PRINT #1, CHR$(&H1B);"!";CHR$(8); "BB";
PRINT #1, CHR$(&H1B);"!";CHR$(16); "CC";
PRINT #1, CHR$(&H1B);"!";CHR$(24); "DD";
PRINT #1, CHR$(&H1B);"!";CHR$(32); "EE";
PRINT #1, CHR$(&H1B);"!";CHR$(40); "FF";
PRINT #1, CHR$(&H1B);"!";CHR$(48); "GG";
PRINT #1, CHR$(&H1B);"!";CHR$(56); "HH"; CHR$(&HA);
PRINT #1, CHR$(&H1B);"!";CHR$(129); "AA";
PRINT #1, CHR$(&H1B);"!";CHR$(137); "BB";
PRINT #1, CHR$(&H1B);"!";CHR$(145); "CC";
PRINT #1, CHR$(&H1B);"!";CHR$(153); "DD";
PRINT #1, CHR$(&H1B);"!";CHR$(161); "EE";
PRINT #1, CHR$(&H1B);"!";CHR$(169); "FF";
PRINT #1, CHR$(&H1B);"!";CHR$(177); "GG";
PRINT #1, CHR$(&H1B);"!";CHR$(185); "HH"; CHR$(&HA);
```

Print Sample




```
AA: Normal
BB: Emphasized
CC: Double-height
DD: Emphasized + Double-height
EE: Double-width
FF: Emphasized + Double-width
GG: Double-height + Double-width
HH: Emphasized + Double-height + Double-width
```

CONFIDENTIAL

TM-T88II

Character configurations

Bit 0: Font A: 12 × 24
Font B: 9 × 17

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TM-L60II

Character configurations

Bit 0: Font A: 12 × 24
Font B: 9 × 17

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TM-U200B/D

Character configurations

Bit 0: Font A: 9 × 9
Font B: 7 × 9

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TM-U300A/B

Character configurations

Bit 0: Font A: 9 × 9
Font B: 7 × 9

Bit 3 is undefined. This printer does not support the emphasized mode.

ESC – *n*

[Name] Turn underline mode on/off

[Format]

ASCII	ESC	–	*n*
Hex	1B	2D	*n*
Decimal	27	45	*n*

[Range] **TM-T88II, TM-L60II : 0 ≤ *n* ≤ 2, 48 ≤ *n* ≤ 50**

TM-U200B/D: *n* = 0, 1, 48, 49

[Default] *n* = 0

[Printers not featuring this command] **TM-U300A/B**

[Description] Turns underline mode on or off using ***n*** as follows:

n	**Function**
0, 48	Turned off underline mode
1, 49	Turned on underline mode (1-dot thick)
2, 50	Turned on underline mode (2-dots thick)

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[Notes]

- The underline mode is effective for all characters (except for HRI characters).
- When underline mode is turned on, 90° clockwise rotated characters and white/black reverse characters cannot be underlined.
- The printer cannot underline the space set by **HT**, **ESC $**, and **ESC **.
- Changing the character size does not affect the current underline thickness.
- When underline mode is turned off, the following data cannot be underlined, but the thickness is maintained.
- This command and bit 7 of **ESC !** turn on and off underline mode in the same way.
- Some of the printer models support the 2-dot thick underline (***n*** = 2 or 5).

[Model-dependent variations] None

Program Example for all printers

```
PRINT #1, CHR$(&H1B);"-";CHR$(1); ← Select
PRINT #1, "AAAAA"; CHR$(&HA);
PRINT #1, CHR$(&H1B);"-";CHR$(0); ← Cancel
PRINT #1, "BBBBB"; CHR$(&HA);
```

Print Sample

```
AAAAA  ← Underline (1-dot thick) turned on
BBBBB  ← Underline turned off
```

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ESC E *n*

[Name] Turn emphasized mode on/off

[Format]

ASCII	ESC	E	*n*
Hex	1B	45	*n*
Decimal	27	69	*n*

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

[Default] $n = 0$

[Printers not featuring this command] **TM-U300A/B**

[Description] Turns emphasized mode on or off.

- When the LSB of ***n*** is 0, emphasized mode is turned off.
- When the LSB of ***n*** is 1, emphasized mode is turned on.

[Notes]

- The emphasized mode is effective for all characters (except for HRI characters).
- This command and bit 3 of **ESC !** turn on and off emphasized mode in the same way.

[Model-dependent variations] None

Program Example for all printers

```
PRINT #1, CHR$(&H1B);"E";CHR$(1); ←Select
PRINT #1, "AAAAA"; CHR$(&HA);
PRINT #1, CHR$(&H1B);"E";CHR$(0); ←Cancel
PRINT #1, "BBBBB"; CHR$(&HA);
```

Print Sample

```
AAAAA ← Emphasized
BBBBB ← Normal
```

ESC M *n*

[Name] Select character font

[Format]

ASCII	ESC	M	*n*
Hex	1B	4D	*n*
Decimal	27	77	*n*

[Range] *n* = 0, 1, 48, 49

[Default] *n* = 0

[Printers not featuring this command] **TM-L60II, TM-U200B/D, TM-U300A/B**

[Description] Selects a character font, using ***n*** as follows:

n	**Font**
0, 48	Font A
1, 49	Font B

[Notes]

- The character font set by this command is effective for all characters (except for HRI characters).
- Configurations of font A and font B depend on the printer model.
- This command and bit 0 of **ESC !** select character font A or B in the same way.

[Model-dependent variations] **TM-T88II**

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Program Example for all printers

```
PRINT #1, CHR$(&H1B);"M";CHR$(0);← Select font A
PRINT #1, "AAAAA";CHR$(&HA);
PRINT #1, CHR$(&H1B);"M";CHR$(1); ← Select font B
PRINT #1,"BBBBB";CHR$(&HA);
```

Print Sample

```
AAAAA ← Font A
BBBBB  ← Font B
```

CONFIDENTIAL

TM-T88II

Character configurations

Font A: (12 x 24)
Font B: (9 x 17)

GS ! *n*

[Name] Select character size

[Format]

ASCII	GS	!	*n*
Hex	1D	21	*n*
Decimal	29	33	*n*

[Range] **TM-T88II, TM-L60II:**

$0 \le n \le 7$, $16 \le n \le 23$, $32 \le n \le 39$, $48 \le n \le 55$,
$64 \le n \le 71$, $80 \le n \le 87$, $96 \le n \le 103$,
$112 \le n \le 119$
($1 \le$ height ≤ 8, $1 \le$ width ≤ 8)

[Default] $n = 0$

[Printers not featuring this command] **TM-U200B/D, TM-U300A/B**

[Description] Selects the character height (vertical number of times normal font size) using bits 0 to 2 and selects the character width (horizontal number of times normal font size) using bits 4 to 6, as follows:

Character Width Selection					
Bit6	**Bit5**	**Bit4**	**Hex**	**Decimal**	**Width**
Off	Off	Off	00	0	1 (normal)
Off	Off	On	10	16	2 (double-width)
Off	On	Off	20	32	3
Off	On	On	30	48	4
On	Off	Off	40	64	5
On	Off	On	50	80	6
On	On	Off	60	96	7
On	On	On	70	112	8

Character Height Selection					
Bit2	**Bit1**	**Bit0**	**Hex**	**Decimal**	**Height**
Off	Off	Off	00	0	1 (normal)
Off	Off	On	01	1	2 (double-height)
Off	On	Off	02	2	3
Off	On	On	03	3	4
On	Off	Off	04	4	5
On	Off	On	05	5	6
On	On	Off	06	6	7
On	On	On	07	7	8

[Notes]

- The character size set by this command is effective for all characters (except for HRI characters).
- When the characters are enlarged with different height on one line, all the characters on the line are aligned at the baseline.
- When the characters are enlarged with width, the characters are enlarged to the right, based on the left side of the character.
- **ESC !** can also turn double-width and double-height modes on or off.

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- In standard mode, the character is enlarged in the paper feed direction when double-height mode is selected, and it is enlarged perpendicular to the paper feed direction when double-width mode is selected. However, when character orientation changes in 90° clockwise-rotated mode, the relationship between double-height and double-width is reversed.
- In page mode, double-height and double-width are on the character orientation.

[Model-dependent variations] None

Program Example for all printers

```
PRINT #1, CHR$(&H1D);"!";CHR$(17);
PRINT #1, "AAAAA"; CHR$(&HA);
PRINT #1, CHR$(&H1D);"!";CHR$(0);
PRINT #1, "BBBBB"; CHR$(&HA);
```

Print Sample

AAAAA ← Select quadruple (double-height x double-width)
BBBBB

GS b *n*

[Name] Turn smoothing mode on/off

[Format]

ASCII	GS	b	*n*
Hex	1D	62	*n*
Decima	29	98	*n*

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

[Default] $n = 0$

[Printers not featuring this command] **TM-U200B/D, TM-U300A/B**

[Description] Turns smoothing mode on or off.

- When the LSB of ***n*** is 0, smoothing mode is turned off.
- When the LSB of ***n*** is 1, smoothing mode is turned on.

[Note]

- The smoothing mode is effective for all quadruple-size or larger characters (except for HRI characters).

[Model-dependent variations] None

Program Example for all printers

```
PRINT #1, CHR$(&H1D);"!";CHR$(68); ←Select font size
PRINT #1, CHR$(&H1D);"b";CHR$(1); ←Select smoothing
PRINT #1, "AAAAA"; CHR$(&HA);
```

Print Sample

AAAAA

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ESC G *n*

[Name] Turn double-strike mode on/off

[Format]

ASCII	ESC	G	*n*
Hex	1B	47	*n*
Decimal	27	71	*n*

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

[Default] $n = 0$

[Printers not featuring this command] **TM-U300A/B**

[Description] Turns double-strike mode on or off.

- When the LSB of ***n*** is 0, double-strike mode is turned off.
- When the LSB of ***n*** is 1, double-strike mode is turned on.

[Note] ■ The double-strike mode is effective for all characters (except for HRI characters).

[Model-dependent variations] None

Program Example for all printers

```
PRINT #1, CHR$(&H1B);"G";CHR$(1); ← Select
PRINT #1, "AAAAA"; CHR$(&HA);
PRINT #1, CHR$(&H1B);"G";CHR$(0); ← Cancel
PRINT #1, "BBBBB"; CHR$(&HA);
```

Print Sample

```
AAAAA ← Double-strike
BBBBB ← Normal
```

ESC { *n*

[Name] Turn upside-down printing mode on/off

[Format]

ASCII	ESC	{	*n*
Hex	1B	7B	*n*
Decimal	27	123	*n*

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

[Default] $n = 0$

[Printers not featuring this command] None

[Description] In standard mode, turns upside-down printing mode on or off.

- When the LSB of ***n*** is 0, upside-down printing mode is turned off.
- When the LSB of ***n*** is 1, upside-down printing mode is turned on.

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[Notes]

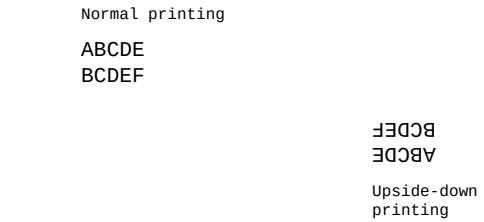
- When standard mode is selected, this command is enabled only when processed at the beginning of the line.
- The upside-down printing mode is effective for all data in standard mode.
- The upside-down printing mode has no effect in page mode. If this command is processed in page mode, an internal flag is activated and this flag is enabled when the printer returns to standard mode.
- When upside-down printing mode is turned on, the printer prints 180°-rotated characters from right to left. The line printing order is not reversed; therefore, be careful of the order of the data transmitted.

[Model-dependent variations] None

Program Example for all printers

```
PRINT #1, CHR$(&H1B);"{";CHR$(0); ← Cancel
  PRINT #1, "ABCDE"; CHR$(&HA);
  PRINT #1, "BCDEF"; CHR$(&HA);
PRINT #1, CHR$(&H1B);"{";CHR$(1); ← Select
  PRINT #1, "ABCDE"; CHR$(&HA);
  PRINT #1, "BCDEF"; CHR$(&HA);
```

Print Sample



ESC V *n*

[Name] Turn 90° clockwise rotation mode on/off

[Format]

ASCII	ESC	V	*n*
Hex	1B	56	*n*
Decimal	27	86	*n*

[Range] **TM-T88II, TM-L60II : *n* = 0, 1, 48, 49**

[Default] *n* = 0

[Printers not featuring this command] **TM-U200B/D, TM-U300A/B**

[Description] In standard mode, turns 90° clockwise rotation mode on or off, using ***n*** as follows:

n	**Function**
0, 48	Turns off 90° clockwise rotation mode.
1, 48	Turns on 90° clockwise rotation mode (1-dot character spacing).
2, 50	Turns on 90° clockwise rotation mode (1.5-dot character spacing).

[Notes]

- The 90° clockwise rotation mode is effective for all characters (except for HRI characters) in standard mode.
- When underline mode is turned on, the printer does not underline 90° clockwise-rotated characters.
- When character orientation changes in 90° clockwise rotation mode, the relationship between vertical and horizontal directions is reversed.
- The 90° clockwise rotation mode has no effect in page mode. If this command is processed in page mode, an internal flag is activated and this flag is enabled when the printer returns to standard mode.
- Some printer models support 90° clockwise rotation mode when ***n*** = 2 or 50.
- Some printer models have a font for which 90° clockwise rotation mode is not effective.

[Model-dependent variations] None

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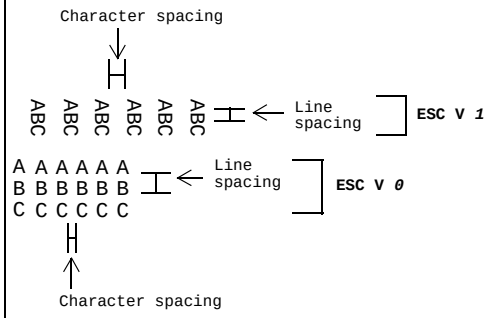
Program Example for all printers

```
PRINT #1, CHR$(&H1D);"P";CHR$(180);CHR$(180);
PRINT #1, CHR$(&H1B);" ";CHR$(20);← Set character spacing
PRINT #1, CHR$(&H1B);"3";CHR$(15);← Set line spacing
PRINT #1, CHR$(&H1B);"V";CHR$(1);← Select
  PRINT #1, "AAAAA"; CHR$(&HA);
  PRINT #1, "BBBBB"; CHR$(&HA);
  PRINT #1, "CCCCC"; CHR$(&HA);
PRINT #1, CHR$(&H1B);"2";← Set line spacing
PRINT #1, CHR$(&H1B);"V";CHR$(0);← Cancel
  PRINT #1, "AAAAA"; CHR$(&HA);
  PRINT #1, "BBBBB"; CHR$(&HA);
  PRINT #1, "CCCCC"; CHR$(&HA);
```

Print Sample



GS B *n*

[Name] Turn white/black reverse printing mode on/off

[Format]

ASCII	GS	B	*n*
Hex	1D	42	*n*
Decimal	29	66	*n*

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

[Default] $n = 0$

[Printers not featuring this command] **TM-U200B/D, TM-U300A/B**

[Description] Turns white/black reverse printing mode on or off.

- When the LSB of ***n*** is 0, white/black reverse printing mode is turned off.
- When the LSB of ***n*** is 1, white/black reverse printing mode is turned on.

[Notes]

- The white/black reverse printing mode is effective for all characters (except for HRI characters).
- When white/black reverse printing mode is turned on, it also affects the right-side character spacing set by **ESC SP**.

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- When white/black reverse printing mode is turned on, it does not affect the space between lines.
- When underline mode is turned on, the printer does not underline white/black reverse characters.
- In white/black reverse printing mode, characters are printed in white on a black background.

[Model-dependent variations] None

Program Example for all printers

```
PRINT #1, CHR$(&H1D);"B";CHR$(1); ← Select
PRINT #1, "AAAAA"; CHR$(&HA);
PRINT #1, CHR$(&H1D);"B";CHR$(0); ← Cancel
PRINT #1, "BBBBB"; CHR$(&HA);
```

Print Sample

AAAAA ← White/black reverse printing
BBBBB ← Normal printing

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CAN

[Name] Cancel print data in page mode

[Format] ASCII CAN
Hex 18
Decimal 24

[Range] None

[Default] None

[Printers not featuring this command] **TM-U200B/D, TM-U300A/B**

[Description] In page mode, deletes all the print data for the current printing area.

[Notes]
- This command is enabled only in page mode
- If data set in the previously specified printing area is set in the currently specified printing area, it is deleted.

[Model-dependent variations] None

Program Example for all printers

```
PRINT #1, CHR$(&H1B);"L"; ←Select page mode
PRINT #1, CHR$(&H1D);"P";CHR$(180);CHR$(180);
PRINT #1, CHR$(&H1B);"W";CHR$(0);CHR$(0);CHR$(0);
CHR$(0);CHR$(240);CHR$(0);CHR$(44);CHR$(1);
PRINT #1, CHR$(&H1B);"T";CHR$(0); ←Select print direction
FOR i=1 TO 200 : PRINT #1, "A"; : NEXT i
PRINT #1, CHR$(&H1B);"W";CHR$(60);CHR$(0);CHR$(90);
CHR$(0);CHR$(60);CHR$(0);CHR$(120);CHR$(0);
PRINT #1, CHR$(&H18); ←Cancel print data
PRINT #1, CHR$(&HC); ←Batch print and return to standard mode
```

Print Sample

```
AAAAAAAAAAAAAAAAAAA
AAAAAAAAAAAAAAAAAAA
AAAAAAAAAAAAAAAAAAA
AAAAA      AAAAAAAAAA
AAAAA      AAAAAAAAAA
AAAAA      AAAAAAAAAA
AAAAA      AAAAAAAAAA
AAAAAAAAAAAAAAAAAAA
AAAAAAAAAAAAAAAAAAA
AAAAAAAAAAAAAAAAAAA
```

ESC r *n*

[Name] Select print color

[Format]

ASCII	ESC	r	*n*
Hex	1B	72	*n*
Decimal	27	114	*n*

[Range] **TM-U200B/D: *n* = 0, 1, 48, 49**

TM-U300A/B: *n* = 0, 1

[Default] *n* = 0

[Printers not featuring this command] **TM-T88II, TM-L60II**

[Description] Selects a print color, using ***n*** as follows:

n	**Print color**
0, 48	Black
1, 49	Red

[Notes]

- When standard mode is selected, this command is enabled only when processed at the beginning of the line.
- When page mode is selected, the color setting is the same for all data collectively printed by **FF** or **ESC FF**.

[Model-dependent variations] **TM-U200B/D**

CONFIDENTIAL

Program Example for all printers

```
PRINT #1, CHR$(&H1B);"r";CHR$(1);← Select red
PRINT #1, "AAAAA";CHR$(&HA);
PRINT #1, CHR$(&H1B);"r";CHR$(0); ← Select black
PRINT #1,"BBBBB";CHR$(&HA);
```

Print Sample

```
AAAAA ← Red
BBBBB ← Black
```

CONFIDENTIAL

TM-U200B/D

This command is enabled with the two-color model.

PANEL BUTTON COMMAND

Command	Name
ESC c 5 *n*	Enable/disable panel buttons

ESC c 5 *n*

[Name] Enable/disable panel buttons

[Format]

ASCII	ESC	c	5	*n*
Hex	1B	63	35	*n*
Decimal	27	99	53	*n*

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

[Default] $n = 0$

[Printers not featuring this command] None

[Description] Enables or disables the panel buttons.

- When the LSB of ***n*** is 0, all buttons are enabled.
- When the LSB of ***n*** is 1, all buttons are disabled.

[Notes]

- When the printer cover is open, there are buttons that are always enabled or disabled regardless of this command. The buttons are different, depending on the printer model.
- When the LED blinks to indicate that the printer is waiting for the paper feed button to be pressed in the following status (but paper cannot be fed):
  - When **GS ^** is executed
  - When **GS FF** is executed
  - During the recovery confirmation time set by **GS z 0**

- During the paper loading wait time set by **GS z 0**, paper can be fed by the paper feed button.
- To prevent problems caused by accidentally pressing the buttons, use this command to disable the buttons.

[Model-dependent variations] **TM-T88II** **TM-L60II** **TM-U200B/D** **TM-U300A/B**

Program Example for all printers

```
PRINT #1, CHR$(&H1B);"c5";CHR$(1); ← Disable panel buttons
```

CONFIDENTIAL

TM-T88II

The panel button is FEED.

When the cover is open and the paper roll end sensor detects a paper end, the FEED button is disabled regardless of the setting of this command.

CONFIDENTIAL

TM-L60II

The panel button is PAPER FEED.

When the cover is open, the PAPER FEED is enabled regardless of the settings of this command. When the paper roll end sensor detects a paper end, the PAPER FEED is disabled regardless of the settings of this command.

CONFIDENTIAL

TM-U200B/D

The panel button is PAPER FEED.

CONFIDENTIAL

TM-U300A/B

The panel button is FEED.

When the cover is open, this button is enabled regardless of the settings of this command.

PAPER SENSOR COMMANDS

Command	Name
ESC c 4 *n*	Select paper sensor(s) to stop printing
ESC c 3 *n*	Select paper sensor(s) to output paper-end signals

ESC c 4 *n*

[Name]	Select paper sensor(s) to stop printing				
[Format]	ASCII	ESC	c	4	*n*
	Hex	1B	63	34	*n*
	Decimal	27	99	52	*n*
[Range]	$0 \leq n \leq 255$				
[Default]	**TM-T88II, TM-L60II, TM-U200B/D, TM-U300A/B: *n* = 0**				
[Printers not featuring this command]	None				

[Description] Selects whether to stop printing or not when the paper runs out using ***n*** as follows:

Bit	Off/On	Hex	Decimal	Function
0	Off	00	0	Paper roll near-end sensor disabled.
	On	01	1	Paper roll near-end sensor enabled.
1	Off	00	0	Paper roll near-end sensor disabled.
	On	02	2	Paper roll near-end sensor enabled.
2	Off	00	0	Paper roll end sensor disabled.
	On	02	4	Paper roll end sensor enabled.
3	Off	00	0	Paper roll end sensor disabled.
	On	08	8	Paper roll end sensor enabled.
4-7	—	—	—	Undefined.

... how to use this table

[Notes]

- It is possible to select multiple sensors to stop printing. When any sensor detects a paper-end, printing stops.
- Some sensors are not present, depending on the printer model.

- The names of some sensors differ depending on the printer model.
- The paper roll near-end sensor is enabled when either bit 0 or bit 1 is on or both are on.
- The paper roll end sensor is enabled when either bit 2 or bit 3 is on or both are on.
- When a paper near-end is detected, printing stops after printing the current line and feeding the paper. The printer goes off-line and Paper LED comes on after printing stops. To resume printing, cancel the "paper roll near-end" status by replacing the paper roll.
- If the paper roll near-end sensor is disabled and a paper near-end is detected, printing does not stop and the printer does not go off-line, but the Paper LED comes on.
- When a paper roll end is detected, the printer performs the same operations as when a paper roll near-end is detected.

[Model-dependent variations] **TM-T88II** **TM-L60II** **TM-U200B/D** **TM-U300A/B**

Program Example for all printers

```
PRINT #1, CHR$(&H1B);"c4";CHR$(1); ← Paper roll near-end sensor enabled
```

CONFIDENTIAL

TM-T88II

Bits 2 and 3 are undefined.

The paper roll end sensor is always enabled and when it detects a paper-end, the printer stops printing.

When a paper roll near-end or a paper roll end are detected, the PAPER OUT LED comes on.

CONFIDENTIAL

TM-L60II

Bits 2 and 3 are undefined.

The paper roll end sensor is always enabled and when it detects a paper-end, the printer stops printing.

When a paper roll near-end or a paper roll end are detected, the PAPER LED comes on.

CONFIDENTIAL

TM-U200B/D

Bits 2 and 3 are undefined. When a paper roll near-end or a paper roll end is detected, the PAPER OUT LED comes on.

The paper roll end sensor is always enabled and when it detects a paper-end, the printer stops printing.

The paper roll near-end sensor is an option. When the paper roll near-end sensor is not equipped, this command is ignored.

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TM-U300A/B

Bits 1 and 3 are undefined.

When a paper roll near-end or a paper roll end is detected, the PAPER OUT LED comes on.

ESC c 3 *n*

[Name] Select paper sensor(s) to output paper-end signals

[Format]

ASCII	ESC	c	3	*n*
Hex	1B	63	33	*n*
Decimal	27	99	51	*n*

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

[Default] **TM-T88II, TM-U200B/D:** $n = 15$

TM-L60II, TM-U300A/B: $n = 3$

[Printers not featuring this command] None

[Description] Selects whether to output paper-end signals to a parallel interface or not when a paper-end is detected by the sensor selected, using ***n*** as follows:

Bit	Off/On	Hex	Decimal	Function
0	Off	00	0	Paper roll near-end sensor disabled.
	On	01	1	Paper roll near-end sensor enabled.
1	Off	00	0	Paper roll near-end sensor disabled.
	On	02	2	Paper roll near-end sensor enabled.

... how to use this table

Bit	Off/On	Hex	Decimal	Function
2	Off	00	0	Paper roll end sensor disabled.
	On	02	4	Paper roll end sensor enabled.
3	Off	00	0	Paper roll end sensor disabled.
	On	08	8	Paper roll end sensor enabled.
4-7	—	—	—	Undefined.

[Notes]

- This command is enabled only with a parallel interface and is ignored with a serial interface.
- The paper roll near-end sensor is enabled when either bit 0 or bit 1 is on or both are on.
- The paper roll end sensor is enabled when either bit 2 or bit 3 is on or both are on.
- It is possible to select multiple sensors to output signals. When any of the sensors detects a paper-end, the paper-end signal is output.
- When all sensors are disabled, the paper-end signal is always paper present.

- Some sensors are not present, depending on the printer model.
- The names of some sensors differ depending on the printer model.

[Model-dependent variations] **TM-U200B/D** **TM-U300A/B**

Program Example for all printers

```
PRINT #1, CHR$(&H1B);"c3";CHR$(4); ← Paper roll end sensor enabled
```

CONFIDENTIAL

TM-U200B/D

The paper roll near-end sensor is an option. If the paper roll near-end sensor is not equipped, this printer does not detect a paper roll near-end.

CONFIDENTIAL

TM-U300A/B

Bits 1 and 3 are undefined.

PRINT POSITION COMMANDS

Command	Name
HT	Horizontal tab
ESC D *n1 ... nk NUL*	Set horizontal tab positions
GS L *nL nH*	Set left margin
GS W *nL nH*	Set printing area width
ESC a *n*	Select justification
ESC $ *nL nH*	Set absolute print position
ESC \ *nL nH*	Set relative print position
ESC W *xL xH yL yH dxL dxH dyL dyH*	Set printing area in page mode
ESC T *n*	Select print direction in page mode
GS $ *nL nH*	Set absolute vertical print position in page mode
GS \ *nL nH*	Set relative vertical print position in page mode

CONFIDENTIAL

HT

[Name] Horizontal tab

[Format] ASCII HT
Hex 09
Decimal 9

[Range] None

[Default] None

[Printers not featuring this command] None

[Description] Moves the printing position to the next horizontal tab.

[Notes]
- This command is ignored unless the next horizontal tab position has been set.
- Horizontal tab positions are set by **ESC D**.
- If the next horizontal tab position exceeds the printing area, the printer sets the printing position to [Printing area width + 1].
- If this command is processed when the printing position is at [Printing area width + 1], the printer executes print buffer-full printing of the current line and horizontal tab processing from the beginning of the next line. In this case, in page mode, the printer does not execute printing but the printing position is moved.

[Model-dependent variations] **TM-U200B/D**

See program example for **HT** and **ESC D**.

CONFIDENTIAL

TM-U200B/D

This command is effective only when the receive buffer capacity is 40 bytes (when DIP switch 1-2 is ON).

ESC D *n1 ... nk NUL*

[Name] Set horizontal tab positions

[Format]

ASCII	ESC	D	*n1 ... nk*	*NUL*
Hex	1B	44	*n1 ... nk*	*00*
Decimal	27	68	*n1 ... nk*	*0*

[Range] $1 \leq n \leq 255$

$0 \leq k \leq 32$

[Default] *n* = 8, 16, 24, 32, ... (Every eight characters for the default font set by **ESC !** or **ESC M**)

[Printers not featuring this command] None

[Description] Sets a horizontal tab to ***n*** columns from the beginning of the line.

- ***k*** indicates the number of horizontal tab positions to be set.

[Notes]

- The horizontal tab position is stored as a value of [character width × ***n***] measured from the beginning of the line. The character width includes the right-side character spacing, and double-width characters are selected with twice the width of normal characters.
- A maximum of 32 horizontal tab positions can be set. Data exceeding 32 horizontal tab positions are processed as normal data.

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- This command cancels any previous horizontal tab settings.
- Transmit [***n***]***k*** in ascending order and place a ***NUL*** code at the end. **ESC D *NUL*** cancels all horizontal tab positions.
- When [***n***] is less than or equal to the preceding value [***n***]***k***-1, horizontal tab setting is finished and the following data is processed as normal data.
- ***k*** is not transmission data to the printer.

[Model-dependent variations] **TM-U200B/D**

See program example for **HT** and **ESC D**.

CONFIDENTIAL

TM-U200B/D

This command is effective only when the receive buffer capacity is 40 bytes (when DIP switch 1-2 is ON).

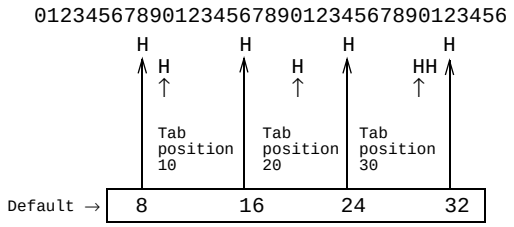
CONFIDENTIAL

Program example for HT and ESC D

Program Example

```
PRINT #1, "01234567890123456789012345678901234567890123456";
PRINT #1, CHR$(&HA);
  FOR i=1 TO 4
    PRINT #1, CHR$(&H9); "H"; ← Execute HT
  NEXT i : PRINT #1, CHR$(&HA);
PRINT #1, CHR$(&H1B);"D";CHR$(10);CHR$(20);
PRINT #1, CHR$(30);CHR$(0); ← Set HT positions
  FOR i=1 TO 4
    PRINT #1, CHR$(&H9); "H"; ← Execute HT
  NEXT i : PRINT #1, CHR$(&HA);
```

Print Sample



GS L *nL nH*

[Name] Set left margin

[Format]

ASCII	GS	L	*nL*	*nH*
Hex	1D	4C	*nL*	*nH*
Decimal	29	76	*nL*	*nH*

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

$0 \leq nH \leq 255$

[Default] *nL* = 0, *nH* = 0

[Printers not featuring this command] **TM-U200B/D, TM-U300A/B**

[Description] In standard mode, sets the left margin to (***nL*** + ***nH*** × 256) × (horizontal motion unit) from the left edge of the printable area.

[Notes]

- When standard mode is selected, this command is enabled only when processed at the beginning of the line.
- If the setting exceeds the printable area, the left margin is automatically set to the maximum value of the printable area.

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- If this command and **GS W** set the printing area width to less than the width of one character, the printing area width is extended to accommodate one character for the line.

[Model-dependent variations] **TM-T88II** **TM-L60II**

See program example for **GS L** and **GS W**.

TM-T88II

The horizontal motion unit is specified by **GS P**.

CONFIDENTIAL

TM-L60II

The horizontal motion unit is specified by **GS P**.

GS W *nL nH*

[Name] Set printing area width

[Format]

ASCII	GS	W	*nL*	*nH*
Hex	1D	57	*nL*	*nH*
Decimal	29	87	*nL*	*nH*

[Range] $0 \le nL \le 255$

$0 \le nH \le 255$

[Default] Entire printable area

TM-T88II: ***nL*** **= 0,** ***nH*** **= 2**

TM-L60II: ***nL*** **= 128,** ***nH*** **= 1 (when thermal paper is selected)**

nL **= 112,** ***nH*** **= 1 (when thermal label is selected)**

[Printers not featuring this command] **TM-U200B/D, TM-U300A/B**

[Description] In standard mode, sets the printing area width to (***nL*** + ***nH*** × 256) × (horizontal motion unit).

[Notes]

- When standard mode is selected, this command is enabled only when processed at the beginning of the line.
- The printing area width has no effect in page mode. If this command is processed in page mode, the printing area width is set and it is enabled when the printer returns to standard mode.

- If the [left margin + printing area width] exceeds the printable area, the printing area width is automatically set to [printable area - left margin].
- If this command and **GS L** set the printing area width to less than the width of one character, the printing area width is extended to accommodate one character for the line.

[Model-dependent variations] **TM-T88II** **TM-L60II**

See program example for **GS L** and **GS W**.

TM-T88II

The horizontal motion unit is specified by **GS P**.

CONFIDENTIAL

TM-L60II

The horizontal motion unit is specified by **GS P**.

When DIP switch 2-6 is off with a serial interface or DIP switch 1-7 is off with a parallel interface, a thermal paper is selected. When DIP switch 2-6 is on with a serial interface or DIP switch 1-7 is on with a parallel interface, a thermal label is selected.

CONFIDENTIAL

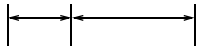
Program example for GS L and GS W

Program Example

```
PRINT #1, CHR$(&H1D);"P";CHR$(180);CHR$(180);
PRINT #1, "01234567890123456789"; CHR$(&HA);
PRINT #1, CHR$(&H1D);"L";CHR$(60);CHR$(0); ← Set left margin
PRINT #1, CHR$(&H1D);"W";CHR$(120);CHR$(0); ← Set printing area width
PRINT #1, "01234567890123456789"; CHR$(&HA);
```

Print Sample

```
01234567890123456789
      0123456789
      0123456789
```



```
Left    Printing area
margin  width
```

ESC a *n*

[Name] Select justification

[Format]

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

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

[Default] $n = 0$

[Printers not featuring this command] **TM-U300A/B**

[Description] In standard mode, aligns all the data in one line to a specified position, using ***n*** as follows:

n	**Justification**
0, 48	Left justification
1, 49	Centered
2, 50	Right justification

CONFIDENTIAL

[Notes]

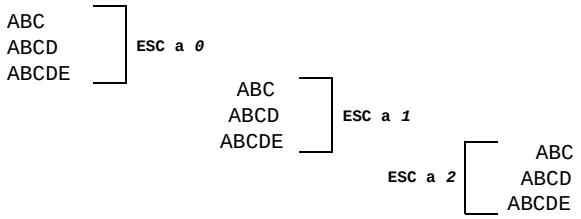
- When standard mode is selected, this command is enabled only when processed at the beginning of the line in standard mode.
- The justification has no effect in page mode. If this command is processed in page mode, an internal flag is activated and this flag is enabled when the printer returns to standard mode.
- This command executes justification in the printing area set by **GS L** and **GS W**.
- This command justifies printing data (such as characters, bit images, and bar codes) and space area set by **HT**, **ESC $**, and **ESC **.

[Model-dependent variations] None

Program Example for all printers

```
FOR n=0 TO 2
  PRINT #1, CHR$(&H1B);"a";CHR$(n);
  PRINT #1, "ABC"; CHR$(&HA);
  PRINT #1, "ABCD"; CHR$(&HA);
  PRINT #1, "ABCDE"; CHR$(&HA);
NEXT n
```

Print Sample



ESC $ *nL nH*

[Name] Set absolute print position

[Format]

ASCII	ESC	$	*nL*	*nH*
Hex	1B	24	*nL*	*nH*
Decimal	27	36	*nL*	*nH*

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

$0 \leq nH \leq 255$

[Printers not featuring this command] **TM-U200B/D, TM-U300A/B**

[Description] Sets the print starting position to (***nL*** + ***nH*** × 256) × (horizontal or vertical motion unit) from the beginning of the line.

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[Notes]

- The printer ignores any setting that exceeds the printing area.
- When standard mode is selected, the horizontal motion unit is used.
- When page mode is selected, the horizontal or vertical motion unit is used for the print direction set by **ESC T**.
  - When the starting position is set to the upper left or lower right of the printing area using **ESC T**, the horizontal motion unit is used.
  - When the starting position is set to the upper right or lower left of the printing area using **ESC T**, the vertical motion unit is used.

[Model-dependent variations] **TM-T88II** **TM-L60II**

See program example for **ESC $** and **ESC **.

CONFIDENTIAL

TM-T88II

The vertical or horizontal motion unit is specified by **GS P**.

CONFIDENTIAL

TM-L60II

The vertical or horizontal motion unit is specified by **GS P**.

ESC \ *nL nH*

[Name] Set relative print position

[Format}

ASCII	ESC	\	*nL*	*nH*
Hex	1B	5C	*nL*	*nH*
Decimal	27	92	*nL*	*nH*

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

$0 \leq nH \leq 255$

[Default] None

[Printers not featuring this command] **TM-U200B/D, TM-U300A/B**

[Description] Moves the print starting position to (***nL*** + ***nH*** × 256) × (horizontal or vertical motion unit) from the current position.

[Notes]

- The printer ignores any setting that exceeds the printing area.
- A positive number specifies movement to the right, and a negative number specifies movement to the left. N pitch movement to the right: (***nL*** + ***nH*** × 256) = N. Use the complement of N for setting N pitch movement to the left: (***nL*** + ***nH*** × 256) = 65536 – N.
- When standard mode is selected, the horizontal motion unit is used.

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- When page mode is selected, the horizontal or vertical motion unit is used for the print direction set by **ESC T**.
  - When the starting position is set to the upper left or lower right of the printing area using **ESC T**, the horizontal motion unit is used.
  - When the starting position is set to the upper right or lower left of the printing area using **ESC T**, the vertical motion unit is used.

[Model-dependent variations] **TM-T88II** **TM-L60II**

See program example for **ESC $** and **ESC **.

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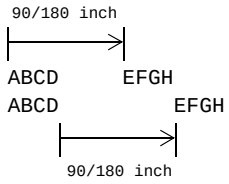
Program example for ESC $ and ESC \

Program Example

```
PRINT #1, CHR$(&H1D);"P";CHR$(180);CHR$(180);
PRINT #1, "ABCD";
PRINT #1, CHR$(&H1B);"$";CHR$(90);CHR$(0); ←Set absolute position
PRINT #1, "EFGH"; CHR$(&HA);
PRINT #1, "ABCD";
PRINT #1, CHR$(&H1B);"\";CHR$(90);CHR$(0); ←Set relative position
PRINT #1, "EFGH"; CHR$(&HA);
```

Print Sample



CONFIDENTIAL

TM-T88II

The vertical or horizontal motion unit is specified by **GS P**.

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TM-L60II

The vertical or horizontal motion unit is specified by **GS P**.

ESC W *xL xH yL yH dxL dxH dyL dyH*

[Name] Set printing area in page mode

[Format]

ASCII	ESC	W	*xL*	*xH*	*yL*	*yH*	*dxL*	*dxH*	*dyL*	*dyH*
Hex	1B	57	*xL*	*xH*	*yL*	*yH*	*dxL*	*dxH*	*dyL*	*dyH*
Decimal	27	87	*xL*	*xH*	*yL*	*yH*	*dxL*	*dxH*	*dyL*	*dyH*

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

(except for $dxL = dxH = 0$ or $dyL = dyH = 0$)

[Default] Horizontal logical origin and vertical logical origin= 0

$xL = 0$, $xH = 0$, $yL = 0$, $yH = 0$

Printing area width and printing area height = entire printable area

TM-T88II: $dxL = 0$, $dxH = 2$, $dyL = 126$, $dyH = 6$

TM-L60II: $dxL = 128$, $dxH = 1$ (when thermal paper is selected)

$dxL = 112$, $dxH = 1$ (when thermal label is selected)

$dyL = 126$, $dyH = 6$

[Printers not featuring this command] **TM-U200B/D, TM-U300A/B**

[Description] In page mode, sets the size and the logical origin of the printing area as follows:

- Horizontal logical origin = (***xL*** + ***xH*** × 256) × (horizontal motion unit) from absolute origin.
- Vertical logical origin = (***yL*** + ***yH*** × 256) × (vertical motion unit) from absolute origin.
- Printing area width = (***dxL*** + ***dxH*** × 256) × (horizontal motion unit)
- Printing area height = (***dyL*** + ***dyH*** × 256) × (vertical motion unit)

[Notes]

- Both printing area width and height cannot be set to 0.
- The absolute origin is the upper left of the printable area.
- If the horizontal or vertical logical origin is set outside the printable area, this command is canceled.
- If [horizontal logical origin + printing area width] exceeds the printable area, the printing area width is automatically set to [horizontal printable area – horizontal logical origin].
- If [vertical logical origin + printing area height] exceeds the printable area, the printing area height is automatically set to [vertical printable area – vertical logical origin].
- The printing area and the logical origin set by this command is effective only in page mode.

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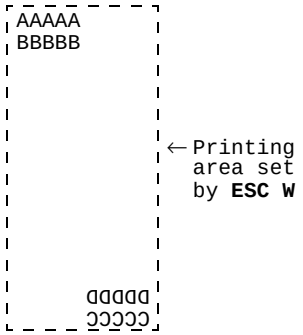
■ This command setting has no effect in standard mode.

[Model-dependent variations] **TM-T88II** **TM-L60II**

Program Example for all printers

```
PRINT #1, CHR$(&H1B);"L";← Select page mode
PRINT #1, CHR$(&H1D);"P";CHR$(180);CHR$(180);
PRINT #1, CHR$(&H1B);"W";CHR$(0);CHR$(0);CHR$(0);CHR$(0);CHR$(180);
CHR$(0);CHR$(44);CHR$(1); ← Set printing area
PRINT #1, CHR$(&H1B);"T";CHR$(0); ← Select print direction
PRINT #1, "AAAAA"; CHR$(&HA);
PRINT #1, "BBBBB"; CHR$(&HA);
PRINT #1, CHR$(&H1B);"T";CHR$(2); ← Select print direction
PRINT #1, "CCCCC"; CHR$(&HA);
PRINT #1, "DDDDD"; CHR$(&HC); ← Batch print and return to standard mode
```

Print Sample



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TM-T88II

The vertical or horizontal motion unit is specified by **GS P**.

The printable area width is 512/180 inches and the printable area height is 1662/360 inches.

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TM-L60II

The vertical or horizontal motion unit is specified by **GS P**.

The printable area height is 2216/360 inches and the printable area width is as follows:

- When a thermal paper is selected, it is 384/180 inches.
- When a thermal label is selected, it is 368/180 inches.

ESC T *n*

[Name] Select print direction in page mode

[Format]

ASCII	ESC	T	*n*
Hex	1B	54	*n*
Decimal	27	84	*n*

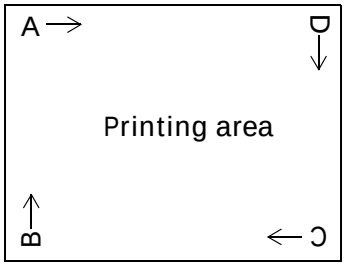
[Range] $0 \le n \le 3, 48 \le n \le 51$

[Default] $n = 0$

[Printers not featuring this command] **TM-U200B/D, TM-U300A/B**

[Description] In page mode, selects the print direction and starting position using ***n*** as follows:

n	**Print Direction**	**Starting Position**
0, 48	Left to right	Upper left (A in the figure)
1, 49	Bottom to top	Lower left (B in the figure)
2, 50	Right to left	Lower right (C in the figure)
3, 51	Top to bottom	Upper right (D in the figure)



[Notes]

- The print direction set by this command is effective only in page mode.
- This command setting has no effect in standard mode.

- The parameters for the horizontal or vertical motion unit differ depending on the starting position of the printing area as follows:
  - If the starting position is the upper left or lower right of the printing area:
    These commands use horizontal motion units:
    ESC SP, **ESC $**, **ESC **
    These commands use vertical motion units: **ESC 3**, **ESC J**, **GS $**, **GS **
  - If the starting position is the upper right or lower left of the printing area:
    These commands use horizontal motion units:
    ESC 3, **ESC J**, **GS $**, **GS **
    These commands use vertical motion units: **ESC SP**, **ESC $**, **ESC **

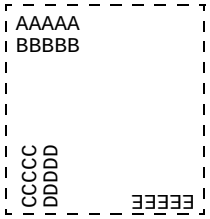
[Model-dependent variations] None

CONFIDENTIAL

Program Example for all printers

```
PRINT #1, CHR$(&H1B);"L"; ← Select page mode
PRINT #1, CHR$(&H1D);"P";CHR$(180);CHR$(180);
PRINT #1, CHR$(&H1B);"W";CHR$(0);CHR$(0);CHR$(0);CHR$(0);
CHR$(240);CHR$(0);CHR$(200);CHR$(0); ← Set printing area
PRINT #1, CHR$(&H1B);"T";CHR$(0); ← Select print direction
PRINT #1, "AAAAA"; CHR$(&HA);
PRINT #1, "BBBBB"; CHR$(&HA);
PRINT #1, CHR$(&H1B);"T";CHR$(1); ← Select print direction
PRINT #1, "CCCCC"; CHR$(&HA);
PRINT #1, "DDDDD"; CHR$(&HA);
PRINT #1, CHR$(&H1B);"T";CHR$(2); ← Select print direction
PRINT #1, "EEEEE"; CHR$(&HC); ← Batch print and return to standard mode
```

Print Sample



← Printing area set by **ESC W**

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GS $ *nL nH*

[Name] Set absolute vertical print position in page mode

[Format]

ASCII	GS	$	*nL*	*nH*
Hex	1D	24	*nL*	*nH*
Decimal	29	36	*nL*	*nH*

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

[Default] None

[Printers not featuring this command] **TM-U200B/D, TM-U300A/B**

[Description] In page mode, sets the vertical printing position to (***nL*** + ***nH*** × 256) × (vertical or horizontal motion unit) from the starting position set by **ESC T**.

[Notes]

- This command is enabled only in page mode. If this command is processed in standard mode, it is ignored.
- The printer ignores any setting that exceeds the printing area set by **ESC W**.
- The horizontal or vertical motion unit is used for the print direction set by **ESC T**.
  - When the starting position is set to the upper left or lower right of the printing area using **ESC T**, the vertical motion unit is used.
  - When the starting position is set to the upper right or lower left of the printing area using **ESC T**, the horizontal motion unit is used.

[Model-dependent variations] **TM-T88II** **TM-L60II**

See program example for **GS $** and **GS **.

CONFIDENTIAL

TM-T88II

The vertical or horizontal motion unit is specified by **GS P**.

CONFIDENTIAL

TM-L60II

The vertical or horizontal motion unit is specified by **GS P**.

GS \ *nL nH*

[Name] Set relative vertical print position in page mode

[Format]

ASCII	GS	\	*nL*	*nH*
Hex	1D	5C	*nL*	*nH*
Decimal	29	92	*nL*	*nH*

[Range] $0 \le nL \le 255$

$0 \le nH \le 255$

[Default] None

[Printers not featuring this command] **TM-U200B/D, TM-U300A/B**

[Description] In page mode, moves the vertical printing position to (***nL*** + ***nH*** × 256) × (vertical or horizontal motion unit) from the current position.

[Notes]

- This command is enabled only in page mode. If this command is processed in standard mode, it is ignored.
- The printer ignores any setting that exceeds the printing area set by **ESC W**.
- A positive number specifies movement to the downward, and a negative number specifies movement to the upward. N pitch movement to the downward: (***nL*** + ***nH*** × 256) = N. Use the complement of N for setting N pitch movement to the upward: (***nL*** + ***nH*** × 256) = 65536 –N.

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- The horizontal or vertical motion unit is used for the print direction set by **ESC T**.
  - When the starting position is set to the upper left or lower right of the printing area using **ESC T**, the vertical motion unit is used.
  - When the starting position is set to the upper right or lower left of the printing area using **ESC T**, the horizontal motion unit is used.

[Model-dependent variations] **TM-T88II** **TM-L60II**

See program example for **GS $** and **GS **.

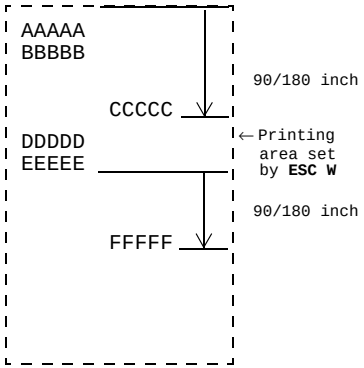
CONFIDENTIAL

Program example for GS $ and GS \

Program Example

```
PRINT #1, CHR$(&H1B);"L"; ← Select page mode
PRINT #1, CHR$(&H1D);"P";CHR$(180);CHR$(180);
PRINT #1, CHR$(&H1B);"W";CHR$(0);CHR$(0);CHR$(0);CHR$(0);
CHR$(180);CHR$(0);CHR$(144);CHR$(1); ← Set printing area
PRINT #1, CHR$(&H1B);"T";CHR$(0); ← Select print direction
PRINT #1, "AAAAA"; CHR$(&HA);
PRINT #1, "BBBBB";
PRINT #1, CHR$(&H1D);"$";CHR$(90);CHR$(0); ← Set absolute position
PRINT #1, "CCCCC"; CHR$(&HA);
PRINT #1, "DDDDD"; CHR$(&HA);
PRINT #1, "EEEEE";
PRINT #1, CHR$(&H1D);"\";CHR$(90);CHR$(0); ← Set relative position
PRINT #1, "FFFFF"; CHR$(&HC); ← Batch print and return to standard mode
```

Print Sample



CONFIDENTIAL

TM-T88II

The vertical or horizontal motion unit is specified by **GS P**.

CONFIDENTIAL

TM-L60II

The vertical or horizontal motion unit is specified by **GS P**.

BIT-IMAGE COMMANDS

Command	Name
ESC * *m nL nH d1 ... dk*	Select bit-image mode
FS p	Print NV bit image
FS q	Define NV bit image
GS * *x y d1 ... d(x × y × 8)*	Define downloaded bit image
GS / *m*	Print downloaded bit image
GS v 0 *m xL xH yL yH d1 ... dk*	Print raster bit image

ESC * *m nL nH d1 ... dk*

[Name] Select bit-image mode

[Format]

ASCII	ESC	*	*m*	*nL*	*nH*	*d1 ... dk*
Hex	1B	2A	*m*	*nL*	*nH*	*d1 ... dk*
Decimal	27	42	*m*	*nL*	*nH*	*d1 ... dk*

[Range]

TM-T88II: ***m* = 0, 1, 32, 33**
0 ≤ *nL* ≤ 255
0 ≤ *nH* ≤ 3
0 ≤ *d* ≤ 255

TM-L60II: ***m* = 0, 1, 32, 33**
0 ≤ *nL* ≤ 255
0 ≤ *nH* ≤ 3
0 ≤ *d* ≤ 255

TM-U200B/D: ***m* = 0, 1**
0 ≤ *nL* ≤ 255
0 ≤ *nH* ≤ 3
0 ≤ *d* ≤ 255

TM-U300A/B: ***m* = 0, 1**
0 ≤ *nL* ≤ 255
0 ≤ *nH* ≤ 3
0 ≤ *d* ≤ 255

[Default] None

[Printers not featuring this command] None

[Description] Selects a bit-image mode using ***m*** for the number of dots specified by (***nL*** + ***nH*** × 256), as follows:

m	**Mode**	**Number of Bits for Vertical data**	**Dot Density in Horizontal**	**Amount of Data (*k*)**
0	8-dot single-density	8	Single-density	***nL*** + ***nH*** × 256
1	8-dot double-density	8	Double-density	***nL*** + ***nH*** × 256
32	24-dot single-density	24	Single-density	(***nL*** +***nH*** × 256) × 3
33	24-dot double-density	24	Double-density	(***nL*** + ***nH*** × 256) × 3

- ***d*** indicates the bit image data.

[Notes]

- Data (***d***) specifies a bit printed to 1 and not printed to 0.
- If the bit image data exceeds the number of dots to be printed on a line, the excess data is ignored.
- The bit-image is not affected by print mode (emphasized, double-strike, underline, character size, white/black reverse printing, or 90° clockwise-rotated), except for upside-down printing mode.

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- After printing a bit image, the printer processes normal data.
- When printing multiple line bit images, selecting unidirectional printing mode with **ESC U** enables printing patterns in which the top and bottom parts are aligned vertically.
- This command is used to print a picture or logo.

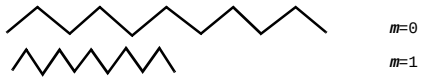
[Model-dependent variations] **TM-T88II** **TM-L60II** **TM-U200B/D** **TM-U300A/B**

Program Example for all printers

```
m=0:  GOSUB bitimage8 ←8-dot single-density
m=1:  GOSUB bitimage8 ←8-dot double-density
END

bitimage8:
  PRINT #1, CHR$(&H1B);"*";CHR$(m);CHR$(70);CHR$(0);
  FOR i=1 TO 5
    PRINT #1, CHR$(1);CHR$(2);CHR$(4);CHR$(8);
    PRINT #1, CHR$(16);CHR$(32);CHR$(64);CHR$(128);
    PRINT #1, CHR$(64);CHR$(32);CHR$(16);CHR$(8);
    PRINT #1, CHR$(4);CHR$(2);
  NEXT i
  PRINT #1, CHR$(&HA);
  RETURN
```

Print Sample



TM-T88II

The modes selectable by *m* are as follows:

m	Mode	Vertical Dot Density	Horizontal Dot Density	Amount of Data (k)
0	8-dot single-density	60 DPI	90 DPI	***nL*** + ***nH*** × 256
1	8-dot double-density	60 DPI	180 DPI	***nL*** + ***nH*** × 256
32	24-dot single-density	180 DPI	90 DPI	(***nL*** + ***nH*** × 256) × 3
33	24-dot double-density	180 DPI	180 DPI	(***nL*** + ***nH*** × 256) × 3

TM-L60II

The modes selectable by ***m*** are as follows:

m	**Mode**	**Vertical Dot Density**	**Horizontal Dot Density**	**Amount of Data (k)**
0	8-dot single-density	60 DPI	90 DPI	***nL*** + ***nH*** × 256
1	8-dot double-density	60 DPI	180 DPI	***nL*** + ***nH*** × 256
32	24-dot single-density	180 DPI	90 DPI	(***nL*** + ***nH*** × 256) × 3
33	24-dot double-density	180 DPI	180 DPI	(***nL*** + ***nH*** × 256) × 3

TM-U200B/D

The modes selectable by ***m*** are as follows:

m	**Mode**	**Vertical Dot Density**	**Horizontal Direction**		
			Dot Density	**Set Adjacent Dots**	**Maximum Number of Dots in standard mode**
0	8-dot single-density	72 DPI	80 DPI	Permitted	200
1	8-dot double-density	72 DPI	160 DPI	Prohibited	400

Amount of data (***k***) is (***nL*** + ***nH*** × 256).

TM-U300A/B

The modes selectable by *m* are as follows:

m	Mode	Vertical Dot Density	Horizontal Direction		
			Dot Density	Set Adjacent Dots	Maximum Number of Dots in standard mode
0	8-dot single-density	72 DPI	80 DPI	Permitted	200
1	8-dot double-density	72 DPI	160 DPI	Prohibited	400

Amount of data (*k*) is (*nL* + *nH* × 256).

GS * x y d1 ... d(x × y × 8)

[Name] Define downloaded bit image

[Format]

ASCII	GS	*	x	y	d1 ... d(x × y × 8)
Hex	1D	2A	x	y	d1 ... d(x × y × 8)
Decimal	29	42	x	y	d1 ... d(x × y × 8)

[Range]

TM-T88II:

$1 \le x \le 255$
$1 \le y \le 48$
$x \times y \le 1536$
$0 \le d \le 255$

TM-L60II:

$1 \le x \le 255$
$1 \le y \le 48$
$x \times y \le 1536$
$0 \le d \le 255$

[Default] None

[Printers not featuring this command] TM-U200B/D TM-U300A/B

[Description] Defines a downloaded bit image using (***x*** × 8) dots in the horizontal direction and (***y*** × 8) dots in the vertical direction.

- ***d*** indicates the bit image data.

[Notes]

- Data (***d***) specifies a bit printed to 1 and not printed to 0.

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- If the value of ***x***, ***y***, or (***x*** × ***y***) is out of the range, this command is canceled, and the following data is processed as normal data.
- The downloaded bit image is not defined at the default.
- Once a downloaded bit image has been defined, it is available until another definition is made; **ESC &** or **ESC @** is executed; the printer is reset; or the power is turned off.
- Downloaded bit image and a user-defined character cannot be defined simultaneously. When this command is executed, the user-defined character is cleared.
- The downloaded bit image is printed by **GS *I***.

[Model-dependent variations] None

See program example for **GS** ✻ and **GS *I***.

GS / *m*

[Name] Print downloaded bit image

[Format]

ASCII	GS	/	*m*
Hex	D	2F	*m*
Decimal	29	47	*m*

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

[Default] None

[Printers not featuring this command] TM-U200B/D TM-U300A/B

[Description] Prints a downloaded bit image using the mode specified by ***m***, as follows:

m	**Mode**
0, 48	Normal
1, 49	Double-width
2, 50	Double-height
3, 51	Quadruple

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[Notes]

- This command is ignored if a downloaded bit image has not been defined.
- When standard mode is selected, this command is enabled only when there is no data in the print buffer.
- After printing, the printing position moves to the beginning of the line.
- When page mode is selected, this command develops the downloaded bit image data in the print buffer but the printer does not print the downloaded bit image data.
- If a downloaded bit image exceeds one line, the excess data is not printed.
- This command feeds as much paper as is required to print the downloaded bit image, regardless of the line spacing specified by **ESC 2** or **ESC 3**.
- The downloaded bit image is not affected by print mode (emphasized, double-strike, underline, character size, white/black reverse printing, or 90° clockwise-rotated), except for upside-down printing mode.
- When printing a downloaded bit image, selecting unidirectional printing mode with **ESC U** enables printing patterns in which the top and bottom parts are aligned vertically.
- The downloaded bit image is defined by **GS ***.

[Model-dependent variations] **TM-T88II** **TM-L60II**

See program example for **GS *** and **GS /**.

TM-T88II

The modes selectable ***m*** are as follows:

m	**Mode**	**Vertical Dot Density**	**Horizontal Dot Density**
0, 48	Normal	180 DPI	180 DPI
1, 49	Double-width	180 DPI	90 DPI
2, 50	Double-height	90 DPI	180 DPI
3, 51	Quadruple	90 DPI	90 DPI

TM-L60II

The modes selectable ***m*** are as follows:

m	**Mode**	**Vertical Dot Density**	**Horizontal Dot Density**
0, 48	Normal	180 DPI	180 DPI
1, 49	Double-width	180 DPI	90 DPI
2, 50	Double-height	90 DPI	180 DPI
3, 51	Quadruple	90 DPI	90 DPI

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Program example for GS * and GS /

Program Example

```
PRINT #1, CHR$(&H1D);"*";CHR$(18);CHR$(5);
FOR i=1 TO 18*5*8
  READ a$: d=VAL("&H"+a$)
  PRINT #1, CHR$(d);
NEXT i
```

Define downloaded bit image

```
PRINT #1, CHR$(&H1B);"U";CHR$(1);
PRINT #1, CHR$(&H1D);"/";CHR$(0);CHR$(&HA); ← Normal
PRINT #1, CHR$(&H1D);"/";CHR$(1);CHR$(&HA); ← Double width

DATA AA,AA,AA,AA,55,55,55,55,54,80,00,00,00,02
DATA 40,00,00,00,04,80,00,00,00,02,40,00,00,00,04
DATA 8A,AA,AA,AA,A2,45,55,55,55,44,8A,AA,AA,AA,A2
DATA 45,55,55,55,44,8A,AA,AA,AA,A2,45,00,50,01,44
DATA 8A,80,A8,02,A2,45,00,50,01,44,8A,80,A8,02,A2
DATA 45,00,50,01,44,8A,80,A8,02,A2,45,00,50,01,44
DATA 8A,80,A8,02,A2,45,00,00,01,44,8A,80,00,02,A2
DATA 40,00,00,00,04,80,00,00,00,02,40,00,00,00,04
DATA 80,AA,00,02,A2,41,55,00,01,44,82,AA,80,02,A2
DATA 45,55,40,01,44,8A,AA,A0,02,A2,45,45,50,01,44
DATA 8A,82,A8,02,A2,45,01,54,01,44,8A,80,AA,02,A2
DATA 45,00,55,01,44,8A,80,2A,82,A2,45,00,15,55,44
DATA 8A,80,0A,AA,A2,45,00,05,55,44,8A,80,02,AA,82
DATA 40,00,01,55,04,80,00,00,00,02,40,00,00,00,04
DATA 80,00,00,00,02,40,15,55,50,04,80,2A,AA,A8,02
DATA 40,55,55,54,04,80,AA,AA,AA,02,41,55,55,55,04
DATA 82,A8,00,2A,82,45,50,00,15,44,8A,A0,00,0A,A2
DATA 45,40,00,05,44,8A,80,00,02,A2,45,00,00,01,44
DATA 8A,80,00,02,A2,45,00,00,01,44,8A,80,00,02,A2
DATA 45,00,00,01,44,8A,80,00,02,A2,40,00,00,00,04
DATA 80,00,00,00,02,40,00,00,00,04,80,00,00,00,62
DATA 40,00,00,03,84,80,00,00,1C,02,40,00,00,60,04
DATA 80,00,03,80,02,40,00,1C,00,04,80,00,60,00,02
DATA 40,03,80,00,04,80,0C,00,00,02,40,70,00,00,04
```

Program Example (continued)

```
DATA 83,80,00,00,02,4C,00,00,00,04,80,00,00,00,02
DATA 40,00,00,00,04,80,00,00,00,02,4A,AA,AA,AA,A4
DATA 85,55,55,55,42,4A,AA,AA,AA,A4,85,55,55,55,42
DATA 4A,AA,AA,AA,A4,85,00,05,00,02,4A,08,0A,80,04
DATA 85,00,05,00,02,4A,80,0A,80,04,85,00,05,00,02
DATA 4A,80,0A,80,04,85,00,05,00,02,4A,80,0A,80,04
DATA 85,55,55,00,02,42,AA,AA,00,04,81,55,54,00,02
DATA 40,AA,A8,00,04,80,55,50,00,02,40,00,00,00,04
DATA 80,00,00,00,02,40,00,00,00,04,80,2A,AA,A8,02
DATA 40,55,55,54,04,80,AA,AA,AA,02,41,55,55,55,04
DATA 82,AA,AA,AA,82,45,40,00,05,44,8A,80,00,02,A2
DATA 45,00,00,01,44,8A,80,00,02,A2,45,00,00,01,44
DATA 8A,80,00,02,A2,45,00,00,01,44,8A,80,00,02,A2
DATA 45,00,00,01,44,8A,80,00,02,A2,45,40,00,05,44
DATA 82,AA,AA,AA,82,41,55,55,55,04,80,AA,AA,AA,02
DATA 40,55,55,54,04,80,2A,AA,A8,02,40,00,00,00,04
DATA 80,00,00,00,02,40,00,00,00,04,80,AA,00,02,A2
DATA 41,55,00,01,44,82,AA,80,02,A2,45,55,40,01,44
DATA 8A,AA,A0,02,A2,45,45,50,01,44,8A,82,A8,02,A2
DATA 45,01,54,01,44,8A,80,AA,02,A2,45,00,55,01,44
DATA 8A,80,2A,82,A2,45,00,15,55,44,8A,80,0A,AA,A2
DATA 45,00,05,55,44,8A,80,02,AA,82,40,00,01,55,04
DATA 80,00,00,00,02,40,00,00,00,04,80,00,00,00,02
DATA 40,00,00,00,04,AA,AA,AA,AA,AA,55,55,55,55,54
```

Print Sample

ESC/POS ← GS / *0*

ESC/POS ← GS / *1*

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

[Name] Print raster bit image

[Format]

ASCII	GS	v	0	*m*	*xL*	*xH*	*yL*	*yH*	*d1...dk*
Hex	1D	76	30	*m*	*xL*	*xH*	*yL*	*yH*	*d1...dk*
Decimal	29	118	48	*m*	*xL*	*xH*	*yL*	*yH*	*d1...dk*

[Range] **TM-T88II:** $0 \le m \le 3, 48 \le m \le 51$
$0 \le xL \le 255$
$0 \le xH \le 255$
$0 \le yL \le 255$
$0 \le yH \le 8$
$0 \le d \le 255$
$k = (xL + xH \times 256) \times (yL + yH \times 256)$
(except for $k = 0$)

[Default] None

[Printers not featuring this command] TM-L60II TM-U200B/D TM-U300A/B

[Description] Prints a raster bit image using the mode specified by ***m***, as follows:

m	**Mode**
0, 48	Normal
1, 49	Double-width
2, 50	Double-height
3, 51	Quadruple

- Prints a raster bit image using ($xL + xH \times 256$) bytes in the horizontal direction.
- Prints a raster bit image using ($yL + yH \times 256$) dots in the vertical direction.
- ***d*** indicates the bit image data.

[Notes]

- When standard mode is selected, this command is enabled only when there is no data in the print buffer.
- After printing, the printing position moves to the beginning of the line.
- When page mode is selected, this command is enabled.
- Data (***d***) specifies a bit printed to 1 and not printed to 0.
- If a raster bit image exceeds one line, the excess data is not printed.
- The raster bit image is not affected by print modes (emphasized, double-strike, underline, character size, white/black reverse printing, upside-down printing, or 90° clockwise-rotated).
- This command feeds as much paper as is required to print the raster bit image, regardless of the line spacing specified by **ESC 2** or **ESC 3**.
- If this command is processed while a macro is being defined, the printer cancels macro definition, clears the definition, and prints a raster bit image.
- After printing a raster bit image, the printer processes normal data.

[Model-dependent variations] **TM-T88II**

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Program Example

```
PRINT #1, CHR$(&H1D);"v0";CHR$(0);
PRINT #1, CHR$(16);CHR$(0);CHR$(40);CHR$(0);
FOR i=1 TO 16*40
  READ a$: d=VAL("&H"+a$)
  PRINT #1, CHR$(d);
NEXT i

DATA FF,FF,FF,FF,FF,FF,FF,FF,FF,FF,FF,FF,FF,FF,FF,FF
DATA FF,FF,FF,FF,FF,FF,FF,FF,FF,FF,FF,FF,FF,FF,FF,FF
DATA C0,00,00,00,00,00,00,00,00,00,00,00,00,00,00,03
DATA C0,00,00,00,00,00,00,00,00,00,00,00,00,00,00,03
DATA CF,FF,E0,FF,E0,3F,F8,00,5F,FF,80,1F,FC,00,FF,E3
DATA CF,FF,E3,FF,E0,FF,F8,00,5F,FF,E0,7F,FF,03,FF,E3
DATA CF,FF,E7,FF,E1,FF,F8,00,DF,FF,E0,FF,FF,87,FF,E3
DATA CF,FF,E7,FF,E1,FF,F8,00,9F,FF,F0,FF,FF,87,FF,E3
DATA CF,FF,EF,FF,E3,FF,F8,00,9F,FF,F1,FF,FF,CF,FF,E3
DATA CF,FF,EF,FF,E3,FF,F8,01,9F,FF,F1,FF,FF,CF,FF,E3
DATA CF,80,0F,E0,07,F0,00,01,1F,83,F9,F8,0F,CF,E0,03
DATA CF,80,0F,C0,07,F0,00,01,1F,81,F9,F8,0F,CF,C0,03
DATA CF,80,0F,C0,07,E0,00,03,1F,81,FB,F0,07,EF,C0,03
DATA CF,80,0F,C0,07,E0,00,02,1F,81,FB,F0,07,EF,C0,03
DATA CF,80,0F,E0,07,E0,00,06,1F,81,FB,F0,07,EF,E0,03
DATA CF,80,0F,F0,07,E0,00,04,1F,81,FB,F0,07,EF,F0,03
DATA CF,FF,C7,F8,07,E0,00,04,1F,81,FB,F0,07,E7,F8,03
DATA CF,FF,C7,FC,07,E0,00,0C,1F,81,FB,F0,07,E7,FC,03
DATA CF,FF,C3,FE,07,E0,00,08,1F,81,FB,F0,07,E3,FE,03
DATA CF,FF,C1,FF,07,E0,00,18,1F,83,FB,F0,07,E1,FF,03
DATA CF,FF,C0,FF,87,E0,00,18,1F,FF,F3,F0,07,E0,FF,83
DATA CF,FF,C0,7F,C7,E0,00,10,1F,FF,F3,F0,07,E0,7F,C3
```

Program Example (continued)

```
DATA CF,80,00,3F,E7,E0,00,30,1F,FF,F3,F0,07,E0,3F,E3
DATA CF,80,00,1F,E7,E0,00,20,1F,FF,E3,F0,07,E0,1F,E3
DATA CF,80,00,0F,F7,E0,00,20,1F,FF,E3,F0,07,E0,0F,F3
DATA CF,80,00,07,F7,E0,00,60,1F,FF,83,F0,07,E0,07,F3
DATA CF,80,00,03,F7,E0,00,40,1F,80,03,F0,07,E0,03,F3
DATA CF,80,00,03,F7,E0,00,C0,1F,80,03,F0,07,E0,03,F3
DATA CF,80,00,03,F7,F0,00,80,1F,80,01,F8,0F,C0,03,F3
DATA CF,80,00,07,F7,F0,00,80,1F,80,01,F8,0F,C0,07,F3
DATA CF,FF,EF,FF,F3,FF,F9,80,1F,80,01,FF,FF,CF,FF,F3
DATA CF,FF,EF,FF,F3,FF,F9,00,1F,80,01,FF,FF,CF,FF,F3
DATA CF,FF,EF,FF,F3,FF,F9,00,1F,80,00,FF,FF,8F,FF,F3
DATA CF,FF,EF,FF,E1,FF,FB,00,1F,80,00,FF,FF,8F,FF,F3
DATA CF,FF,EF,FF,C0,FF,FA,00,1F,80,00,7F,FF,0F,FF,C3
DATA CF,FF,EF,FF,00,3F,FA,00,1F,80,00,1F,FC,0F,FF,03
DATA C0,00,00,00,00,00,00,00,00,00,00,00,00,00,00,03
DATA C0,00,00,00,00,00,00,00,00,00,00,00,00,00,00,03
DATA FF,FF,FF,FF,FF,FF,FF,FF,FF,FF,FF,FF,FF,FF,FF,FF
DATA FF,FF,FF,FF,FF,FF,FF,FF,FF,FF,FF,FF,FF,FF,FF,FF
```

Print Sample

← Normal mode

TM-T88II

The modes selectable by *m* are as follows:

m	Mode	Vertical Dot Density	Horizontal Dot Density
0, 48	Normal	180 DPI	180 DPI
1, 49	Double-width	180 DPI	90 DPI
2, 50	Double-height	90 DPI	180 DPI
3, 51	Quadruple	90 DPI	90 DPI

STATUS COMMANDS

Command	Name
GS a *n*	Enable/disable Automatic Status Back (ASB)
GS r *n*	Transmit status
DLE EOT *n*	Real-time status transmission
ESC u *n*	Transmit peripheral device status
ESC v	Transmit paper sensor status

GS a *n*

[Name] Enable/disable Automatic Status Back (ASB)

[Format]				
	ASCII	GS	a	*n*
	Hex	1D	61	*n*
	Decimal	29	97	*n*

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

[Default] When DIP switch (BUSY condition) is Off : $n = 0$

When DIP switch (BUSY condition) is On : $n = 2$

[Printers not featuring this command] **TM-U300A/B**

[Description] Enable or disable ASB and specifies the status items to include, using ***n*** as follows:

Bit	Off/On	Hex	Decimal	Function
0	Off	00	0	Drawer kick-out connector pin 3 status disabled.
	On	01	1	Drawer kick-out connector pin 3 status enabled.
1	Off	00	0	On-line/off-line status disabled.
	On	02	2	On-line/off-line status enabled.
2	Off	00	0	Error status disabled.
	On	04	4	Error status enabled.
3	Off	00	0	Paper roll sensor status disabled.
	On	08	8	Paper roll sensor status enabled.
4-7	—	—	—	Undefined.

... how to use this table

[Notes]

- ASB is enabled if any status item is selected. The printer transmits a 4-byte status when this command is executed. The printer automatically transmits a 4-byte status message whenever the status changes. The disabled status items may change, because each status transmission represents the current status.
- Multiple status items can be selected.
- When ***n***=0, ASB is disabled.
- The 4-byte status are transmitted without confirming whether the host computer is ready to receive data. The 4-byte status must be consecutive, except for the XOFF code.
- If ASB is enabled when the printer is disabled by **ESC =**, the printer transmits the 4-byte status message whenever the status changes.
- The ASB statuses, corresponding to each bit for ***n*** are as follows:

n		ASB status	
Bit	**Function**	**Bit**	**Status**
0	Drawer kick-out connector pin 3 status.	Bit 2 of the first byte	Drawer kick-out connector pin 3 status.
1	On-line/off-line status.	Bit 3 of the first byte	On-line/ off-line status.
		Bit 5 of the first byte	Cover status.
		Bit 6 of the first byte	Paper is being fed by paper feed button status.
		Bit 0 of the second byte	Waiting for on-line recovery status.
2	Error status.	Bit 2 of the second byte	Mechanical error status.
		Bit 3 of the second byte	Autocutter error status.
		Bit 5 of the second byte	Unrecoverable error status.
		Bit 6 of the second byte	Automatically recoverable error status.
3	Paper roll sensor status.	Bits 0 and 1 of the third byte	Paper roll near-end sensor status.
		Bits 2 and 3 of the third byte	Paper roll end sensor status.

... how to use this table

■ The status to be transmitted are as follows:

- First byte (printer information)

Bit	Off/ On	Hex	Decimal	Status for ASB
0	Off	00	0	Not used. Fixed to Off.
1	Off	00	0	Not used. Fixed to Off.
2	Off	00	0	Drawer kick-out connector pin 3 is LOW.
	On	04	4	Drawer kick-out connector pin 3 is HIGH.
3	Off	00	0	On-line.
	On	08	8	Off-line.
4	On	10	16	Not used. Fixed to On.
5	Off	00	0	Cover is closed.
	On	20	32	Cover is open.
6	Off	00	0	Paper is not being fed by the paper feed button.
	On	40	64	Paper is being fed by the paper feed button.
7	Off	00	0	Not used. Fixed to Off.

... how to use this table

- Second byte (printer information)

Bit	Off/ On	Hex	Decimal	Status for ASB
0	Off	00	0	Not waiting for on-line recovery.
	On	01	1	Waiting for on-line recovery.
1	—	—	—	Undefined
2	Off	00	0	No mechanical error.
	On	04	4	Mechanical error occurred.
3	Off	00	0	No autocutter error.
	On	08	8	Autocutter error occurred.
4	Off	00	0	Not used. Fixed to Off.
5	Off	00	0	No unrecoverable error.
	On	20	32	Unrecoverable error occurred.
6	Off	00	0	No automatically recoverable error.
	On	40	64	Automatically recoverable error occurred.
7	Off	00	0	Not used. Fixed to Off.

... how to use this table

- If mechanical error (bit 2) or autocutter error (bit 3) occurs due to paper jams or the like, it is possible to recover by correcting a cause of the error and executing **DLE ENQ**. But if an error due to a circuit failure (e.g. wire break) occurs, it is impossible to recover.
- Printing is stopped while automatically recoverable error (bit 6) occurs.
- If an unrecoverable error (bit 5) occurs, turn off the power as soon as possible.

- Third byte (paper sensor information)

Bit	Off/ On	Hex	Decimal	Status for ASB
0, 1	Off	00	0	Paper roll near-end sensor: paper adequate.
	On	03	3	Paper roll near-end sensor: paper near end.
2, 3	Off	00	0	Paper roll end sensor: paper present.
	On	0C	12	Paper roll end sensor: paper not present.
4	Off	00	0	Not used. Fixed to Off.
5,6	—	—	—	Undefined
7	Off	00	0	Not used. Fixed to Off.

how to use this table

- Some paper sensors are not present, depending on the printer model.
- The names of some paper sensors are different, depending on the printer model.

- Fourth byte (paper sensor information)

Bit	Off/ On	Hex	Decimal	Status for ASB
0-3	—	—	—	Undefined
4	Off	00	0	Not used. Fixed to Off.
5,6	—	—	—	Undefined
7	Off	00	0	Not used. Fixed to Off.

...how to use this table

[Model-dependent variations] **TM-T88II** **TM-L60II** **TM-U200B/D**

Program Example for all printers

```
PRINT #1, CHR$(&H1D);"a";CHR$(4); ← Enable "Error" status
```

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TM-T88II

The default value is set by DIP switch 2-1.

- Second byte (printer information)

Bits 0 and 2 of the second byte are undefined.

Automatically recoverable error indicates the high head temperature error or the paper roll cover open error during printing.

- Third byte (paper sensor information)

When the paper roll cover is open, paper detection (detected by the paper roll end sensor) may be incorrect.

TM-L60II

With a serial interface, the default value is set by DIP switch 2-1.
With a parallel interface, the default value is set by DIP switch 1-3.

- Second byte (printer information)

Bits 0 and 3 of the second byte are undefined.

Mechanical error indicates the label detection error.

Automatically recoverable error indicates the high head temperature error.

TM-U200B/D

The default value is set by DIP switch 1-8.

- First byte (printer information)

Bit 5 of the first byte is undefined.

- Second byte (printer information)

Mechanical error indicates the home position detection error.

Automatically recoverable error indicates the high head temperature error.

- Third byte (paper sensor information)

The paper roll near-end sensor is an option. If the printer is not equipped with the paper near-end sensor, bits 0 and 1 of the third byte are always ON, “Paper adequate.”

GS r *n*

[Name] Transmit status

[Format]

ASCII	GS	r	*n*
Hex	1D	72	*n*
Decimal	29	114	*n*

[Range] *n* = 1, 2, 49, 50

[Default] None

[Printers not featuring this command] **TM-U300A/B**

[Description] Transmits 1 byte of status data using ***n*** as follows:

n	**Function**
1, 49	Transmits paper sensor status
2, 50	Transmits drawer kick-out connector status

[Notes]

- When DTR/DSR control is selected by DIP switch (Handshaking) with a serial interface, the printer transmits the status after confirming that the host is ready to receive data. If the host computer is not ready to receive data, the printer waits until the host becomes ready.
- When XON/XOFF control is selected by DIP switch (Handshaking) with a serial interface, the printer transmits the status without confirming whether the host computer can receive data.

■ The status to be transmitted is as follows:

- Paper sensor status (***n***=1, 49)

Bit	Off/ On	Hex	Decimal	Status
0, 1	Off	00	0	Paper roll near-end sensor: paper adequate.
	On	03	3	Paper roll near-end sensor: paper near end.
2, 3	Off	00	0	Paper roll end sensor: paper present.
	On	0C	12	Paper roll end sensor: paper not present.
4	Off	00	0	Not used. Fixed to Off.
5,6	—	—	—	Undefined.
7	Off	00	0	Not used. Fixed to Off.

- Some paper sensors are not present, depending on the printer model.
- The names of some paper sensors are different, depending on the printer model.

how to use this table

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

Bit	Off/On	Hex	Decimal	Status
0	Off	00	0	Drawer kick-out connector pin 3 is LOW.
	On	01	1	Drawer kick-out connector pin 3 is HIGH.
1-3	—	—	—	Undefined.
4	Off	00	0	Not used. Fixed to Off.
5, 6	—	—	—	Undefined.
7	Off	00	0	Not used. Fixed to Off.

▪▪▪ *how to use this table*

[Model-dependent variations] **TM-T88II** **TM-L60II** **TM-U200B/D**

Program Example for all printers

```
PRINT #1, CHR$(&H1D);"r";CHR$(1); ← Transmits paper sensor status
```

TM-T88II

Handshaking for a serial interface is selected by DIP switch 1-3.

- Paper sensor status (*n* = 1, 49)

When the paper roll end sensor detects a paper-end, the printer goes off-line and does not execute this command. Therefore, bits 2 and 3 of the paper sensor status do not transmit a paper-end status.

When the paper roll cover is open, paper detection (detected by the paper roll end sensor) may be incorrect.

TM-L60II

Handshaking for a serial interface is selected by DIP switch 1-3.

- Paper sensor status (***n*** = 1, 49)

When the paper roll end sensor detects a paper-end, the printer goes off-line and does not execute this command. Therefore, bits 2 and 3 of the paper sensor status do not transmit a paper-end status.

TM-U200B/D

Handshaking for a serial interface is selected by DIP switch 1-3.

- Paper sensor status (***n*** = 1, 49)

The paper roll near-end sensor is an option. If the printer is not equipped with the paper near-end sensor, bits 0 and 1 of the third byte are always ON, “Paper adequate”.

When the paper roll end sensor detects a paper-end, the printer goes off-line and does not execute this command. Therefore, bits 2 and 3 of the paper sensor status do not transmit a paper-end status.

DLE EOT *n*

[Name] Real-time status transmission

[Format]

ASCII	DLE	EOT	*n*
Hex	10	04	*n*
Decimal	16	4	*n*

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

[Default] None

[Printers not featuring this command] **TM-U300A/B**

[Description] Transmits 1 byte of status data specified in real time, using ***n*** as follows:

n	**Function**
1	Transmit printer status
2	Transmit off-line status
3	Transmit error status
4	Transmit paper roll sensor status

[Notes]

- The printer executes this command upon receiving it.
- The printer transmits the status without confirming whether the host computer can receive data.
- With a serial interface model, this command is executed even when the printer is off-line, the receive buffer is full, or an error occurs.
- With a parallel interface model, this command is not executed in the following conditions, because the printer is busy and unable to receive data from the host computer. The DIP switch (BUSY condition) is different, depending on the printer model.
  - Receive buffer is full when DIP switch is set to On.
  - Printer is off-line, an error occurs, or receive buffer is full when DIP switch is set to Off.

■ The real-time status to be transmitted is as follows:

- Printer status (***n***=1)

Bit	Off/ On	Hex	Decimal	Status
0	Off	00	0	Not used. Fixed to Off.
1	On	02	2	Not used. Fixed to On.
2	Off	00	0	Drawer kick-out connector pin 3 is LOW.
	On	04	4	Drawer kick-out connector pin 3 is HIGH.
3	Off	00	0	On-line.
	On	08	8	Off-line.
4	On	10	16	Not used. Fixed to On.
5	Off	00	0	Not waiting for on-line recovery.
	On	20	32	Waiting for on-line recovery.
6	—	—	—	Undefined.
7	Off	00	0	Not used. Fixed to Off.

how to use this table

- Off-line status (***n***=2)

Bit	Off/On	Hex	Decimal	Status
0	Off	00	0	Not used. Fixed to Off.
1	On	02	2	Not used. Fixed to On.
2	Off	00	0	Cover is closed.
	On	04	4	Cover is open.
3	Off	00	0	Paper is not being fed by the paper feed button.
	On	08	8	Paper is being fed by the paper feed button.
4	On	10	16	Not used. Fixed to On.
5	Off	00	0	No paper-end stop.
	On	20	32	Printing stops due to a paper-end.
6	Off	00	0	No error.
	On	40	64	Error occurred.
7	Off	00	0	Not used. Fixed to Off.

... how to use this table

- Bit 5 becomes on when the paper roll sensor (near-end sensor or end sensor) detects a paper-end and printing stops.

- Error status (***n***=3)

Bit	Off/On	Hex	Decimal	Status
0	Off	00	0	Not used. Fixed to Off.
1	On	02	2	Not used. Fixed to On.
2	Off	00	0	No mechanical error.
	On	04	4	Mechanical error occurred.
3	Off	00	0	No autocutter error.
	On	08	8	Autocutter error occurred.
4	On	10	16	Not used. Fixed to On.
5	Off	00	0	No unrecoverable error.
	On	20	32	Unrecoverable error occurred.
6	Off	00	0	No auto-recoverable error.
	On	40	64	Auto-recoverable error occurred.
7	Off	00	0	Not used. Fixed to Off.

... how to use this table

- If mechanical error (bit 2) or autocutter error (bit 3) occurs due to paper jams or the like, it is possible to recover by correcting a cause of the error and executing **DLE ENQ**. But if an error due to a circuit failure (e.g. wire break) occurs, it is impossible to recover.

- When printing is stopped during automatically recoverable error (bit 6) occurs.
- If an unrecoverable error (bit 5) occurs, turn off the power as soon as possible.
- Paper roll sensor status (***n***=4)

Bit	Off/ On	Hex	Decimal	Status
0	Off	00	0	Not used. Fixed to Off.
1	On	02	2	Not used. Fixed to On.
2, 3	Off	00	0	Paper roll near-end sensor: paper adequate.
	On	0C	12	Paper roll near-end sensor: paper near end.
4	On	10	16	Not used. Fixed to On.
5, 6	Off	00	0	Paper roll end sensor: paper present.
	On	60	96	Paper roll end sensor: paper not present.
7	Off	00	0	Not used. Fixed to Off.

... how to use this table

- Some paper sensors are not present, depending on the printer model.
- The names of some paper sensors are different, depending on the printer model.

[Model-dependent variations] **TM-T88II** **TM-L60II** **TM-U200B/D**

Program Example for all printers

```
PRINT #1, CHR$(&H10);CHR$(&H4);CHR$(2); ←Transmits off-line status
```

TM-T88II

BUSY condition for a parallel interface is selected by DIP switch 2-1.

- Printer status (*n* = 1)

Bit 5 of the printer status is undefined.

- Error status (*n* = 3)

Bit 2 of the error status is undefined.

Automatically recoverable error indicates the high head temperature error or paper roll cover open error during printing.

- Paper roll sensor status (*n* = 4)

When the paper roll cover is open, paper detection (detected by the paper roll end sensor) may be incorrect.

TM-L60II

BUSY condition for a parallel interface is selected by DIP switch 1-3.

- Printer status (*n* = 1)

Bit 5 of the printer status is undefined.

- Error status (*n* = 3)

Bit 3 of the error status is undefined.

Mechanical error indicates the label detection error.

Automatically recoverable error indicates the high head temperature error.

TM-U200B/D

BUSY condition for a parallel interface is selected by DIP switch 1-8.

- Off-line status (*n* = 2)

Bit 2 of the off-line status is undefined.

- Error status (*n* = 3)

Mechanical error indicates the home position detection error.

Automatically recoverable error indicates the high head temperature error.

- Paper roll sensor status (*n* = 4)

The paper roll near-end sensor is an option. If the printer is not equipped with the paper near-end sensor, bits 0 and 1 of the third byte are always ON, “Paper adequate”.

ESC u *n*

[Name] Transmit peripheral device status

[Format]

ASCII	ESC	u	*n*
Hex	1B	75	*n*
Decimal	27	117	*n*

[Range] **TM-U300A/B:** *n* = 0; **TM-L60II:** *n* = 0, 48

[Default] None

[Printers not featuring this command] **TM-T88II, TM-U200B/D**

[Description] Transmits the status of drawer kick-out connector pin 3 as 1 byte of data when ***n***=0 or 48.

[Notes]

- **GS r 2** can also be used to check the status. **GS r** is recommended for transmitting the peripheral device status. **ESC u** is not a recommended command.
- When DTR/DSR control set by DIP switch (Handshaking) is selected with a serial interface, the printer transmits the status after confirming that the host is ready to receive data. If the host computer is not ready to receive data, the printer waits until the host becomes ready.
- When XON/XOFF control is selected by DIP switch (Handshaking) with a serial interface, the printer transmits the status without confirming whether the host computer can receive data.

■ The peripheral device status to be transmitted is as follows:

Bit	Off/ On	Hex	Decimal	Status
0	Off	00	0	Drawer kick-out connector pin 3 is LOW.
	On	01	1	Drawer kick-out connector pin 3 is HIGH.
1-3	—	—	—	Undefined.
4	Off	00	0	Not used. Fixed to Off.
5, 6	—	—	—	Undefined.
7	Off	00	0	Not used. Fixed to Off.

...how to use this table

[Model-dependent variations] TM-U300A/B TM-L60II

Program Example for all printers

```
PRINT #1,CHR$(&H1B);"u";CHR$(0);
```

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TM-U300A/B

Handshaking for a serial interface is selected by DIP switch 1-3.

With the TM-U300PA/PB, this command is ignored.

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TM-L60II

Handshaking for a serial interface is selected by DIP switch 1-3.

ESC v

[Name] Transmit paper sensor status

[Format]

ASCII	ESC	v
Hex	1B	76
Decimal	27	118

[Range] None

[Default] None

[Printers not featuring this command] **TM-T88II, TM-U200B/D**

[Description] Transmits the status of paper sensor(s) as 1 byte of data.

[Notes]

- **GS r 1** can also be used to check the status. **GS r** is recommended for transmitting the paper sensor status. **ESC v** is not a recommended command.
- When DTR/DSR control is selected by DIP switch (Handshaking) with a serial interface, the printer transmits the status after confirming that the host is ready to receive data. If the host computer is not ready to receive data, the printer waits until the host becomes ready.
- When XON/XOFF control is selected by DIP switch (Handshaking) with a serial interface, the printer transmits the status without confirming whether the host computer can receive data.
- Some paper sensors are not present, depending on the printer model.

- The names of some paper sensors are different, depending on the printer model.
- The peripheral device status to be transmitted is as follows:

Bit	Off/ On	Hex	Decimal	Status
0, 1	Off	00	0	Paper roll near-end sensor: paper adequate.
	On	03	3	Paper roll near-end sensor: paper near end.
2, 3	Off	00	0	Paper roll end sensor: paper present.
	On	0C	12	Paper roll end sensor: paper not present.
4	Off	00	0	Not used. Fixed to Off.
5, 6	—	—	—	Undefined.
7	Off	00	0	Not used. Fixed to Off.

...how to use this table

[Model-dependent variations] TM-U300A/B TM-L60II

Program Example for all printers

```
PRINT #1,CHR$(&H1B);"v";
```

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TM-U300A/B

Handshaking for a serial interface is selected by DIP switch 1-3.

The paper sensor status information of this command for this printer is different from the standard ESC/POS paper sensor status information as follows:

- Bits 1 and 3 of the status are undefined.

With the TM-U300PA/PB, this command is ignored.

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TM-L60II

Handshaking for a serial interface is selected by DIP switch 1-3.

BAR CODE COMMANDS

Command	Name
① **GS k *m d1 ... dk NUL*** ② **GS k *m n d1 ... dn***	Print bar code
GS h *n*	Set bar code height
GS w *n*	Set bar code width
GS H *n*	Select printing position of HRI characters
GS f *n*	Select font for HRI characters

① GS k *m d1 ... dk NUL* ② GS k *m n d1 ... dn*

[Name] Print bar code

[Format]

①	ASCII	GS	k	*m*	*d1 ... dk*	*NUL*
	Hex	1D	6B	*m*	*d1 ... dk*	*00*
	Decimal	29	107	*m*	*d1 ... dk*	*0*
②	ASCII	GS	k	*m*	*n*	*d1 ... dn*
	Hex	1D	6B	*m*	*n*	*d1 ... dn*
	Decimal	29	107	*m*	*n*	*d1 ... dn*

[Range]
① $0 \leq m \leq 6$ (*k* and *d* depend on the bar code system used)
② $65 \leq m \leq 73$ (*n* and *d* depend on the bar code system used)

[Default] None

[Printers not featuring this command] **TM-U200B/D, TM-U300A/B**

[Description] Select a bar code system and print the bar code.

- ***k*** of ① indicates the number of the bar code data to be printed.
- ***n*** of ② indicates the number of the bar code data.
- ***d*** indicates the character code of the bar code data to be printed.

- ***m*** specifies a bar code system as follows:

m		**Bar Code System**	**Number of Data**	**Number of Characters**	**Characters**	**Remarks**
①	0	UPC-A	Fixed	11 ≤ ***k*** ≤ 12	0~9	48 ≤ ***d*** ≤ 57
	1	UPC-E	Fixed	11 ≤ ***k*** ≤ 12	0~9	48 ≤ ***d*** ≤ 57
	2	JAN13 (EAN13)	Fixed	12 ≤ ***k*** ≤ 13	0~9	48 ≤ ***d*** ≤ 57
	3	JAN8 (EAN8)	Fixed	7 ≤ ***k*** ≤ 8	0~9	48 ≤ ***d*** ≤ 57
	4	CODE39	Can be changed	1 ≤ ***k***	0~9, A~Z SP, $, %, +, -, ., / * (start/stop character)	48 ≤ ***d*** ≤ 57, 65 ≤ ***d*** ≤ 90, ***d*** = 32, 36, 37, 43, 45, 46, 47 ***d*** = 42 (start/stop character)
	5	ITF (Interleaved 2 of 5)	Can be changed	1 ≤ ***k*** (even number)	0~9	48 ≤ ***d*** ≤ 57
	6	CODABAR (NW7)	Can be changed	1 ≤ ***k***	0~9, A~Z $, +, -, ., /,:	48 ≤ ***d*** ≤ 57, 65 ≤ ***d*** ≤ 68, ***d*** = 36, 43, 45, 46, 47, 58

m		Bar Code System	Number of Data	Number of Characters	Characters	Remarks
②	65	UPC-A	Fixed	11 ≤ ***n*** ≤ 12	0~9	48 ≤ ***d*** ≤ 57
	66	UPC-E	Fixed	11 ≤ ***n*** ≤ 12	0~9	48 ≤ ***d*** ≤ 57
	67	JAN13 (EAN13)	Fixed	12 ≤ ***n*** ≤ 13	0~9	48 ≤ ***d*** ≤ 57
	68	JAN8 (EAN8)	Fixed	7 ≤ ***n*** ≤ 8	0~9	48 ≤ ***d*** ≤ 57
	69	CODE39	Can be changed	1 ≤ ***n*** ≤ 255	0~9, A~Z SP, $, %, +, -, ., / * (start/stop character)	48 ≤ ***d*** ≤ 57, 65 ≤ d ≤ 90, ***d*** = 32, 36, 37, 43, 45, 46, 47 ***d*** = 42 (start/stop character)
	70	ITF (Interleaved 2 of 5)	Can be changed	1 ≤ ***n*** ≤ 255 (even number)	0~9	48 ≤ ***d*** ≤ 57
	71	CODABAR (NW7)	Can be changed	1 ≤ ***n*** ≤ 255	0~9, A~Z $, +, -, ., /, :	48 ≤ ***d*** ≤ 57, 65 ≤ ***d*** ≤ 68, ***d*** = 36, 43, 45, 46, 47, 58
	72	CODE93	Can be changed	1 ≤ ***n*** ≤ 255	NUL~SP(7FH)	0 ≤ ***d*** ≤ 127
	73	CODE128	Can be changed	2 ≤ ***n*** ≤ 255	NUL~SP(7FH)	0 ≤ ***d*** ≤ 127

[Notes for ① and ②]

- When standard mode is selected, this command is enabled only when no data exists in the print buffer.
- After printing, the printing position moves to the beginning of the line.
- If ***d*** is out of the specified range, this command is canceled and the printer processes the following data as normal data. In this case, when standard mode is selected, the printer only feeds paper and when page mode is selected, the printing position does not change. This applies to all bar code systems.
- When standard mode is selected, if the bar code width exceeds the printing area, the printer only feeds paper.
- When page mode is selected, if the bar code width exceeds the printing area, the printer does not print the bar code but moves the printing position to [printing area + 1].
- This command feeds as much paper as is required to print the bar code, regardless of the line spacing specified by **ESC 2** or **ESC 3**.
- When page mode is selected, this command develops the bar code data in the print buffer but the printer does not print the bar code data.

- The bar code is not affected by print mode (emphasized, double-strike, underline, character size, white/black reverse printing, or 90° clockwise-rotated), except for upside-down printing mode.
- The values of ***m*** from 0 to 6 and from 65 to 71 select the same bar code system, respectively. The printing results are the same.

[Notes for ①]

- This command ends with a ***NUL*** code.
- ***k*** is not transmission data to the printer.
- When the bar code system used is UPC-A, UPC-E, JAN13 (EAN13), or JAN8 (EAN8) bar code system (***m*** = 0, 1, 2, 3), if the number of the bar code data is less than ***k***, this command is ignored.
- When the bar code system used is UPC-A, UPC-E, JAN13 (EAN13), or JAN8 (EAN8) bar code system (***m*** = 0, 1, 2, 3), if the number of characters is more than ***k***, the printer prints the bar code data after receiving ***k***-byte data and the excess data is processed as normal data.
- For the bar code (CODE39 (***m***=4), the printer processes "***** <ASCII code=42>" as follows:
  - When the first bar code (***d1***) is "*****", the printer processes the data as a start character. If the first bar code (***d1***) is not "*****", the printer adds a start character (*****) automatically.

- When data (***dk***) just before NUL code is "*****", the printer processes "*****" as a stop character. If data just before NUL is not "*****", the printer adds a stop character (*****) automatically.
- When "*****" is processed during bar code 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.

■ The number of data for ITF bar code system (***m*** = 5) must be even numbers. When an odd number of data is processed, the printer ignores the last received data.

[Notes for ②]

■ The printer processes ***n*** bytes from the next data as bar code data.

■ If ***n*** is out of the specified range or if ***n*** is an odd number when ITF bar code system (***m*** = 70) is selected, this command is canceled and the following data is processed as normal data.

■ For the bar code (CODE39 (***m***=69), the printer processes "***** <ASCII code=42>" as follows:

- When the first bar code (***d1***) is "*****", the printer processes the data as a start character. If the first bar code (***d1***) is not "*****", the printer adds a start character (*****) automatically.

- When the last data (***dn***) is "*****", the printer processes "*****" as a stop character. If the last data is not "*****", the printer adds a stop character (*****) automatically.
- When "*****" is processed during bar code 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.

■ When CODE93 bar code (***m*** = 72) is used:

- The printer prints an HRI character " □ " as start and stop character.
- The printer prints HRI characters "■ + an alphabetic character" as a control character (00H to 1FH and 7FH).

■ When CODE128 bar code (***m*** = 73) is used:

- The printer does not print HRI characters that correspond to the shift character (SHIFT) or code set selection characters (CODE A, CODE B, and CODE C).
- HRI characters for the function characters (FNC1, FNC2, FNC3, and FNC4) are spaces.
- HRI characters for the control characters (00H to 1FH and 7FH) are spaces.
- The top of the bar code data string must be code set selection character (any of CODE A, CODE B, or CODE C) which selects the first code set.

- Special characters are defined by combining two characters "{ + an alphanumeric character". The ASCII character "{" is defined by transmitting "{" twice consecutively.

Specific character	Transmit data		
	ASCII	Hex	Decimal
SHIFT	{S	7B, 53	123, 83
CODE A	{A	7B, 41	123, 65
CODE B	{B	7B, 42	123, 66
CODE C	{C	7B, 43	123, 67
FNC1	{1	7B, 31	123, 49
FNC2	{2	7B, 32	123, 50
FNC3	{3	7B, 33	123, 51
FNC4	{4	7B, 34	123, 52
{	{{	7B, 7B	123, 123

[Model-dependent variations] None

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Program Example for all printers

```
PRINT #1, CHR$(&H1D);"h";CHR$(80); ← Set height
PRINT #1, CHR$(&H1D);"k";CHR$(2); ← Print bar code
PRINT #1, "496595707379";CHR$(0);
PRINT #1, CHR$(&HA);
PRINT #1, CHR$(&H1D);"k";CHR$(67);CHR$(12);
PRINT #1, "496595707379"; ← Print bar code
```

Print Sample

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GS h *n*

[Name] Set bar code height

[Format]

ASCI	GS	h	*n*
Hex	1D	68	*n*
Decimal	29	104	*n*

[Range] $1 \leq n \leq 255$

[Default] **TM-T88II, TM-L60II: *n* = 162**

[Printers not featuring this command] **TM-U200B/D, TM-U300A/B**

[Description] Sets the height of a bar code.

- ***n*** specifies number of dots in the vertical direction of a bar code.

[Model-dependent variations] **TM-T88II, TM-L60II**

Program Example for all printers

```
PRINT #1, CHR$(&H1D);"h";CHR$(50); ← Set height to 50
  PRINT #1, CHR$(&H1D);"k";CHR$(2); ← Print bar code
  PRINT #1, "496595707379";CHR$(0);
  PRINT #1, CHR$(&HA);
PRINT #1, CHR$(&H1D);"h";CHR$(100); ← Set height to 100
  PRINT #1, CHR$(&H1D);"k";CHR$(2); ← Print bar code
  PRINT #1, "496595707379";CHR$(0);
```

Print Sample

← Height: 50

← Height: 100

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TM-T88II

One dot corresponds to 1/180 inch.

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TM-L60II

One dot corresponds to 1/180 inch.

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GS w *n*

[Name] Set bar code width

[Format]

ASCII	GS	w	*n*
Hex	1D	77	*n*
Decimal	29	119	*n*

[Range] **TM-T88II, TM-L60II: $2 \leq n \leq 6$**

[Default] **TM-T88II, TM-L60II: $n = 3$**

[Printers not featuring this command] **TM-U200B/D, TM-U300A/B**

[Description] Sets the horizontal size of a bar code.

- ***n*** specifies the bar code width.

[Note] ■ The units for ***n*** depend on the printer model.

[Model-dependent variations] **TM-T88II, TM-L60II**

Program Example for all printers

```
PRINT #1, CHR$(&H1D);"h";CHR$(80); ← Set height
PRINT #1, CHR$(&H1D);"w";CHR$(3); ← Set width size to 3
PRINT #1, CHR$(&H1D);"k";CHR$(2); ← Print bar code
PRINT #1, "496595707379";CHR$(0);
PRINT #1, CHR$(&HA);
PRINT #1, CHR$(&H1D);"w";CHR$(4); ← Set width size to 4
PRINT #1, CHR$(&H1D);"k";CHR$(2); ← Print bar code
PRINT #1, "496595707379";CHR$(0);
PRINT #1, CHR$(&HA);
PRINT #1, CHR$(&H1D);"w";CHR$(5); ← Set width size to 5
PRINT #1, CHR$(&H1D);"k";CHR$(2); ← Print bar code
PRINT #1, "496595707379";CHR$(0);
```

Print Sample

← Width size 3

← Width size 4

← Width size 5

TM-T88II

n **specifies the bar code width as follows:**

n	Module Width (mm) for Multilevel Bar Code	Binary Level Bar Code	
		Thin Element Width (mm)	Thick Element Width (mm)
2	0.282	0.282	0.706
3	0.423	0.423	1.129
4	0.564	0.564	1.411
5	0.706	0.706	1.834
6	0.847	0.847	2.258

The multilevel bar codes are UPC-A, UPC-E, JAN13 (EAN13), JAN8 (EAN8), CODE93, and CODE128. The binary level bar codes are CODE39, ITF, and CODABAR.

TM-L60II

n specifies the bar code width as follows:

n	Module Width (mm) for Multilevel Bar Code	Binary Level Bar Code	
		Thin Element Width (mm)	Thick Element Width (mm)
2	0.282	0.282	0.706
3	0.423	0.423	1.129
4	0.564	0.564	1.411
5	0.706	0.706	1.834
6	0.847	0.847	2.258

The multilevel bar codes are UPC-A, UPC-E, JAN13 (EAN13), JAN8 (EAN8), CODE93, and CODE128. The binary level bar codes are CODE39, ITF, and CODABAR.

GS H *n*

[Name] Select printing position of HRI characters

[Format]

ASCII	GS	H	*n*
Hex	1D	48	*n*
Decimal	29	72	*n*

[Range] $0 \le n \le 3$

$48 \le n \le 51$

[Default] $n = 0$

[Printers not featuring this command] **TM-U200B/D, TM-U300A/B**

[Description] Selects the printing position for Human Readable Interpretation (HRI) characters when printing a bar code, using ***n*** as follows:

n	**Printing Position**
0, 48	Not printed
1, 49	Above the bar code
2, 50	Below the bar code
3, 51	Both above and below the bar code

[Note]

- HRI characters are printed using the font specified by **GS f**.

[Model-dependent variations] None

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Program Example for all printers

```
PRINT #1, CHR$(&H1D);"h";CHR$(80); ← Set height
FOR n=0 to 3
  PRINT #1, CHR$(&H1D);"H";CHR$(n); ← Select print position
  PRINT #1, CHR$(&H1D);"k";CHR$(2); ← Print bar code
  PRINT #1, "496595707379";CHR$(0);
  PRINT #1, CHR$(&HA);
NEXT n
```

Print Sample

GS f *n*

[Name] Select font for HRI characters

[Format]

ASCII	GS	f	*n*
Hex	1D	66	*n*
Decimal	29	102	*n*

[Range] *n* = 0, 1, 48, 49

[Default] *n* = 0

[Printers not featuring this command] **TM-U200B/D, TM-U300A/B**

[Description] Selects a font for the Human Readable Interpretation (HRI) characters when printing a bar code, using ***n*** as follows:

n	**Font of HRI characters**
0, 48	Font A
1, 49	Font B

[Notes]

- The font set by this command is effective only for HRI character.
- Configurations of font A and font B are different, depending on the printer model.
- HRI characters are printed at the position specified by **GS H.**

[Model-dependent variations] **TM-T88II, TM-L60II**

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Program Example for all printers

```
PRINT #1, CHR$(&H1D);"h";CHR$(80); ← Set height
PRINT #1, CHR$(&H1D);"H";CHR$(2); ← Select print position
PRINT #1, CHR$(&H1D);"f";CHR$(0); ← Select font
PRINT #1, CHR$(&H1D);"k";CHR$(2); ← Print bar code
PRINT #1, "496595707379";CHR$(0);
PRINT #1, CHR$(&HA);
PRINT #1, CHR$(&H1D);"f";CHR$(1); ← Select font
PRINT #1, CHR$(&H1D);"k";CHR$(2); ← Print bar code
PRINT #1, "496595707379";CHR$(0);
```

Print Sample

← **Font A**

← **Font B**

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TM-T88II

Character configurations: Font A: 12 × 24
Font B: 9 × 17

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TM-L60II

Character configurations: Font A: 12 × 24
Font B: 9 × 17

MACRO FUNCTION COMMANDS

Command	Name
GS :	Start/end macro definition
GS ^ *r t m*	Execute macro

GS :

[Name] Start/end macro definition

[Format]

ASCII	GS	:
Hex	1D	3A
Decimal	29	58

[Range] None

[Default] None

[Printers not featuring this command] **TM-U200B/D, TM-U300A/B**

[Description] Starts or ends macro definition.

[Notes]

- Macro definition starts when this command is processed during normal operation and ends when it is processed during macro definition.
- While the macro is defined, the printing is also executed.
- The maximum number of data to be defined as a macro is different, depending on the printer model. If the macro definition exceeds the maximum number of data, the excess data is not stored.
- If the printer processes this command again immediately after previously processing it, the printer clears the definition.
- If **GS ^** is processed during macro definition, this command is canceled and clears the definition.

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- Macro is not defined when the power is turned on.
- The defined contents of the macro are not cleared by **ESC @**.
- The macro is executed by **GS ^**.

[Model-dependent variations] **TM-T88II, TM-L60II**

See program example for **GS :** and **GS ^**.

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TM-T88II

The maximum number of data to be defined is 2048 bytes.

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TM-L60II

The maximum number of data to be defined is 2048 bytes.

GS ^ *r t m*

[Name] Execute macro

[Format]

ASCII	GS	^	*r*	*t*	*m*
Hex	1D	5E	*r*	*t*	*m*
Decimal	29	94	*r*	*t*	*m*

[Range] $0 \le r \le 255$

$0 \le t \le 255$

$m = 0, 1$

[Default] None

[Printers not featuring this command] **TM-U200B/D, TM-U300A/B**

[Description] Executes a macro ***r*** times while waiting ***t*** × 100 msec for each macro execution, using the mode specified by ***m*** as follows:

- When ***m***=0, the macro executes ***r*** times continuously at the interval specified by ***t***.
- When ***m***=1, the printer waits for the period specified by ***t***, blinks the LED, and then waits for the Paper feed button to be pressed. After this button is pressed, the printer executes the macro once. The printer repeats this operation ***r*** times.

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[Notes]

- If a macro is not defined or if ***r*** is 0, this command is ignored.
- If this command is processed while a macro is being defined, the printer cancels macro definition and clears the definition.
- When ***m*** = 1, paper cannot be fed with the Paper feed button.
- The LED and the Paper feed button are different, depending on the printer model.
- The macro is defined by **GS :**.

  Macro function is useful to print the same data repeatedly. To define a macro definition, send **GS :** just before and after the data desired to be repeated. And then execute macro by using **GS ^** to print the same data repeatedly. Macro function eliminates the need for sending all the print data every time.

[Model-dependent variations] **TM-T88II, TM-L60II**

See program example for **GS :** and **GS ^**.

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Program example for GS : and GS ^

Program Example

```
PRINT #1, CHR$(&H1D);":";
PRINT #1, CHR$(&H1B);"a";CHR$(1);
PRINT #1, "*** Hello";
PRINT #1, CHR$(&H1D);"!";CHR$(17);
PRINT #1, "EPSON";
PRINT #1, CHR$(&H1D);"!";CHR$(0);
PRINT #1, "World! ***";
PRINT #1, CHR$(&HA); CHR$(&HA);
PRINT #1, CHR$(&H1B);"a";CHR$(0);
PRINT #1, CHR$(&H1B);"-";CHR$(1);
PRINT #1, "No.                    "; CHR$(&HA);
PRINT #1, "Name                   "; CHR$(&HA);
PRINT #1, "Address                "; CHR$(&HA);
PRINT #1, CHR$(&H1B);"d";CHR$(5);
PRINT #1, CHR$(&H1B);"-";CHR$(0);
PRINT #1, CHR$(&H1D);":";
PRINT #1, CHR$(&H1D);"^";CHR$(2);CHR$(0);CHR$(0);
```

Defines a macro

Print Sample

*** Hello EPSON World! ***

No.

Name

Address

*** Hello EPSON World! ***

No.

Name

Address

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TM-T88II

When ***m*** = 1, the PAPER OUT LED indicator blinks during a macro waiting state.

When ***m*** = 1, the FEED can be Paper feed button.

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TM-L60II

When ***m*** = 1, the PAPER LED indicator blinks during a macro waiting state.

When ***m*** = 1, the PAPER FEED can be Paper feed button.

MECHANISM CONTROL COMMANDS

Command	Name
ESC U *n*	Turn unidirectional printing mode on/off
ESC <	Return home
① **GS V *m*** ② **GS V *m n***	Select cut mode and cut paper
ESC i	Partial cut (one point left uncut)
ESC m	Partial cut (three points left uncut)

ESC U *n*

[Name] Turn unidirectional printing mode on/off

[Format]

ASCII	ESC	U	*n*
Hex	1B	55	*n*
Decimal	27	85	*n*

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

[Default] **TM-U200B/D: *n* = 0**

TM-U300A/B: *n* = 0

[Printers not featuring this command] **TM-T88II, TM-L60II**

[Description] Turns unidirectional printing mode on or off.

- When the LSB of ***n*** is 0, unidirectional printing mode is turned off.
- When the LSB of ***n*** is 1, unidirectional printing mode is turned on.

[Notes]

- This mode can be set independently in standard mode and in page mode.
- When unidirectional printing mode is turned off, bidirectional printing mode is automatically turned on.
- When page mode is selected, the printer performs unidirectional printing for all data that is to be collectively printed using **FF** or **ESC FF**.

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- Unidirectional printing mode can be turned on when printing double-height characters or downloaded bit image to ensure that the top and bottom of the printing patterns are aligned.

[Model-dependent variations] None

Program Example for all printers

```
PRINT #1, CHR$(&H1B);"U";CHR$(1); ← Unidirectional printing mode turned on
```

ESC <

[Name] Return home

[Format]

	ASCII	ESC	<
	Hex	1B	3C
	Decimal	27	60

[Range] None

[Default] None

[Printers not featuring this command] **TM-T88II, TM-L60II**

[Description] Moves the print head to the standby position.

[Note] ■ The standby position is different, depending on the printer model.

[Model-dependent variations] **TM-U200B/D** **TM-U300A/B**

Program Example for all printers

```
PRINT #1, CHR$(&H1B);"<";
```

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TM-U200B/D

The standby position is in the left.

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TM-U300A/B

The standby position is in the left.

① GS V *m* ② GS V *m n*

[Name] Select cut mode and cut paper

[Format]

①	ASCII	GS	V	*m*	
	Hex	1D	56	*m*	
	Decimal	29	86	*m*	
②	ASCII	GS	V	*m*	*n*
	Hex	1D	56	*m*	*n*
	Decimal	29	86	*m*	*n*

[Range] ① **TM-T88II, TM-U200B/D**: ***m*** **= 1, 49**

② **TM-T88II, TM-U200B/D**: ***m*** **= 66,** $0 \leq n \leq 255$

[Default] None

[Printers not featuring this command] **TM-L60II, TM-U300A/B**

[Description] Select a paper cutting mode using ***m*** and then cut the paper, as follows:

m		**Function**
①	0, 48	Executes a full cut (cuts the paper completely).
	1, 49	Executes a partial cut (one point left uncut).
②	65	Feeds paper to (cutting position + ***n*** × vertical motion unit) and executes a full cut (cuts the paper completely).
	66	Feeds paper to (cutting position + ***n*** × vertical motion unit) and executes a partial cut (one point left uncut).

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[Notes for ① and ②]

- When standard mode is selected, these commands are enabled only when processed at the beginning of the line.
- Some printer models support a full cut (***m*** = 0, 48 or 65).
- When using these commands, there is a gap between the autocutter position and the printing position.

[Note for ①]

- If an autocutter is not provided, this command is ignored.

[Notes for ②]

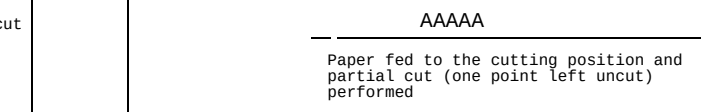
- When ***n*** = 0, the printer feeds the paper to the cutting position and cut it.
- If an autocutter is not provided, the printer only feeds the paper to manual-cutter position.

[Model-dependent variations] **TM-T88II** **TM-U200B/D**

Program Example for all printers

```
PRINT #1, "          AAAAA"; CHR$(&HA);
PRINT #1, CHR$(&H1D);"V";CHR$(66);CHR$(0); ← Feed paper and cut
```

Print Sample



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TM-T88II

The vertical motion unit is specified by **GS P**.

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TM-U200B/D

The vertical motion unit is 1/144 inches (the minimum movement amount).

This value equals a half dot pitch.

TM-U200D does not have the auto cutter; therefore, the cutting position is the manual cutter position.

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ESC i

[Name] Partial cut (one point left uncut)

[Format]

ASCII	ESC	i
Hex	1B	69
Decimal	27	105

[Range] None

[Default] None

[Printers not featuring this command] **TM-T88II, TM-L60II, TM-U200B/D**

[Description] Executes a partial cut of the paper roll with one point left uncut.

[Notes]

- **GS V** can also be used to cut paper. **GS V** is recommended for cutting paper. **ESC i** is not a recomemded command.
- When standard mode is selected, this command is enabled only when processed at the beginning of the line.
- If an autocutter is not provided, this command is ignored.
- When using this command, there is a gap between the autocutter and printing position.

[Model-dependent variations] None

See program example for **ESC i** and **ESC m**.

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ESC m

[Name] Partial cut (three points left uncut)

[Format]

ASCII	ESC	m
Hex	1B	6D
Decimal	27	109

[Range] None

[Default] None

[Printers not featuring this command] **TM-T88II, TM-L60II, TM-U200B/D**

[Description] Executes a partial cut of the paper roll with three points left uncut.

[Notes]

- **GS V** can also be used to cut paper. **GS V** is recommended for cutting paper. **ESC m** is not a recommended command.
- When standard mode is selected, this command is enabled only when processed at the beginning of the line.
- If an autocutter is not provided, this command is ignored.
- When using this command, there is a gap between the autocutter and printing position.

[Model-dependent variations] None

See program example for **ESC i** and **ESC m**.

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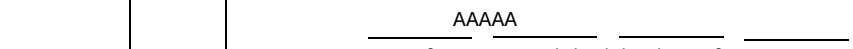
Program example for ESC i and ESC m

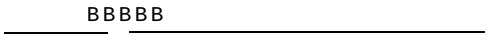
Program Example

```
PRINT #1,"    AAAAA";
PRINT #1,CHR$(&H1B);"d";CHR$(5);
PRINT #1,CHR$(&H1B);"m"; ← Cut paper
PRINT #1,"    BBBBB";
PRINT #1,CHR$(&H1B);"d";CHR$(5);
PRINT #1,CHR$(&H1B);"i";  ← Cut paper
```

Print Sample



ESC m leaves paper joined in three places.



ESC i leaves paper joined in one place.

MISCELLANEOUS COMMANDS

Command	Name
DLE ENQ *n*	Real-time request to printer
DLE DC 4	Generate pulse at real-time
ESC = *n*	Select peripheral device
ESC @	Initialize printer
ESC L	Select page mode
ESC S	Select standard mode
ESC p m t1 t2	Generate pulse
FS g 1	Write to user NV
FS g 2	Read from user NV memory
GS E *n*	Select head control method
GS I n	Transmit printer ID
GS P *x y*	Set horizontal and vertical motion units
GS (A	Execute test print
GS <	Initialize printer mechanism
GS A *m n*	Adjust label print starting position
GS C 0 *n m*	Select counter print mode
GS C 1 *aL aH bL bH n r*	Select count mode (A)
GS C 2 *nL nH*	Set counter
GS C ; *sa ; sb ; sn ; sr ; sc ;*	Select count mode (B)
GS c	Print counter
GS z 0 *t1 t2*	Set on-line recovery wait time

ESC @

[Name] Initialize printer

[Format]

ASCII	ESC	@
Hex	1B	40
Decimal	27	64

[Range] None

[Default] None

[Printers not featuring this command] None

[Description] The data in the print buffer is cleared and the printer mode(s) is reset to the mode that was in effect when the power was turned on.

[Notes]

- The DIP switch settings are not checked again.
- The data in the receive buffer is not cleared.
- Any macro definitions are not cleared.
- **GS A** settings are not cleared.
- When this command is processed in page mode, the printer deletes the data in the printing areas, initializes all settings, and selects standard mode.

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■ This command can cancel all the settings such as print mode and line feed at the same time.

[Model-dependent variations] None

Program Example for all printers

```
PRINT #1, CHR$(&H1D);"P";CHR$(180);CHR$(180);
PRINT #1, CHR$(&H1B);"3";CHR$(60);
PRINT #1, CHR$(&H1B);"U";CHR$(1);
PRINT #1, CHR$(&H1B);"E";CHR$(1);
PRINT #1, CHR$(&H1B);"-";CHR$(1);
PRINT #1, CHR$(&H1D);"!";CHR$(17);
PRINT #1, "AAAAA"; CHR$(&HA);
PRINT #1, CHR$(&H1B);"@";  ← Initialize printer
PRINT #1, "BBBBB"; CHR$(&HA);
```

Print Sample

AAAAA

BBBBB ←All settings are canceled after **ESC** @ is executed

GS I *n*

[Name] Transmit printer ID

[Format]

ASCII	GS	I	*n*
Hex	1D	49	*n*
Decimal	29	73	*n*

[Range] $1 \le n \le 3$

$49 \le n \le 51$

[Default] None

[Printers not featuring this command] **TM-U300A/B**

[Description] Transmits 1 byte of printer ID using ***n*** as follows:

n	**Printer ID**	**Specification**
1, 49	Printer model ID	Printer model
2, 50	Type ID	Printer type
3, 51	Version ID	Firmware version

[Notes]

- Printer model ID depends on the printer model.
- Type ID to be transmitted is as follows:

Bit	Off/On	Hex	Decimal	Function
0	Off	00	0	Two-byte character code not supported.
1	Off	00	0	Not autocutter equipped.
	On	02	2	Autocutter equipped.
2	Off	00	0	DIP switch (Connection of customer display) is Off.
3	Off	00	0	Without MICR reader.
4	Off	00	0	Not used. Fixed to Off.
5, 6	—	—	—	Undefined.
7	Off	00	0	Not used. Fixed to Off.

...how to use this table

- When DTR/DSR control is selected by DIP switch (Handshaking) with a serial interface, the printer transmits the ID data after confirming that the host is ready to receive data. If the host computer is not ready to receive data, the printer waits until the host becomes ready.

- When XON/XOFF control is selected by DIP switch (Handshaking) with a serial interface, the printer transmits the ID data without confirming whether the host computer can receive data.

[Model-dependent variations] **TM-T88II** **TM-L60II** **TM-U200B/D**

Program Example for all printers

```
PRINT #1, CHR$(&H1D);"I";CHR$(1);← Transmits printer ID
```

TM-T88II

Handshaking for a serial interface is selected by DIP switch 1-3.

- Printer model ID (*n* = 1, 49)

Hex: 20H / Decimal: 32

- Type ID (*n* = 2, 50)

Bit 1 is fixed to On (autocutter equipped).

TM-L60II

Handshaking for a serial interface is selected by DIP switch 1-3.

- Printer model ID (*n* = 1, 49)
  Hex: 0BH / Decimal: 11
- Type ID (*n* = 2, 50)

Bit 1 is fixed to Off (not autocutter equipped).

Bit 2 of the Type ID is different from the standard ESC/POS as follows:

Bit	Off/On	Hex	Decimal	Function
2	Off	00	0	Select thermal paper (DIP switch (Paper selection) is Off.)
	On	04	4	Select thermal label (DIP switch (Paper selection) is On.)

Paper selection for a serial interface is selected by DIP switch 2-6.

Paper selection for a parallel interface is selected by DIP switch 1-7.

TM-U200B/D

Handshaking for a serial interface is selected by DIP switch 1-3.

- Printer model ID (***n*** = 1, 49):
  Hex: 0D / Decimal: 13
- Type ID (***n*** = 2, 50)

TM-U200B: Bit 1 is fixed to On (autocutter equipped).

TM-U200D: Bit 1 is fixed to Off (not autocutter equipped).

GS P *x y*

[Name] Set horizontal and vertical motion units

[Format]

ASCII	GS	P	*x*	*y*
Hex	1D	50	*x*	*y*
Decima	29	80	*x*	*y*

[Range] $0 \le x \le 255$

$0 \le y \le 255$

[Default] **TM-T88II: *x* = 180, *y* = 360**

TM-L60II: *x* = 180, *y* = 360

[Printers not featuring this command] **TM-U200B/D, TM-U300A/B**

[Description] Sets the horizontal and vertical motion units to 1/***x*** and 1/***y*** inches, respectively.

- When ***x*** = 0, the default setting of horizontal value is used.
- When ***y*** = 0, the default setting of vertical value is used.

[Notes]

- The horizontal direction is perpendicular to the paper feed direction and the vertical direction is the paper feed direction.
- The horizontal and vertical motion units indicate the minimum pitch used for calculating the values of related commands (shown on the next screen).

- In standard mode, the following commands use ***x*** or ***y***.
  - Commands using ***x***: **ESC SP, ESC $, ESC \, GS L,** and **GS W**
  - Commands using ***y***: **ESC 3, ESC J, ESC K, GS A** and **GS V**
- In page mode, the following commands use ***x*** or ***y***, when the starting position is set to the upper left or lower right of the printing area using **ESC T**.
  - Commands using ***x***: **ESC SP, ESC $, ESC W,** and **ESC **
  - Commands using ***y:*** **ESC 3, ESC J, ESC W, GS $, GS A, GS V,** and **GS **
- In page mode, the following commands use ***x*** or ***y***, when the starting position is set to the upper right or lower left of the printing area using **ESC T**.
  - Commands using ***x:*** **ESC 3, ESC J, ESC W, GS $,** and **GS **
  - Commands using ***y:*** **ESC SP, ESC $, ESC W, ESC \, GS A** and **GS V**
- The calculated result from combining this command with others is truncated to the minimum value of the mechanical pitch.
- This command does not affect the current setting values.

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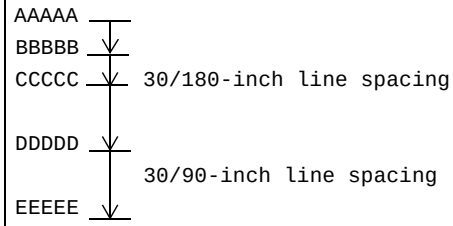
[Model-dependent variations] **TM-T88II** **TM-L60II**

Program Example for all printers

```
PRINT #1, CHR$(&H1D);"P";CHR$(180);CHR$(180);
PRINT #1, CHR$(&H1B);"3";CHR$(30);  ← Set line spacing
PRINT #1, "AAAAA"; CHR$(&HA);
PRINT #1, "BBBBB"; CHR$(&HA);
PRINT #1, CHR$(&H1D);"P";CHR$(180);CHR$(90);
PRINT #1, CHR$(&H1B);"3";CHR$(30);  ← Set line spacing
PRINT #1, "CCCCC"; CHR$(&HA);
PRINT #1, "DDDDD"; CHR$(&HA);
PRINT #1, "EEEEE"; CHR$(&HA);
```

Print Sample



TM-T88II

The default values equal a normal dot pitch in horizontal and 1/2 dot pitch in vertical.

TM-L60II

The default values equal a half dot pitch in horizontal and 1/2 dot pitch in vertical.

ESC p *m t1 t2*

[Name] Generate pulse

[Format]

ASCII	ESC	p	*m*	*t1*	*t2*
Hex	1B	70	*m*	*t1*	*t2*
Decimal	27	112	*m*	*t1*	*t2*

[Range] *m* = 0, 1, 48, 49

$0 \leq t1 \leq 255$

$0 \leq t2 \leq 255$

[Default] None

[Printers not featuring this command] None

[Description] Outputs the pulse specified by ***t1*** and ***t2*** to the specified connector pin ***m*** as follows:

m	**Connector pin**
0, 48	Drawer kick-out connector pin 2
1, 49	Drawer kick-out connector pin 5

- The pulse for ON time is (***t1*** × 2msec) and for OFF time is (***t2*** × 2msec).

[Notes]

- If ***m*** is out of range, this command is canceled and the following data is processed as normal data.
- If ***t2 < t1***, the OFF time is equal to the ON time.

[Model-dependent variations] **TM-U200B/D**

Program Example for all printers

```
PRINT #1, CHR$(&H1B);"p";CHR$(0);CHR$(25);CHR$(250);
```

TM-U200B/D

If *t2* < 50, *t2* is supposed to be 50.

ESC = *n*

[Name] Select peripheral device

[Format]

ASCII	ESC	=	*n*
Hex	1B	3D	*n*
Decimal	27	61	*n*

[Range] **TM-T88II: $0 \leq n \leq 255$**

TM-L60II: $0 \leq n \leq 255$

TM-U200B/D: $1 \leq n \leq 3$

[Default] *n* = 1.

[Printers not featuring this command] **TM-U300A/B**

[Description] Selects the device to which the host computer sends data, using ***n*** as follows:

- When the LSB of ***n*** is 0, the printer is disabled.
- When the LSB of ***n*** is 1, the printer is enabled.

[Notes]

- When the printer is disabled, it ignores all received data with the exception of **DLE ENQ 1** and **DLE ENQ 2**.
- If ASB is enabled when the printer is disabled by this command, the printer transmits 4-byte status message whenever the status changes.

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[Model-dependent variations] None

Program Example for all printers

```
PRINT #1, CHR$(&H1B);"=";CHR$(1); ← Printer enabled
PRINT #1, "AAAAA";
PRINT #1, CHR$(&H1B);"=";CHR$(2); ← Printer disabled
PRINT #1, "BBBBB";
PRINT #1, CHR$(&H1B);"=";CHR$(3);← Pinter enabled
PRINT #1, " CCCCC"; CHR$(&HA);
```

Print Sample

```
AAAAA CCCCC
```

ESC L

[Name] Select page mode

[Format]

ASCII	ESC	L
Hex	1B	4C
Decimal	27	76

[Range] None

[Default] None

[Printers not featuring this command] **TM-U200B/D, TM-U300A/B**

[Description] Switches from standard mode to page mode.

[Notes]

- This command is enabled only when processed at the beginning of the line in standard mode. In other cases, this command is ignored.
- The printing position is the starting position specified by **ESC T** within the printing area defined by **ESC W**.
- The following commands switch the settings for page mode. Because, these commands can be set independently in standard mode and in page mode:
  - **ESC SP, ESC 2, ESC 3,** and **ESC U**

- The following commands are not effective in page mode. If these commands are processed in page mode, an internal flag is activated and this flag is enabled when the printer returns to standard mode.
  - **ESC V, ESC a, ESC {, GS L,** and **GS W**
- The printer returns to standard mode with **ESC S, FF**, and **ESC @.** When it returns to standard mode by **ESC @**, all settings are canceled.
- Standard mode is selected as the default.
- In page mode, the printer prints the data in the print buffer for the printing area specified by **ESC W** collectively by **FF** or **ESC FF**. When executing the print and paper feed commands, such as **LF, CR, ESC J,** and **ESC d**, only the printing position moves and the printer does not perform actual printing.

[Model-dependent variations] None

See program example for **ESC L** and **ESC S**.

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ESC S

[Name] Select standard mode

[Format]

ASCII	ES	S
Hex	1B	53
Decimal	27	83

[Range] None

[Default] None

[Printers not featuring this command] **TM-U200B/D, TM-U300A/B**

[Description] Switches from page mode to standard mode.

[Notes]

- This command is enabled only in page mode. If this command is processed in standard mode, it is ignored.
- When this command is executed, data in all the printing areas are cleared, the printing area set by **ESC W** returns to the default value, but the value set by **ESC T** is maintained.
- The following commands switch the settings for standard mode. Because, these commands can be set independently in standard mode and in page mode:
  - **ESC SP, ESC 2, ESC 3,** and **ESC U**
- In standard mode, **CAN, ESC FF, GS $,** and **GS ** are ignored.

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- The settings of **ESC T** and **ESC W** are not effective in standard mode. If these commands are processed in standard mode, an internal flag is activated and this flag is enabled when the printer selects page mode.
- The printer selects page mode with **ESC L**.
- Standard mode is selected as the default.

[Model-dependent variations] None

Program Example for ESC L and ESC S.

Program Example for all printers

```
PRINT #1, CHR$(&H1B);"L"; ← Select page mode
PRINT #1, CHR$(&H1D);"P";CHR$(180);CHR$(180);
PRINT #1, CHR$(&H1B);"W";CHR$(0);CHR$(0);CHR$(0);
CHR$(0);CHR$(240);CHR$(0);CHR$(200);CHR$(0);
PRINT #1, CHR$(&H1B);"T";CHR$(0); ← Select print direction
PRINT #1, "AAAAA"; CHR$(&HA);
PRINT #1, "BBBBB"; CHR$(&HA);
PRINT #1, "CCCCC";
PRINT #1, CHR$(&H1B);CHR$(&HC); ← Batch print
PRINT #1, CHR$(&H1B);"S"; ← Select standard mode
```

Print Sample

```
AAAAA
BBBBB
CCCCC
```

GS E *n*

[Name] Select head control method

[Format]

ASCII	GS	E	*n*
Hex	1D	45	*n*
Decimal	29	69	*n*

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

[Default] **TM-U300A/B: *n* = 1**

[Printers not featuring this command] **TM-T88II, TM-L60II, TM-U200B/D**

[Description] Selects the print speed and head energizing time, using ***n*** as follows:

Bit	Off/On	Hex	Decimal	Function
0	Off	00	0	Head energizing time: Copy.
	On	01	1	Head energizing time: Normal.
1-3	—	—	—	Undefined.
4	Off	00	0	Printing speed: HIGH.
	On	10	16	Printing speed: LOW.
5-7	—	—	—	Undefined.

...how to use this table

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[Notes]

- When standard mode is selected, this command is enabled only when processed at the beginning of the line.
- In page mode, the setting for this command is effective for all data to be printed collectively by **FF** or **ESC FF**.

[Model-dependent variations] **TM-U300A/B**

Program Example for all printers

```
PRINT #1,CHR$(&H1D);"E";CHR$(16); ← Select printing speed to Low
```

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TM-U300A/B

Bit 4 is undefined.

When multi-ply roll paper is used, “Head energizing time : Copy” should be selected for a long enegizing time.

GS < *n*

[Name] Initialize printer mechanism

[Format]

ASCII	GS	<
Hex	1D	3C
Decimal	29	60

[Range] None

[Default] None

[Printers not featuring this command] **TM-T88II, TM-U200B/D, TM-U300A/B**

[Description] Feeds label paper to the print starting position.

- This command is effective only when a thermal label is selected with the paper selection DIP switch.
- This command does not initialize the values set by other commands.

[Model-dependent variations] **TM-L60II**

Program Example

```
PRINT #1, CHR$(&H1D);"<";
```

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TM-L60II

With a serial interface, the paper selection DIP switch is SW 2-6.

With a parallel interface, the paper selection DIP switch is SW 1-7.

GS A *m n*

[Name] Adjust label print starting position

[Format]

ASCII	GS	A	*m*	*n*
Hex	1D	41	*m*	*n*
Decimal	29	65	*m*	*n*

[Range] **TM-L60II: $0 \leq m \leq 255$, $0 \leq n \leq 255$**

[Default] ***m*** = 0, ***n*** = 0

[Printers not featuring this command] **TM-T88II, TM-U200B/D, TM-U300A/B**

[Description] Adjust the label print starting position in a selected direction, and by a specified amount from the default position.

- ***m*** specifies the adjustment direction as follows:
  - When the LSB of ***m*** is 0, the label position is adjusted in the normal direction.
  - When the LSB of ***m*** is 1, the label position is adjusted in the reverse direction.
- ***n*** specifies the adjustment amount. The adjustment amount formula is (***n*** × vertical motion unit).

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[Notes]

- This command is ignored unless it is received just after feeding a label to the print starting position by pressing the paper feed button, using the **FF**, **GS FF**, **GS <**, or **GS A** command, resetting the printer, turning on the power.
- This command is effective only when thermal label is selected with the paper selection DIP switch.
- When calculating the adjustment amount, the vertical motion unit (***y***) is used.
- When executing this command, the paper is fed to adjust the print starting position of the current label.
- The default and adjustment amounts for the print starting position differ, depending on the printer model. A setting exceeding the maximum adjustment amount is set to the maximum adjustment amount.

[Model-dependent variations] **TM-L60II**

Program Example

```
PRINT #1, CHR$(&H1D);"A";CHR$(0);CHR$(18);
```

TM-L60II

With a serial interface, the paper selection DIP switch is SW 2-6.

With a parallel interface, the paper selection DIP switch is SW 1-7.

The vertical motion unit is set by GS P.

The default print starting position is approximately 1.5 mm below the top edge of the label.

The maximum adjustment amount in the paper feed direction is (label length - 1.5 mm (top edge) - 1.5 mm (bottom edge) - 18 mm (255/360 inches) and in the reverse direction is 0.5 mm.

GS c

[Name] Print counter

[Format]

ASCII	GS	c
Hex	1D	63
Decimal	29	99

[Range] None

[Default] None

[Printers not featuring this command] **TM-T88II, TM-U200B/D, TM-U300A/B**

[Description] Sets the serial counter value in the print buffer and increments or decrements the counter value.

[Notes]

- After setting the current counter value in the print buffer as print data (a character string), the printer counts up or down based on the count mode set.
- The counter value in the print buffer is printed when the printer receives a print command or is in the buffer-full state.
- In count-up mode, if the counter value is the maximum of the specified counter value, it is forced to convert to the minimum value by this command.
- In count-down mode, if the counter value is the minimum of the specified counter value, it is forced to convert to the maximum value by this command.

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- The counter print mode is set by **GS C 0**.
- The counter mode is set by **GS C 1** or **GS C ;**.
- The counter value is set by **GS C 2** or **GS C ;**.

[Model-dependent variations] None

Program Example

```
PRINT #1, "AAAAA";CHR$(&H1D);"c";CHR$(&HA);
PRINT #1, "BBBBB";CHR$(&H1D);"c";CHR$(&HA);
```

Print Sample

```
AAAAA  1
BBBBB  2
```

GS C 0 *n m*

[Name] Select counter print mode

[Format]

ASCII	GS	C	0	*n*	*m*
Hex	1D	43	30	*n*	*m*
Decimal	29	67	48	*n*	*m*

[Range] $0 \leq n \leq 5$

$0 \leq m \leq 2, 48 \leq m \leq 50$

[Default] $n = 0, m = 0$

[Printers not featuring this command] **TM-T88II, TM-U200B/D, TM-U300A/B**

[Description] Selects a print mode for the serial number counter (the number of printed digits and the print position within the entire range of printed digits).

- ***n*** specifies the number of digits to be printed.
  - When $n = 0$, the printer prints the actual digits indicated by the number value.
  - When $n \neq 0$, the printer prints the last ***n*** digits of the serial number.

- ***m*** specifies the printing position within the entire range of printed digits, as follows:

m	**Print position**	**Processing of Digits Less Than Those Specified**
0, 48	Align right	Adds spaces to the left
1, 49	Align right	Adds 0 to the left
2, 50	Align left	Adds spaces to the right

[Notes]

- When ***n*** = 0, ***m*** is discarded.
- The serial number counter is stored in the print buffer by **GS c**.

[Model-dependent variations] **TM-L60II**

Program Example

```
PRINT #1, CHR$(&H1D);"C0";CHR$(3);CHR$(0);
PRINT #1, "AAAAA";CHR$(&H1D);"c";CHR$(&HA);
PRINT #1, CHR$(&H1D);"C0";CHR$(4);CHR$(1);
PRINT #1, "BBBBB";CHR$(&H1D);"c";CHR$(&HA);
```

Print Sample

```
AAAAA  ← 3 digits + right alignment + adding spaces to the left
BBBBB0002 ← 4 digits + right alignment + adding "0"  to the left
```

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TM-L60II

With a serial interface, the paper selection DIP switch is SW 2-6.

With a parallel interface, the paper selection DIP switch is SW 1-7.

GS C 1 *aL aH bL bH n r*

[Name] Select count mode (A)

[Format]

ASCII	GS	C	1	***aL***	***aH***	***bL***	***bH***	***n***	***r***
Hex	1D	43	31	***aL***	***aH***	***bL***	***bH***	***n***	***r***
Decimal	29	67	49	***aL***	***aH***	***bL***	***bH***	***n***	***r***

[Range] $0 \leq$ ***aL*** ≤ 255, $0 \leq$ ***aH*** ≤ 255
$0 \leq$ ***bL*** ≤ 255, $0 \leq$ ***bH*** ≤ 255
$0 \leq$ ***n*** ≤ 255, $0 \leq$ ***r*** ≤ 255

[Default] ***aL*** = 1, ***aH*** = 0, ***bL*** = 255, ***bH*** = 255, ***n*** = 1, ***r*** = 1

[Printers not featuring this command] **TM-T88II, TM-U200B/D, TM-U300A/B**

[Description] Selects a count mode for the serial number counter.

Count mode	Conditions	Minimum value	Maximum value
Count-up	***aL*** + ***aH*** × 256 < ***bL*** + ***bH*** × 256 and ***n*** ≠ 0 and ***r*** ≠ 0	***aL*** + ***aH*** × 256	***bL*** + ***bH*** × 256
Count-down	***aL*** + ***aH*** × 256 > ***bL*** + ***bH*** × 256 and ***n*** ≠ 0 and ***r*** ≠ 0	***bL*** + ***bH*** × 256	***aL*** + ***aH*** × 256
Count-stop	***aL*** + ***aH*** × 256 = ***bL*** + ***bH*** × 256 or ***n*** = 0 or ***r*** = 0	—	—

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- ***aL***, ***aH*** and ***bL***, ***bH*** specify the counter ranges (maximum or minimum value).
- ***n*** specifies the stepping amount when counting up or down.
- ***r*** specifies the repetition number of printing for the same counter value.

[Notes]

- In a count-up setting, when the **GS c** is executed, the maximum value of the counter is (***bL*** + ***bH*** × 256) and the minimum value of the counter is (***aL*** + ***aH*** × 256).
- In a count-down setting, when **GS c** is executed, the minimum value of the counter is (***bL*** + ***bH*** × 256) and the maximum value of the counter is (***aL*** + ***aH*** × 256).
- In a count-stop setting, when executing **GS c**, the counter value is not changed.
- When this command is executed, the internal counter which counts the repetition number of printing is 0.
- This command does not change the counter value. The counter value is set by **GS C 2**.
- The settings for a range of a counter set by **GS C ;**, stepping amount of incrementing or decrementing of a counter value, the repetition number of printing are disabled by processing this command.

GS C 2 *nL nH*

[Name] Select counter print mode

[Format]

ASCII	GS	C	2	***nL***	***nH***
Hex	1D	43	32	***nL***	***nH***
Decimal	29	67	50	***nL***	***nH***

[Range] $0 \leq$ ***nL*** ≤ 255

$0 \leq$ ***nH*** ≤ 255

[Default] ***nL*** = 1, ***nH*** = 0

[Printers not featuring this command] **TM-T88II, TM-U200B/D, TM-U300A/B**

[Description] Sets the serial number counter value.

- Specifies the counter value as (***nL***+***nH*** × 256).

[Notes]

- In count-up mode, if the counter value specified by this command goes out of the counter operation range , it is forced to convert to the minimum value by **GS c**.
- In count-down mode, if the counter value specified by this command goes out of the counter operation range, it is forced to convert to the maximum value by **GS c**.
- The setting of the counter value set by **GS C ;** is disabled by processing this command.

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- The range of the counter value is set by **GS C 1** or **GS C ;**.

Program Example

```
PRINT #1, CHR$(&H1D);"C1";CHR$(1);CHR$(0);
PRINT #1, CHR$(44);CHR$(1);CHR$(1);CHR$(1);
PRINT #1, CHR$(&H1D);"C2";CHR$(10);CHR$(0);
PRINT #1, CHR$(&H1D);"C0";CHR$(3);CHR$(1);
PRINT #1, "Line";CHR$(&H1D);"c";CHR$(&HA);
PRINT #1, "Line";CHR$(&H1D);"c";CHR$(&HA);
```

Print Sample

```
Line 010
Line 011
```

GS C ; *sa* ; *sb* ; *sn* ; *sr* ; *sc* ;

[Name] Select counter mode (B)

[Format]

ASCII	GS	C	;	***sa***	;	***sb***	;	***sn***	;	***sr***	;	***sc***	;
Hex	1D	43	3B	***sa***	***3B***	***sb***	***3B***	***sn***	***3B***	***sr***	***3B***	***sc***	***3B***
Decimal	29	67	59	***sa***	***59***	***sb***	***59***	***sn***	***59***	***sr***	***59***	***sc***	***59***

[Range]
"0" ≤ ***sa*** ≤ "65535"
"0" ≤ ***sb*** ≤ "65535"
"0" ≤ ***sn*** ≤ "255"
"0" ≤ ***sr*** ≤ "255"
"0" ≤ ***sc*** ≤ "65535"

[Default] ***sa*** = "1", ***sb*** = "65535", ***sn*** = "1", ***sr*** = "1", ***sc*** = "1"

[Printers not featuring this command] **TM-T88II, TM-U200B/D, TM-U300A/B**

[Description] Selects a count mode for the serial number counter by using character strings.

Count mode	Conditions	Minimum value	Maximum value
Count-up	***sa*** < ***sb***, ***sn*** ≠ 0, and ***sr*** ≠ 0	***sa***	***sb***
Count-down	***sa*** > ***sb***, ***sn*** ≠ 0, and ***sr*** ≠ 0	***sb***	***sa***
Count-stop	***sa*** = ***sb***, ***sn*** = 0, or ***sr*** = 0	—	—

- ***sa*** and ***sb*** specify the counter ranges (maximum and minimum values) for the serial number counter.
- ***sn*** specifies the stepping amount for counting up or down.
- ***sr*** specify the repetition number of printing for the counter value.
- ***sc*** specifies the serial number counter value.

[Notes]

- In count-up mode, ***sa*** is the minimum counter value and ***sb*** is the maximum counter value.
- In count-down mode, ***sb*** is the minimum counter value and ***sa*** is the maximum counter value.
- In count-stop mode, the counter value is not changed by **GS c**.
- ***sa***, ***sb***, ***sn***, ***sr***, and ***sc*** specify a value using a decimal character string, respectively.
- ***sa***, ***sb***, ***sn***, ***sr***, and ***sc*** can be omitted ("**;**" which separates an argument, cannot be omitted). Setting value for the omitted argument is not changed.

  Example:

  When changing only a stepping amount for a count-up or count-down and a counter value, the setting value is [**GS C ; ; ; 5 ; ; 100 ;**].

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- The internal counter value which counts the repetition number of printing by processing this command is “0”.
- The settings for **GS C 1** and **GS C 2** are disabled by processing this command.

Program Example

```
PRINT #1, CHR$(&H1D);"C;";"300;1;1;2;100;";
PRINT #1, CHR$(&H1D);"C0";CHR$(4);CHR$(1);
PRINT #1, "No.";CHR$(&H1D);"c";CHR$(&HA);
PRINT #1, "No.";CHR$(&H1D);"c";CHR$(&HA);
PRINT #1, "No.";CHR$(&H1D);"c";CHR$(&HA);
PRINT #1, "No.";CHR$(&H1D);"c";CHR$(&HA);
PRINT #1, "No.";CHR$(&H1D);"c";CHR$(&HA);
```

Print Sample

```
No. 0100
No. 0100
No. 0099
No. 0099
No. 0098
```

GS z 0 *t1 t2*

[Name] Set on-line recovery wait time

[Format]

ASCII	GS	z	0	***t1***	***t2***
Hex	1D	7A	30	***t1***	***t2***
Decimal	29	122	48	***t1***	***t2***

[Range] $0 \leq$ ***t1*** ≤ 255

$0 \leq$ ***t2*** ≤ 255

[Default] ***t1*** = 6, ***t2*** = 0

[Printers not featuring this command] **TM-T88II, TM-L60II, TM-U300A/B**

[Description] Sets the on-line recovery wait time from the time a new paper roll is installed to when the printer goes on-line.

- This command sets the paper wait time to (***t1*** × 500msec). When ***t1*** = 0, the paper wait time is set to 0.
- This command sets the recovery confirmation time to (***t2*** × 500msec). When ***t2*** = 0, the recovery confirmation time is canceled.

[Notes]

■ The printer is in the paper wait time status after loading the paper. During this time, the printer performs the followings:

- The paper out LED is off.

- Paper can be fed by pressing the paper feed button. The time for feeding the paper is not included in the paper wait time.
- The printer is in the recovery confirmation time after the paper wait time (***t1*** × 500msec) is elapsed.

■ In the paper wait time, the printer can be set on-line by **DLE ENQ *0***.

■ When the paper wait time is set to 0 (***t1*** = 0), the printer is in the recovery confirmation status immediately after the paper loading.

■ In the recovery confirmation status, the printer performs the followings:

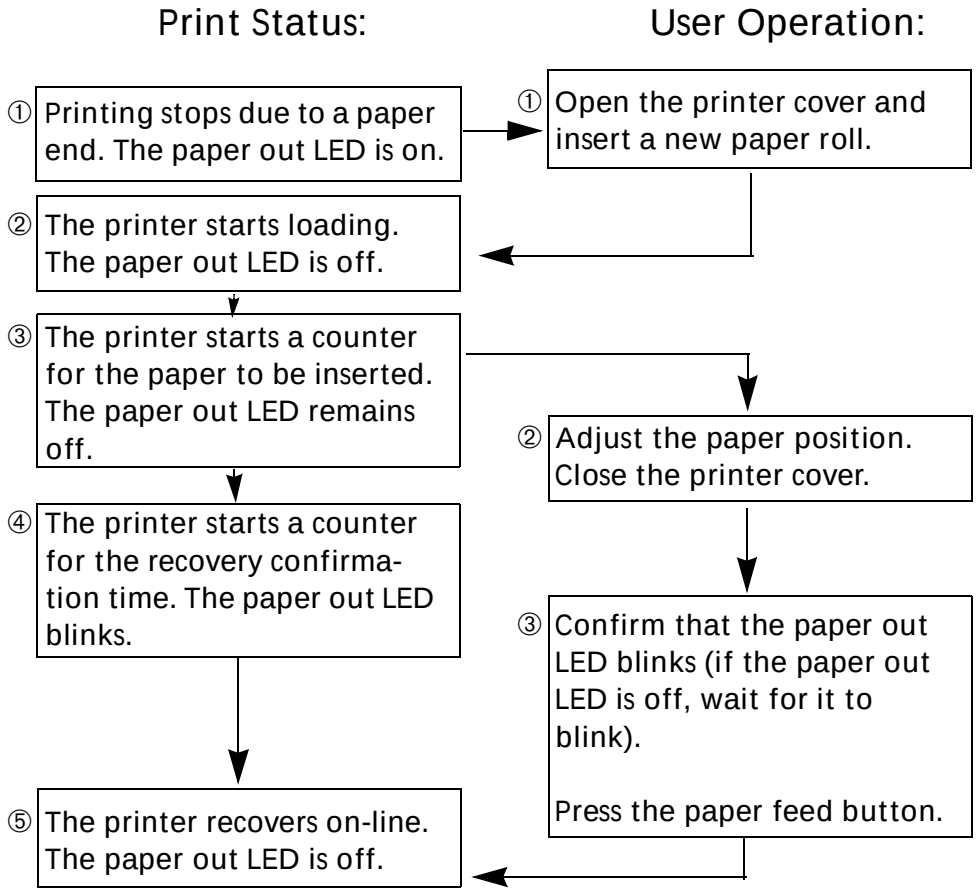
- The paper out LED blinks.
- The printer recovers on-line by pressing the paper feed button. Paper can not be fed by pressing the paper feed button.
- The printer recovers on-line after the recovery confirmation time (***t2*** × 500msec) is elapsed.

■ In the recovery confirmation time, the printer can be set on-line by **DLE ENQ *0***.

■ In the recovery confirmation time, the paper cannot be fed by pressing the paper feed button.

- When the recovery confirmation time is cancelled (***t2***=0), the printer recovers on-line by executing **DLE ENQ *0*** or pressing the paper feed button.
- During the paper wait time and recovery confirmation time, if a paper-end is detected, the printer restarts processing from loading a paper roll.
- When the panel buttons are disabled by **ESC c 5**, the paper feed button can be used temporarily in the paper wait time and recovery confirmation time.
- The paper out LED is off when the printer recovers on-line.
- On-line recovery wait time status is checked by **DLE EOT**.
- The paper out LED and paper feed button are different depending on the printer model.

■ The procedures for on-line recovery by pressing the paper feed button are as follows:



Print status:

Status ① : Normal operation ⟶ Not printing due to a paper-end

The printer stops printing and goes off-line when the paper roll sensor detects a paper-end. The paper out LED is on.

Printer status ② :Not printing due to a paper-end

When the sensor detects that a paper roll is inserted, the printer starts loading.

Printer status ③ :Waiting for a paper roll to be inserted (waiting for on-line recovery)

The printer is in the paper wait status after loading and the paper out LED is off.

Printer status ④ :Recovery confirmation status (on-line recovery wait status)

After waiting for a paper roll to be inserted, the paper out LED blinks, and the printer is in the recovery confirmation status.

Printer status ⑤ : Normal operation

When the on-line recovery wait time (the printer status ③ + ④) is elapsed, when the paper feed button is pressed during the recovery confirmation time, or when **DLE ENQ *0*** is executed, the paper out LED is off, the printer recovers on-line, and it executes normal processing.

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User Operation

Operation ①:

When the printer stops printing due to a paper-end, open the printer cover, remove old paper roll, and insert a new paper roll.

Operation ②:

When paper position adjustment is needed, close the printer cover after the adjustment. If the paper out LED is off, the paper can be fed by the paper feed button. After completing paper insertion, be sure to close the printer cover.

Operation ③:

Make sure that the paper out LED is blinking. If the paper out LED is off, wait until it blinks. After confirming that the paper out LED is blinking, press the paper feed button.

DLE ENQ *n*

[Name] Real-time request to printer

[Format]

ASCII	DLE	ENQ	*n*
Hex	10	05	*n*
Decimal	16	5	*n*

[Range] **TM-T88II: *n* = 1, 2**

TM-U200B/D: *n* = 0, 2

[Default] None

[Printers not featuring this command] **TM-L60II, TM-U300A/B**

[Description] Responds to a request in real time from the host computer, using ***n*** as follows:

n	**Request**
0	Recovers to on-line state.
1	Restarts printing from the beginning of the line where an error occurred, after recovering from the error.
2	Recovers from an error after clearing the receive and print buffers.

[Notes]

- The printer executes this command upon receiving it.
- With a serial interface model, this command is executed even when the printer is off-line, or the receive buffer is full.
- With a parallel interface model, this command is not executed in the following statuses, because the printer is busy and unable to receive data from the host computer. The DIP switch (BUSY condition) is different, depending on the printer model.
  - Receive buffer is full when DIP switch is set to On.
  - Printer is off-line or receive buffer is full when DIP switch is set to Off.
- When a recoverable error occurs, after removing a cause of the error, the printer can recover from the error by transmitting **DLE ENQ 1** or **DLE ENQ 2** without turning off the power.
- **DLE ENQ 1** or **DLE ENQ 2** is enabled only when a recoverable error occurs with the exception of an automatically recovered error, and is ignored in other cases. Errors recoverable by **DLE ENQ 1** or **DLE ENQ 2** depend on the printer model.
- **DLE ENQ 1** or **DLE ENQ 2** is also executed to recover from a recoverable error when the printer is disabled by **ESC =.**

- In page mode, if the printer recovers from a recoverable error by using **DLE ENQ 2**, the printer returns to standard mode after clearing the data in receive and print buffers and changing the values set by **ESC W** to the default values.
- **DLE ENQ 0** is enabled only when the printer stops printing due to a paper-end and waits for on-line recovery (from the time when a paper roll is inserted to the time when the printer goes on-line).
- The on-line recovery waiting status can be confirmed by **DLE EOT**.

[Model-dependent variations] **TM-T88II** **TM-U200B/D**

.

Program Example for all printers

```
PRINT #1, CHR$(&H10);CHR$(&H5);CHR$(2);
```

TM-T88II

BUSY condition for a parallel interface is selected by DIP switch 2-1.

Recoverable error indicates the autocutter error.

TM-U200B/D

BUSY condition for the parallel interface is selected by DIP switch 1-8.

Recoverable error indicates a home position detection error or the autocutter error.

DLE DC4 *n m t*

[Name] Generate pulse at real-time

[Format]

ASC II	DLE	DC4	*n*	*m*	*t*
Hex	10	14	*n*	*m*	*t*
Decimal	16	20	*n*	*m*	*t*

[Printers not featuring this command] **TM-L60II, TM-U200B/D, TM-U300A/B**

[Range] ***n*** = 1
m = 0, 1
1 ≤ ***t*** ≤ 8

[Description] Outputs the pulse specified by ***t*** to connector pin ***m*** as follows:

m	**Connector pin**
0	Drawer kick-out connector pin 2
1	Drawer kick-out connector pin 5

The pulse ON time is [***t*** x 100 ms] and the OFF time is [***t*** x 100 ms]

[Notes]

- The printer executes this command when receiving it.
- This command is ignored in the following statuses:
  - In error status
  - When the pulse is being output to the connector pin (during processing of **ESC p** and **DLE DC4**)
  - During transmission of block data (Header~NUL)

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- With a serial interface, the printer executes this command when it is in off-line, receive buffer-full, or error status.
- With a parallel interface, if the printer is in BUSY condition, this command cannot be used in the following statuses.
  - When DIP switch (BUSY condition) is on: receive buffer-full
  - When DIP switch (BUSY condition) is off: off-line, receive buffer-full, or error status
- This command is effective when the printer is disabled by **ESC =** (select peripheral device).

[Model-dependent variations] None

Program Example

```
PRINT #1, CHR$(&H10);CHR$(&H14);CHR$(1)l;CHR$(0);CHR$(5);
```

FS g 1 *m a1 a2 a3 a4 nL nH d1...dk*

[Name] Write to user NV memory

[Format]

ASC II	FS	g	1	*m a1 a2 a3 a4 nL nH d1...dk*
Hex	1C	67	31	*m a1 a2 a3 a4 nL nH d1...dk*
Decimal	28	103	49	*m a1 a2 a3 a4 nL nH d1...dk*

[Printers not featuring this command] **TM-L60II, TM-U200B/D, TM-U300A/B**

[Range]

m = 0
0 ≤ (***a1*** + ***a2*** x 256) + ***a3*** x 65536) + (***a4*** x 16777216) ≤ 1023)
1 ≤ (***nL*** + ***nH*** x 256) ≤ 1024)
32 ≤ *d* ≤ 255
k = (***nL*** + ***nH*** x 256)

[Description] Writes data to user NV memory

- ***a1***, ***a2***, ***a3***, and ***a4*** specify the stored data starting address to (***a1*** + ***a2*** x 256 + ***a3*** x 65536 + ***a4*** x 16777216).
- ***nL*** and ***nH*** select the number of stored data bytes (***nL*** + ***nH*** x 256).
- ***d*** specifies the stored data.
- ***k*** indicates the number of stored data. ***k*** is an explanation parameter; therefore, it is not necessary to be transmitted.

[Notes]

- User NV memory means the memory area which is used for storing character font data in non-volatile memory. The data stored is effective until it is redefined by this command.
- In standard mode, this command is effective only when processed at the beginning of a line.
- If this command is processed while a macro is being defined, the printer cancels macro definition and starts processing this command. At that time, the macro becomes undefined.
- All the previously stored data in the specified area is replaced with new data.
- The user NV memory data can be read by **FS g 2**.
- The user NV memory can be used for memorizing definitions of NV bit images and maintenance information (ink ribbon replacement date, telephone numbers of repair companies, and so on)

[Model-dependent variations] **TM-T88II**

Program Example

```
PRINT #1, CHR$(&H1C);"g1";CHR$(0);
PRINT #1, CHR$(0);CHR$(0);CHR$(0);CHR$(0);CHR$(14);CHR$(0);
PRINT #1, "NVimage1=Stamp";
```

TM-T88II

Frequent use of this command may damage the non-volatile memory (more than 10 times a day).

The printer will become BUSY during writing data to the non-volatile memory. In this case, the printer does not receive and transmit data; therefore, be sure not to transmit data from the host.

FS g 2 *m a1 a2 a3 a4 nL nH*

[Name] Read from user NV memory

[Format]

ASC II	FS	g	2	***m a1 a2 a3 a4 nL nH***
Hex	1C	67	32	***m a1 a2 a3 a4 nL nH***
Decimal	28	103	50	***m a1 a2 a3 a4 nL nH***

[Printers not featuring this command] **TM-L60II, TM-U200B/D, TM-U300A/B**

[Range] **TM-T88II: *m*** = 0
$(0 \leq (a1 + (a2 \times 256) + (a3 \times 65536) + (a4 \times 16777216)) \leq 1023)$
$1 \leq (nL + (nH \times 256)) \leq 80$

[Description] Transmit data in user NV memory

- ***a1, a2, a3,*** and ***a4*** specify starting address of transmission data to (***a1*** + ***a2*** x 256 + ***a3*** x 65536 + ***a4*** x 16777216).
- ***nL*** and ***nH*** specify the number of transmission data to (***nL*** + ***nH*** x 256) bytes.

[Notes]

- User NV memory means the memory area which is used for storing character font data in non-volatile memory.
- Transmission data consists of [Header + data + NUL] as follows:
  - Header: Hexadecimal = 5FH/Decimal = 95
  - Data: User NV memory data
  - NUL: Hexadecimal = 00H/Decimal = 0

- The printer becomes BUSY immediately before transmitting a header and recovers to READY after transmitting a NUL (except for other causes of the printer being BUSY).
- With a serial interface, when DTR/DSR control is selected by DIP switch (handshaking), the printer transmits [Header~NUL] to the host after confirming that the host is ready to receive data.
- With a serial interface, when XON/XOFF control is selected by DIP switch (handshaking), the printer transmits [Header~NUL] to the host without confirming that the host is ready to receive data.
- With a parallel interface, a [Header ~ NUL] is stored at first in the transmission buffer with the other transmission data (except for ASB status). When the host becomes Reverse Mode, the data is transmitted in order from the beginning. Data which exceeds the transmission buffer size (99 bytes) is ignored. When using the command, the host should be Reverse Mode immediately and execute receive processing of status.
- When using this command, space for the receive buffer of the host should be more than ((***nL*** + ***nH*** x 256) + 3) bytes.
- When transmitting data, ASB status and real-time commands cannot be used.

- Writing data to the user NV memory is enabled by **FS g 1**.
- The user NV memory can be used for memorizing definitions of NV bit images and maintenance information (ink ribbon replacement date, telephone numbers of repair companies, and so on)
- A header of block data and other transmission data can be differentiated as follows:

Transmission data	**Bits**
1st byte of ASB status	0**1 **00
Real-time status (DLE EOT)	0**1 **10
Normal status (GS r)	0**0 ****
Printer ID (GS I)	0**0 ****
Head of block data	0101 1111
XON code	0001 0001
XOFF code	0001 0011

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Program Example

```
PRINT #1, CHR$(&H1C);”g2”;CHR$(0);CHR$(0);CHR$(0);CHR$(0);CHR$(0);CHR$(14);CHR$(0)
```

GS (A p_L p_H n m

[Name] Execute test print

[Format]

ASC II	GS	(	A	*pL*	*pH*	*n*	*m*
Hex	1D	28	41	*pL*	*pH*	*n*	*m*
Decimal	29	40	65	*pL*	*pH*	*n*	*m*

[Printers not featuring this command] **TM-L60II, TM-U300A/B**

[Range] (***pL*** + (***pH*** x 256)) = 2 (***pL*** = 2, ***pH*** = 0)

0 ≤ ***n*** ≤ 2, 48 ≤ ***n*** ≤ 50, 1 ≤ ***m*** ≤ 3, 49 ≤ ***m*** ≤ 51

[Description] Execute a specified test print

- ***pL*** and ***pH*** specify the number of parameters following ***n*** to (***pL*** + ***pH*** x 256) bytes.
- ***n*** specifies paper used for the test print as follows:

n	**Paper**
0, 48	Basic sheet (paper roll)
1, 49 2, 50	Paper roll

- ***m*** specifies a type of the test print as follows:

m	**Type**
1, 49	Hexadecimal dump
2, 50	Printer status printing
3, 51	Rolling pattern

[Notes]

- This command is effective only when processed at the beginning of the line in standard mode.
- If this command is processed while a macro is being defined, the printer cancels macro definition and starts processing this command. At that time, the macro becomes undefined.
- After processing this command, the printer performs software resetting. The printer is in the status when the power is turned on by executing this command.
- When processing the printer status printing (***m*** = 2, 50) and the rolling pattern printing (***m*** = 3, 51), the printer does not process data reception and transmission between the host. ASB status and real-time commands cannot be used.

[Model-dependent variations] None

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Program Example

```
PRINT #1, CHR$(&H1D);”(A”;CHR$(1);CHR$(2);
```

FS q *n* [x_L x_H y_L y_H *d1...dk*]1...[x_L x_H y_L y_H *d1...dk*]*n*

[Name] Define NV bit image

[Format]

ASC II	FS	q	*n*	*[xL xH yL yH d1...dk]1...[xL xH yL yH d1...dk]n*
Hex	1C	71	*n*	*[xL xH yL yH d1...dk]1...[xL xH yL yH d1...dk]n*
Decimal	28	113	*n*	*[xL xH yL yH d1...dk]1...[xL xH yL yH d1...dk]n*

[Printers not featuring this command] **TM-L60II, TM-U200B/D, TM-U300A/B**

[Range] **TM-T88II:**

$1 \le n \le 255$
$0 \le x_L \le 255$
$0 \le x_H \le 3$ (when $1 \le (x_L + x_H \times 256) \le 1023$)
$0 \le y_H \le 1$ (when $1 \le (y_L + y_H \times 256) \le 288$)
$0 \le d \le 255$
$k = (x_L + x_H \times 256) \times (y_L + y_H \times 256) \times 8$
Total defined data area is 2M bits (256K bytes)

[Description] Define NV bit image specified.

- ***n*** specifies the number of defined NV bit images.
- x_L, x_H specifies ($x_L + x_H \times 256$) bytes in the horizontal direction for the NV bit image you defined.
- y_L, y_H specifies ($y_L + y_H \times 256$) bytes in the vertical direction for the NV bit image you defined.
- ***d*** specifies the definition data for the NV bit image.

- ***k*** indicates the number of the definition data. ***k*** is a parameter for an explanation; therefore, it is not necessary to be transmitted.

[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.
- In standard mode, this command is effective only when processed at the beginning of the line.
- In page mode, this command is not effective.
- If this command is processed while a macro is being defined, the printer cancels macro definition and starts processing this command. At this time, the macro becomes undefined.
- ***k*** bytes data of ***d1...dk*** is processed as a defined data of a NV bit image. The defined data (***d***) specifies a bit printed to 1 and not printed to 0.
- All NV bit images previously defined are cancelled.
- After processing this command, the printer executes a software reset. Therefore, processing this command enables the printer to be in the status when the power is turned on.

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- There are the limitations during processing of this command as follows:
  - Paper cannot be fed by using PAPER FEED button.
  - The real-time commands are ignored.
  - Even if the ASB function is effective, the ASB status cannot be transmitted.
  - The NV bit image is printed by **FS p**.
- Bit image data and print result are as follows:

d1	***dY+1***	***...***	***:***
d2	***dY+2***	***...***	***dk-2***
:	***:***	***...***	***dk-1***
dY	***dY×2***	***...***	***dk***

$Y = yL + yH \times 256$

[Model-dependent variations] **TM-T88II**

See program example and print sample for **FS q** and **FS p**.

TM-T88II

Frequent use of this command may damge the non-volatile memory (more than 10 times a day).

The printer is in BUSY when writing the data to the non-volatile memory. In this case, do not transmit data from the host because the printer does not receive data.

FS p *n m*

[Name] Print NV bit image

[Format]

ASC II	FS	p	*n*	*m*
Hex	1C	70	*n*	*m*
Decimal	28	112	*n*	*m*

[Printers not featuring this command] **TM-L60II, TM-U200B/D, TM-U300A/B**

[Range] $1 \leq \boldsymbol{n} \leq 255$

$0 \leq \boldsymbol{m} \leq 3, 48 \leq \boldsymbol{m} \leq 51$

[Description] Prints a NV bit image ***n*** using the mode specified by ***m***.

m	**Mode**
0, 48	Normal
1, 49	Double-width
2, 50	Double-height
3, 51	Quadruple

[Notes]

- This command is not effective when the NV bit image specified by ***n*** has not been defined.
- In standard mode, this command is effective only when there is no data in the print buffer.
- In page mode, the NV bit image is only stored in the print buffer and is not printed.

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- If the NV bit image which exceeds one line of printing area, the printer does not print it.
- This command is not affected by print modes (emphasized, underline, character size, or 90° rotated characters, etc.) except upside-down printing mode.
- This command executes paper feed for amount needed for printing the NV bit image regardless of paper feed amount set by a paper feed setting command.
- After printing the bit image, this command sets the print position to the beginning of the line.
- When printing the NV bit image, selecting unidirectional printing mode with **ESC U** enables printing patterns in which the top and bottom parts are aligned vertically.
- The NV bit image is defined by **FS q**.

[Model-dependent variations] **TM-T88II**

See program example and print sample for **FS q** and **FS p**.

TM-T88II

In standard mode the modes specified are as follows:

m	Mode	Dot density in vertical	Dot density in horizontal
0, 48	Normal	180 DPI	180 DPI
1, 49	Double-width	180 DPI	90 DPI
2, 50	Double-height	90 DPI	180 DPI
3, 51	Quadruple	90 DPI	90 DPI

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Program example for **FS q** and **FS p**

Program Example

```
PRINT #1, CHR$(&H1C);"q";CHR$(1);CHR$(18);CHR$(0);CHR$(5);CHR$(0);
FOR i=1 TO 18*5*8
  READ a$: d=VAL("&H"+a$)
  PRINT #1, CHR$(d);
NEXT i
```

Definition

```
PRINT #1, CHR$(&H1B);"U";CHR$(1); ←Select direction
PRINT #1, CHR$(&H1C);"p";CHR$(0);CHR$(&HA); ← Normal
PRINT #1, CHR$(&H1C);"p";CHR$(1);CHR$(&HA); ← Double width

DATA AA,AA,AA,AA,55,55,55,55,54,80,00,00,00,02
DATA 40,00,00,00,04,80,00,00,00,02,40,00,00,00,04
DATA 8A,AA,AA,AA,A2,45,55,55,55,44,8A,AA,AA,AA,A2
DATA 45,55,55,55,44,8A,AA,AA,AA,A2,45,00,50,01,44
DATA 8A,80,A8,02,A2,45,00,50,01,44,8A,80,A8,02,A2
DATA 45,00,50,01,44,8A,80,A8,02,A2,45,00,50,01,44
DATA 8A,80,A8,02,A2,45,00,00,01,44,8A,80,00,02,A2
DATA 40,00,00,00,04,80,00,00,00,02,40,00,00,00,04
DATA 80,AA,00,02,A2,41,55,00,01,44,82,AA,80,02,A2
DATA 45,55,40,01,44,8A,AA,A0,02,A2,45,45,50,01,44
DATA 8A,82,A8,02,A2,45,01,54,01,44,8A,80,AA,02,A2
DATA 45,00,55,01,44,8A,80,2A,82,A2,45,00,15,55,44
DATA 8A,80,0A,AA,A2,45,00,05,55,44,8A,80,02,AA,82
DATA 40,00,01,55,04,80,00,00,00,02,40,00,00,00,04
DATA 80,00,00,00,02,40,15,55,50,04,80,2A,AA,A8,02
DATA 40,55,55,54,04,80,AA,AA,AA,02,41,55,55,55,04
DATA 82,A8,00,2A,82,45,50,00,15,44,8A,A0,00,0A,A2
DATA 45,40,00,05,44,8A,80,00,02,A2,45,00,00,01,44
DATA 8A,80,00,02,A2,45,00,00,01,44,8A,80,00,02,A2
DATA 45,00,00,01,44,8A,80,00,02,A2,40,00,00,00,04
DATA 80,00,00,00,02,40,00,00,00,04,80,00,00,00,62
DATA 40,00,00,03,84,80,00,00,1C,02,40,00,00,60,04
DATA 80,00,03,80,02,40,00,1C,00,04,80,00,60,00,02
DATA 40,03,80,00,04,80,0C,00,00,02,40,70,00,00,04
```

Program Example (continued)

```
DATA 83,80,00,00,02,4C,00,00,00,04,80,00,00,00,02
DATA 40,00,00,00,04,80,00,00,00,02,4A,AA,AA,AA,A4
DATA 85,55,55,55,42,4A,AA,AA,AA,A4,85,55,55,55,42
DATA 4A,AA,AA,AA,A4,85,00,05,00,02,4A,08,0A,80,04
DATA 85,00,05,00,02,4A,80,0A,80,04,85,00,05,00,02
DATA 4A,80,0A,80,04,85,00,05,00,02,4A,80,0A,80,04
DATA 85,55,55,00,02,42,AA,AA,00,04,81,55,54,00,02
DATA 40,AA,A8,00,04,80,55,50,00,02,40,00,00,00,04
DATA 80,00,00,00,02,40,00,00,00,04,80,2A,AA,A8,02
DATA 40,55,55,54,04,80,AA,AA,AA,02,41,55,55,55,04
DATA 82,AA,AA,AA,82,45,40,00,05,44,8A,80,00,02,A2
DATA 45,00,00,01,44,8A,80,00,02,A2,45,00,00,01,44
DATA 8A,80,00,02,A2,45,00,00,01,44,8A,80,00,02,A2
DATA 45,00,00,01,44,8A,80,00,02,A2,45,40,00,05,44
DATA 82,AA,AA,AA,82,41,55,55,55,04,80,AA,AA,AA,02
DATA 40,55,55,54,04,80,2A,AA,A8,02,40,00,00,00,04
DATA 80,00,00,00,02,40,00,00,00,04,80,AA,00,02,A2
DATA 41,55,00,01,44,82,AA,80,02,A2,45,55,40,01,44
DATA 8A,AA,A0,02,A2,45,45,50,01,44,8A,82,A8,02,A2
DATA 45,01,54,01,44,8A,80,AA,02,A2,45,00,55,01,44
DATA 8A,80,2A,82,A2,45,00,15,55,44,8A,80,0A,AA,A2
DATA 45,00,05,55,44,8A,80,02,AA,82,40,00,01,55,04
DATA 80,00,00,00,02,40,00,00,00,04,80,00,00,00,02
DATA 40,00,00,00,04,AA,AA,AA,AA,AA,55,55,55,55,54
```

Print Sample

ESC/POS ← Normal mode

ESC/POS ← Double-width mode