Information Manual

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EPSON®

ESC/POS™
Information Manual

Guide to
TM-295/295P

SEIKO EPSON CORPORATION

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Introduction

ESC/POS

The market for store automation equipment is changing rapidly with the widespread introduction of POS (point of sale) terminals. These terminals are now appearing even in small retail stores and specialty shops. They occupy a secure position in the range of applications available for personal computers.

As more personal computers come to be used as POS terminals, the demand for matching standardized peripheral devices is expected to rise. At present, however, many of the competing POS terminal printer displays on the market employ mutually incompatible command sets. This imposes limits on the expandability and range of applications possible with PC-based systems. There is a need for a new command set designed to provide the expandability and universal applicability demanded by the market.

To meet this need, Seiko Epson Corporation proposes the adoption of a newly developed command set to standardize POS terminal peripheral devices: ESC/POS (Epson Standard Code for Point of Sale).

The aim when developing ESC/POS was to create a set of control codes that could be used to operate any output device connected to a POS terminal. These new codes are intended to replace the mutually incompatible command sets previously in use.

TM/DM series models already support ESC/POS, and they have been evaluated highly in the marketplace.

Seiko Epson Corporation plans to produce new models in the TM/DM series offering ESC/POS support and to continue to work for the standardization of the entire POS environment to promote the dissemination of ESC/POS.

About This Manual

❏ **Chapter 1** contains a table of supported commands, descriptions of all the commands arranged by function with program examples and print samples, and character code tables.

❏ **Chapter 2** contains an example showing several commands used in a program for printing in page mode.

❏ **Chapter 3** contains a table of the commands listed by function type and a table showing which commands are supported by various EPSON printers.

Features

The TM-295 and TM-295P are terminal slip paper printers which use a 7-pin shuttle dot printing method and provide both standard and page modes. The printers have the following features:

❏ Programmable page length.

❏ Programmable print starting position.

❏ Multiple character sizes (standard, double-width, double-height, and quadruple).

❏ Four character directions.

❏ International character set selection.

❏ Forward and backward paper feeding.

❏ Unidirectional printing.

❏ Command protocol based on the ESC/POS™ standard.

❏ Programmable paper feed amount.

❏ Paper eject function.

❏ Top Of Form (TOF) and Bottom Of Form (BOF) sensors.

❏ Data reception during printing (improved throughput and less waiting time for the host computer).

❏ 512-byte printer buffer memory.

❏ Compact, space-efficient design.

❏ Drawer kick-out function.

❏ Automatic Status Back (ASB) function that automatically transmits changes in printer status.

❏ RS-232 serial interface or IEEE 1284 parallel interface selectable when the printer is shipped from the factory.

Options and Accessories

❏ EPSON power supply unit, PS-150.

❏ EPSON ribbon cassette, ERC-27.

Specifications

❏ Printing specifications

Printing method:	7-pin shuttle type, impact dot matrix
Printing speed:	Approximately 1.9 to 2.3 LPS
Number of printable columns:	35/42

❏ Character specifications

Character fonts:	$5 \times 7/7 \times 7$
Characters per inch:	0.63 mm/0.63 mm
Character size:	1.6(W) $\times$ 2.9(H) mm/1.3(W) $\times$ 2.9(H) mm
Character sets:	ANK: 95 characters
	International: 32 characters
	Extended graphics: 128 characters $\times$ 3 pages

❏ Paper specifications

Paper size:	Slip paper: 80(W) $\times$ 69(L) mm - 182(W) $\times$ 257(L) mm
Thickness:	Single-ply: 0.09 mm - 0.25 mm
	Original and 2 copies: 0.09 mm - 0.35 mm

❏ Interface: RS-232 (serial interface)
or
IEEE 1284 (parallel interface)

❏ Data buffer: 512 or 35 bytes (selectable by DIP switch)
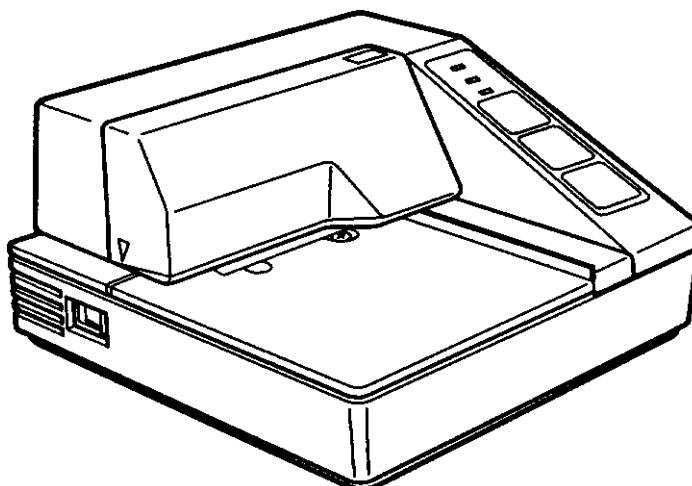
Chapter 1
Command Descriptions

Following this table are all the commands organized by function and described 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.

Supported Commands

Command	Name	Function Type	Page Number
HT	Horizontal tab	Print position	1-19
LF	Print and line feed	Print	1-3
FF	① Print and eject cut sheet (in standard mode) ② Print and return to standard mode (in page mode)	Print	1-4
CR	Print and carriage return	Print	1-4
CAN	Cancel print data in page mode	Character	1-15
DLE EOT	Real-time status transmission	Status	1-25
ESC SP	Set right-side character spacing	Character	1-9
ESC !	Select print mode(s)	Character	1-13
ESC %	Select/cancel user-defined character set	Character	1-10
ESC &	Define user-defined characters	Character	1-10
ESC ∗	Select bit-image mode	Bit image	1-21
ESC 2	Select default line spacing	Line spacing	1-7
ESC 3	Set line spacing	Line spacing	1-7
ESC =	Select peripheral device	Miscellaneous function	1-30
ESC @	Initialize printer	Miscellaneous function	1-30
ESC C	Set cut sheet eject length	Line spacing	1-8
ESC D	Set horizontal tab positions	Print position	1-19
ESC F	Set/cancel cut sheet reverse eject	Mechanism control	1-29
ESC J	Print and feed paper	Print	1-5
ESC K	Print and reverse feed	Print	1-5
ESC L	Select page mode	Miscellaneous function	1-31
ESC R	Select an international character set	Character	1-11
ESC T	Select print direction in page mode	Print position	1-20
ESC W	Set printing area in page mode	Print position	1-20
ESC c 3	Select paper sensor(s) to output paper-end signals	Paper sensor	1-17
ESC c 4	Select paper sensor(s) to stop printing	Paper sensor	1-16
ESC c 5	Enable/disable panel buttons	Panel button	1-16

Command	Name	Function Type	Page Number
ESC d	Print and feed **n** lines	Print	1-6
ESC e	Print and reverse feed **n** lines	Print	1-6
ESC f	Set cut sheet wait time	Printing paper	1-18
ESC p	Generate pulse	Miscellaneous function	1-31
ESC q	Release	Mechanism control	1-29
ESC t	Select character code table	Character	1-12
ESC u	Transmit peripheral device status	Status	1-27
ESC v	Transmit paper sensor status	Status	1-28
ESC {	Turn upside-down printing mode on/off	Character	1-14
GS I	Transmit printer ID	Miscellaneous function	1-32
GS a	Enable/disable Automatic Status Back (ASB)	Status	1-22
GS r	Transmit status	Status	1-24

Using Bit Value Tables

For each command that has a complex method of determining the variable n, there is a table showing how to calculate the variable in three numbering systems: binary, hexadecimal, and decimal.

When you look at the table, first find the value of each component of the variable. Then add the values of the components together to determine the value of the variable n.

For example, here is how you would use the table below, which selects the print mode, to combine double height, double width, and underline. In the table, you see that bit 4 on (or hex 10 or decimal 16) turns on double height, bit 5 on (or hex 20 or decimal 32) turns on double width, and bit 7 on (or hex 80 or decimal 128) turns on underline mode.

To combine all three, turn on bits 4, 5, and 7, which is 10110000 in binary. Or you can add the hex values 10, 20, and 80 for the hex sum of B0, or you can add the decimal values 16, 32, and 128 for the decimal value of 176.

Therefore, you send the following to turn on double height, double width, and underline, depending on the numbering system used:

ASCII	ESC	!	n
Hex	1B	21	B0
Decimal	28	33	176

Bit	Off/On	Hex	Decimal	Function
0	Off	00	0	Character font 5 x 7 selected.
	On	01	1	Character font 7 x 7 selected.
1-3	—	—	—	Undefined.
4	Off	00	0	Double-height mode not selected.
	On	10	16	Double-height mode selected.

Bit	Off/On	Hex	Decimal	Function
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.

Note that the program examples throughout this chapter use decimal numbers, but binary, decimal, and hexadecimal numbers all have the same printing results.

Print Commands

The TM-295/295P supports the following commands for printing characters and advancing paper:

Command	Name
LF	Print and line feed
CR	Print and carriage return
FF	① Print and eject cut sheet (in standard mode)
	② Print and return to standard mode (in page mode)
ESC J	Print and feed paper
ESC K	Print and reverse feed
ESC d	Print and feed *n* lines
ESC e	Print and reverse feed *n* lines

LF

[Name]	Print and line feed	
[Format]	ASCII	LF
	Hex	0A
	Decimal	10

LF prints the data in the print buffer and feeds one line. The amount of paper fed per line is based on the value set using the line spacing command. The default setting is 1/6 inch.

```
         Program Example


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

CR functions in the same way as **LF** when auto line feed is enabled. When auto line feed is disabled, this command is ignored. This command sets the print position to the beginning of the line. This command is available only with a parallel interface and is ignored with a serial interface.

```
              Program Example


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

```
                  Print Sample


AAAAA      ←Auto line feed enabled
      BBBBB

AAAAABBBBB ←Auto line feed disabled
```

FF

[Name]	① Print and eject cut sheet (in standard mode)	
	② Print and return to standard mode (in page mode)	
[Format]	ASCII	FF
	Hex	0C
	Decimal	12

In standard mode, **FF** prints the data in the print buffer and ejects the slip paper. When the eject length has been set by **ESC C**, the printer ejects the slip paper based on the current eject length regardless of the slip paper sensor state. Otherwise, the printer ejects the slip paper completely.

The ejecting direction is specified by **ESC F**.

In page mode, **FF** prints the data in the print buffer collectively and returns to standard mode. The buffer data is deleted after being printed, but the slip paper is not ejected. The print position is set to the beginning of the line.

```
         Program Example <standard mode>


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

```
         Print Sample <standard mode>


AAAAA
BBBBB




The paper is completely ejected.
```

```
          Program Example <page mode>

PRINT #1, CHR$(&H1B);"L";←Select page mode
PRINT #1, CHR$(&H1B);"W";CHR$(0);CHR$(0);CHR$(0);
CHR$(0);CHR$(100);CHR$(0);CHR$(30);CHR$(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 <page mode>

AAAAA
BBBBB
CCCCC
```

ESC J *n*

[Name]	Print and feed paper			
[Format]	ASCII	ESC	J	*n*
	Hex	1B	4A	*n*
	Decimal	27	74	*n*
[Range]	$0 \le n \le 255$			

ESC J *n* prints the data in the print buffer and feeds the paper by *n*/60 inches (*n* × approximately 0.423 mm). This command sets the print position to the beginning of the line.

```
          Program Example

PRINT #1, "AAAAA"; CHR$(&HA);
PRINT #1, "BBBBB"; CHR$(&H1B);"J";CHR$(30);
PRINT #1, "CCCCC"; CHR$(&HA);
PRINT #1, "DDDDD"; CHR$(&HA);
```

```
          Print Sample

AAAAA
BBBBB
                ESC J used to print one line and advance
                the paper by 30/60 inch
CCCCC
DDDDD
```

ESC K *n*

[Name]	Print and reverse feed			
[Format]	ASCII	ESC	K	*n*
	Hex	1B	4B	*n*
	Decimal	27	75	*n*
[Range]	$0 \le n \le 255$			

ESC K *n* prints the data in the print buffer and feeds the paper by *n*/60 inches (*n* × approximately 0.423 mm) in the reverse direction. This command is enabled only in standard mode. The setting values are not held. This command sets the print position to the beginning of the line.

```
                    Program Example

PRINT #1, "AAAAA"; CHR$(&HA);
PRINT #1, "BBBBB"; CHR$(&HA);CHR$(&HA);CHR$(&HA);
PRINT #1, "CCCCC"; CHR$(&H1B);"K";CHR$(20);
PRINT #1, "DDDDD"; CHR$(&HA);
```

```
                    Print Sample

AAAAA
BBBBB
DDDDD ____
           | ESC K used to print one line
           ↑ and then reverse feed the
CCCCC ____   paper by 20/60 inch
```

ESC d *n*

[Name]	Print and feed *n* lines			
[Format]	ASCII	ESC	d	*n*
	Hex	1B	64	*n*
	Decimal	27	100	*n*

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

ESC d *n* prints the data in the print buffer and feeds *n* lines. The amount of paper fed per line is based on the value set using the line spacing command. The default setting of the paper feed amount is 1/6 inch (approximately 4.23 mm). This command sets the print starting position to the beginning of the line.

```
                    Program Example

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 ____ ↓
```

ESC e *n*

[Name]	Print and reverse feed *n* lines			
[Format]	ASCII	ESC	e	*n*
	Hex	1B	65	*n*
	Decimal	27	101	*n*

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

ESC e *n* prints the data in the print buffer and feeds *n* lines in the reverse direction. This command is available only in standard mode. The amount of paper fed per line is based on the value set using the line spacing command. The maximum reverse paper feed amount is 1/6 inch. The default setting of the paper feed amount is 1/6 inch (approximately 4.23 mm). The setting values are not held. This command sets the print position to the beginning of the line.

```
                Program Example


PRINT #1, "AAAAA"; CHR$(&HA);
PRINT #1, "BBBBB"; CHR$(&H1B);"e";CHR$(2);
PRINT #1, "CCCCC"; CHR$(&HA);
```

```
                    Print Sample


CCCCC
AAAAA    Paper reverse fed two lines
BBBBB    after printing line of B's
```

Line Spacing Commands

The TM-295/295P supports the following commands for setting line spacing. These commands only set the line spacing; they do not actually advance the paper. The line spacing can be set independently in standard mode and in page mode. The line spacing set using these commands affects the results of the **LF**, **FF**, **ESC d**, and **ESC e** commands. The paper is fed using the FORWARD or REVERSE buttons.

Command	Name
ESC 2	Select default line spacing
ESC 3	Set line spacing
ESC C	Set cut sheet eject length

ESC 2

[Name]	Select default line spacing		
[Format]	ASCII	ESC	2
	Hex	1B	32
	Decimal	27	50

ESC 3 *n*

[Name]	Set line spacing			
[Format]	ASCII	ESC	3	*n*
	Hex	1B	33	*n*
	Decimal	27	51	*n*
[Range]	$0 \leq n \leq 255$			

ESC 2 sets the line spacing to 1/6 inch (approximately 4.23 mm).

ESC 3 *n* sets the line spacing to *n* /60 inches (*n* × approximately 0.423 mm). The default setting of the paper feed amount is 1/6 inch (*n*=10).

The line spacing can be set independently in standard mode and in page mode.

```
                    Program Example

FOR n=8 TO 16 STEP 2
     PRINT #1, CHR$(&H1B);"3";CHR$(n);
     PRINT #1, "AAAAA"; CHR$(&HA);
NEXT n
PRINT #1, CHR$(&H1B);"2";
PRINT #1, "BBBBB"; CHR$(&HA);
PRINT #1, "CCCCC"; CHR$(&HA);
```

```
                    Print Sample

AAAAA
AAAAA      8/60-inch (8-dot) line spacing
AAAAA      10/60-inch (10-dot) line spacing
           12/60-inch (12-dot) line spacing
AAAAA
           14/60-inch (14-dot) line spacing
AAAAA
           16/60-inch (16-dot) line spacing
BBBBB
CCCCC      1/6-inch (10-dot) line spacing
```

ESC C n

[Name]	Set cut sheet eject length			
[Format]	ASCII	ESC	C	n
	Hex	1B	43	n
	Decimal	27	67	n
[Range]	$0 \leq n \leq 127$			

ESC C n sets the eject length for slip paper to n lines. The default setting for the eject length is $n=0$. This length is calculated by [$n \times$ line spacing setting]. No eject length is set if $n=0$. The eject length set by this command is used by the FF command. The previously specified eject length does not change, even if the line spacing changes.

```
                    Program Example

PRINT #1, CHR$(&H1B);"C";CHR$(5);←Set eject length
PRINT #1, "AAAAA"; CHR$(&HA);
PRINT #1, "BBBBB"; CHR$(&HC);
```

```
                    Print Sample

AAAAA
BBBBB


            Eject length set to 5 lines using ESC C
```

Character Commands

The TM-295/295P supports the following commands for setting character font and size:

Command	Name
ESC SP	Set right-side character spacing
ESC %	Select/cancel user-defined character set
ESC &	Define user-defined characters
ESC R	Select an international character set
ESC t	Select character code table
ESC !	Select print mode(s)
ESC {	Turn upside-down printing mode on/off
CAN	Cancel print data in page mode

ESC SP *n*

[Name]	Set right-side character spacing		
[Format]	ASCII	ESC	SP	*n*
	Hex	1B	20	*n*
	Decimal	27	32	*n*
[Range]	$0 \le n \le 32$			

ESC SP *n* sets the right-side character spacing in half-dot increments. It is used to change the spacing between characters. One dot equals 1/80 inch in the horizontal direction and 1/60 inch in the vertical direction. The default setting is *n*=0.

The right-side character spacing for double-width mode is twice the normal value. In page mode, the actual dot positions shift by a half dot.

The right-side character spacing can be set independently in standard mode and in page mode.

```
                 Program Example

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-dot right-side character spacing
BBBBB ← 3-dot right-side character spacing
C C C C C ← 6-dot right-side character spacing
```

ESC % *n*

[Name]	Select/cancel user-defined character set		
[Format]	ASCII	ESC	%	*n*
	Hex	1B	25	*n*
	Decimal	27	37	*n*
[Range]	$0 \le n \le 255$		

ESC & *y c1 c2* [*x1 d1* ... *d*($y \times x1$)] ... [*xk d1* ... *d*($y \times xk$)]

[Name]   Define user-defined characters

[Format]   ASCII   ESC   &   *y*   *c1 c2* [*x1 d1* ... *d*($y \times x1$)] ... [*xk d1* ... *d*($y \times xk$)]

Hex   1B   26   *y*   *c1 c2* [*x1 d1* ... *d*($y \times x1$)] ... [*xk d1* ... *d*($y \times xk$)]

Decimal   27   38   *y*   *c1 c2* [*x1 d1* ... *d*($y \times x1$)] ... [*xk d1* ... *d*($y \times xk$)]

[Range] $y = 1$

$32 \le c1 \le c2 \le 126$

$0 \le x \le 6$ (5×7 font)

$0 \le x \le 10$ (7×7 font)

$0 \le d1 ... d(y \times xk) \le 255$

$k = c2 - c1 + 1$

ESC % *n* selects or cancels the user-defined character set. When the LSB (least significant bit) of *n* is 1, the user-defined character set is selected. When it is 0, the internal character set is selected; this is the default setting.

ESC & *y c1 c2* [*x1 d1* ... *d*($y \times x1$)] ... [*xk d1* ... *d*($y \times xk$)] defines user-defined characters from character code *c1* to *c2*. *y* and *x* are the configuration of a user-defined character. *y* specifies the number of bytes in the vertical direction. *x* specifies the number of dots in the horizontal direction. Character codes from the alphanumeric characters (20H (decimal 32) to 7EH (decimal 126)) can be defined by *c1* and *c2*. Data (*d*) specifies a bit printed to 1 and not printed to 0. As the default, user-defined characters are not defined and the internal character set is printed.

Once the user-defined characters have been defined, they are available until **ESC @** is executed; the user-defined characters are redefined; the power is turned off; or the printer is reset. When this command is executed, the user-defined bit image is canceled.

```
                   Program Example

y=1
PRINT #1, CHR$(&H1B);"&";CHR$(y);"AC";
x=7: PRINT #1, CHR$(x);
FOR i=1 TO y*x
  READ d: PRINT #1, CHR$(d);
NEXT i                              Defines the
x=9: PRINT #1, CHR$(x);             user-defined
FOR i=1 TO y*x                      characters as
  READ d: PRINT #1, CHR$(d);        "A", "B", and "C"
NEXT i
x=9: PRINT #1, CHR$(x);
FOR i=1 TO y*x
  READ d: PRINT #1, CHR$(d);
NEXT i
PRINT #1, CHR$(&H1B);"%";CHR$(0); ← Select the internal character set
PRINT #1, "A B C D E"; CHR$(&HA);
PRINT #1, CHR$(&H1B);"%";CHR$(1); ← Select the user-defined
PRINT #1, "A B C D E"; CHR$(&HA);    character set

DATA &H30,&H78,&HFC,&H78,&H30,&H00,&H00

DATA &H18,&H24,&H42,&H81,&H42,&H24,&H18,&H00,&H00

DATA &H18,&H28,&H4F,&H80,&H4F,&H28,&H18,&H00,&H00
```

Print Sample

A B C D E ← Characters from internal character set
♦ ◊ ↑ D E ← Characters from user-defined character set

ESC R *n*

[Name]	Select an international character set			
[Format]	ASCII	ESC	R	*n*
	Hex	1B	52	*n*
	Decimal	27	82	*n*
[Range]	$0 \le n \le 10$			

ESC R *n* selects an international character set *n* as follows. The default value is U.S.A. (*n*=0).

n	Country
0	U.S.A.
1	France
2	Germany
3	U.K.
4	Denmark I
5	Sweden
6	Italy
7	Spain
8	Japan
9	Norway
10	Denmark II

Program Example	**Print Sample**
``` FOR n=0 TO 10 PRINT #1, CHR$(&H1B);"R";CHR$(n); PRINT #1, "# $ @ [\ ] ^ ` { | } ˜"; CHR$(&HA); NEXT n ```	# $ @ [\ ] ^ `  {  |  }  ˜   ← *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]	$0 \le n \le 2$			

ESC t *n* selects a page *n* from the character code table as follows. The alphanumeric characters (20H (decimal 32) to 7FH (decimal 127)) are the same for each page. The graphic characters (80H (decimal 128) to FFH (decimal 255)) are different for each page. The default setting is page 0.

n	Character Code Table
0	Page 0 (PC437 (U.S.A. , Standard Europe))
1	Page 1 (Katakana)
2	Page 2 (PC850 (Multilingual))

```
                  Program Example


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

Page 0

Page 1
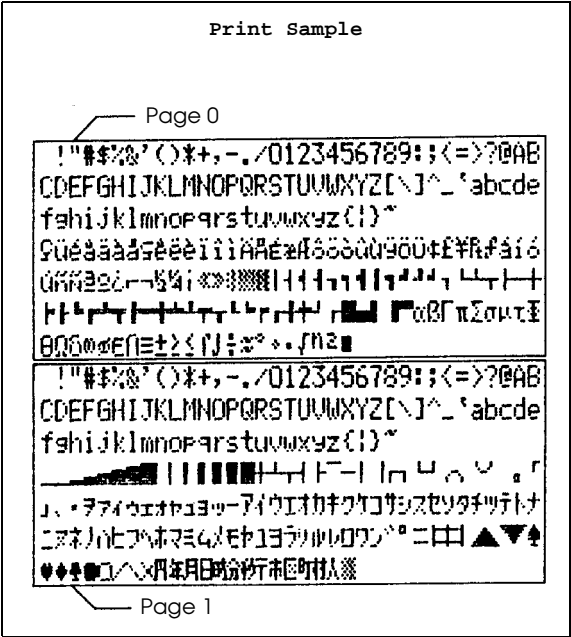
**ESC ! ** *n*

[Name]	Select print mode(s)			
[Format]	ASCII	ESC	!	*n*
	Hex	1B	21	*n*
	Decimal	27	33	*n*
[Range]	$0 \leq n \leq 255$			

ESC ! *n* selects print modes using *n* as follows. The default setting is *n*=0. This command cannot be used with the 7×7 font or for underlined printing in page mode. If the 7×7 font or underlined printing is selected or canceled in page mode, an internal flag is activated and this command is enabled when the printer returns to standard mode.

Bit	Off/On	Hex	Decimal	Function
0	Off	00	0	Character font 5 x 7 selected.
	On	01	1	Character font 7 x 7 selected.
1-3	—	—	—	Undefined.
4	Off	00	0	Double-height mode not selected.
	On	10	16	Double-height mode selected.
5	Off	00	0	Double-width mode selected.
	On	20	32	Double-width mode not selected.
6	—	—	—	Undefined.
7	Off	00	0	Underline mode not selected.
	On	80	128	Underline mode selected.

Program Example

```
PRINT #1, CHR$(&H1B);"!";CHR$(0);   "AA";
PRINT #1, CHR$(&H1B);"!";CHR$(16); "BB";
PRINT #1, CHR$(&H1B);"!";CHR$(32); "CC";
PRINT #1, CHR$(&H1B);"!";CHR$(48); "DD";
PRINT #1, CHR$(&H1B);"!";CHR$(128); "EE";
PRINT #1, CHR$(&H1B);"!";CHR$(144); "FF";
PRINT #1, CHR$(&H1B);"!";CHR$(160); "GG";
PRINT #1, CHR$(&H1B);"!";CHR$(176); "HH"; CHR$(&HA);
PRINT #1, CHR$(&H1B);"!";CHR$(1);   "AA";
PRINT #1, CHR$(&H1B);"!";CHR$(17); "BB";
PRINT #1, CHR$(&H1B);"!";CHR$(33); "CC";
PRINT #1, CHR$(&H1B);"!";CHR$(49); "DD";
PRINT #1, CHR$(&H1B);"!";CHR$(129); "EE";
PRINT #1, CHR$(&H1B);"!";CHR$(145); "FF";
PRINT #1, CHR$(&H1B);"!";CHR$(161); "GG";
PRINT #1, CHR$(&H1B);"!";CHR$(177); "HH"; CHR$(&HA);
```

Print Sample

← 5 x 7 font
← 7 x 7 font

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

ESC { *n*

[Name]	Turn upside-down printing mode on/off		
[Format]	ASCII	ESC	{	*n*
	Hex	1B	7B	*n*
	Decimal	27	123	*n*
[Range]	$0 \le n \le 255$			

ESC { *n* turns upside-down printing mode on or off. When the LSB (least significant bit) of *n* is 1, upside-down printing mode is turned on; when it is 0, upside-down printing mode is turned off. The default setting is *n*=0. When upside-down 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. In standard mode, this command is enabled only when input at the beginning of a line. In page mode, an internal flag is activated and this command is enabled when the printer returns to standard mode.

```
                Program Example

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

```
                 Print Sample

        Normal printing

        ABCDE
        BCDEF

                              ⱯBCDE
                              BCDEℲ
                        Upside-down
                        printing
```

CAN

[Name]	Cancel print data in page mode

[Format]	ASCII	CAN
	Hex	18
	Decimal	24

CAN deletes all the print data for the current print job in page mode. This command is enabled only in page mode.

```
                Program Example

PRINT #1, CHR$(&H1B);"L"; ← Select page mode
PRINT #1, CHR$(&H1B);"W";CHR$(0);CHR$(0);CHR$(0);
CHR$(0);CHR$(120);CHR$(0);CHR$(100);CHR$(0);
PRINT #1, CHR$(&H1B);"T";CHR$(0);
FOR i=1 TO 200
  PRINT #1, "A";
NEXT i
PRINT #1, CHR$(&H1B);"W";CHR$(30);CHR$(0);CHR$(30);
CHR$(0);CHR$(30);CHR$(0);CHR$(30);CHR$(0);
PRINT #1, CHR$(&H18); ← Cancel print data
PRINT #1, CHR$(&HC); ← Batch print and return to standard mode
```

```
                 Print Sample

AAAAAAAAAAAAAAAAAAAAA
AAAAAAAAAAAAAAAAAAAAA
AAAAA       AAAAAAAAAA
AAAAA       AAAAAAAAAA
AAAAA       AAAAAAAAAA
AAAAA       AAAAAAAAAA
AAAAAAAAAAAAAAAAAAAAA
AAAAAAAAAAAAAAAAAAAAA
```

Panel Button Command

The TM-295/295P supports the following command for enabling and disabling the panel buttons (FORWARD, REVERSE, and RELEASE).

Command	Name
ESC c 5	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]	$0 \le n \le 255$				

ESC c 5 *n* enables or disables the FORWARD, REVERSE, and RELEASE buttons. When the LSB (least significant bit) of *n* is 1, these buttons are disabled; when it is 0, these buttons are enabled. To prevent problems caused by accidentally pressing these buttons, use this command to disable them.

```
                    Program Example


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

Paper Sensor Commands

The TM-295/295P supports the following commands for controlling the paper sensor(s) that stop printing and output paper-end signals:

Command	Name
ESC c 4	Select paper sensor(s) to stop printing
ESC c 3	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]	$0 \le n \le 255$				

ESC c 4 *n* selects the paper sensor that stops printing when the paper runs out. The default setting is *n*=0 (both sensors disabled). When both of these sensors are selected to stop printing and either one detects a paper-end, printing stops.

When a paper-end is detected, printing stops after printing the current line and feeding the paper. If the panel buttons are disabled at this time, the printer releases the paper and automatically waits for the next sheet.

The paper sensor(s) used to stop printing are selected by using *n* as follows:

Bit	Off/On	Hex	Decimal	Function
0-3	—	—	—	Undefined.
4	Off	00	0	TOF sensor disabled.
	On	10	16	TOF sensor enabled.
5	Off	00	0	BOF sensor disabled.
	On	20	32	BOF sensor enabled.
6, 7	—	—	—	Undefined.

```
                    Program Example


PRINT #1, CHR$(&H1B);"c4";CHR$(32);  ← BOF sensor enabled
```

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] $0 \le n \le 255$

ESC c 3 *n* selects paper sensor(s) to output paper-end signals to a parallel interface. The default setting is *n*=0 (both sensors disabled).

When both of these sensors are selected to output signals and either one detects a paper-end, the paper-end signal is output. This command is enabled only with a parallel interface and is ignored with a serial interface.

The paper sensor(s) used to output paper-end signals are selected by using *n* as follows:

Bit	Off/On	Hex	Decimal	Function
0-3	—	—	—	Undefined.
4	Off	00	0	TOF sensor disabled.
	On	10	16	TOF sensor enabled.
5	Off	00	0	BOF sensor disabled.
	On	20	32	BOF sensor enabled.
6, 7	—	—	—	Undefined.

```
                    Program Example


  PRINT #1, CHR$(&H1B);"c3";CHR$(16); ← TOF sensor enabled
```

Printing Paper Command

The TM-295/295P supports the following command for controlling printing paper:

Command	Name
ESC f	Set cut sheet wait time

ESC f *t1 t2*

[Name]	Set cut sheet wait time				
[Format]	ASCII	ESC	f	*t1*	*t2*
	Hex	1B	66	*t1*	*t2*
	Decimal	27	102	*t1*	*t2*
[Range]	$t1=0$				
	$0 \le t2 \le 64$				

ESC f *t1 t2* sets the time that the printer waits for slip paper to be inserted and the time from detection of the slip to the start of printing. Since *t1*=0, the slip paper waiting time is unlimited and the printer continues waiting for a slip to be inserted. The printer starts operation $t2 \times 0.1$ seconds after the detection of the slip paper. The default for the start operation time is 1 second (*t1*=0, *t2*=10).

```
                    Program Example


PRINT #1, CHR$(&H1B);"f";CHR$(0);CHR$(20);
```

Print Position Commands

The TM-295/295P supports the following commands for setting the print position:

Command	Name
HT	Horizontal tab
ESC D	Set horizontal tab positions
ESC W	Set printing area in page mode
ESC T	Select print direction in page mode

HT

[Name]	Horizontal tab	
[Format]	ASCII	HT
	Hex	09
	Decimal	9

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]	$1 \le n \le 255$				
	$0 \le k \le 32$				

HT moves the print start position to the next horizontal tab. This command is ignored unless the next horizontal tab position has been set.

ESC D *n1 ... nk NUL* sets a horizontal tab to the left margin or *n* columns from the beginning of a line, with *k* indicating the total number of horizontal tab positions to be set. A maximum of 32 tab positions can be set. This command cancels any previous horizontal tab settings. The default tab positions are every eight characters for the 5×7 font.

```
                 Program Example


PRINT #1, "0123456789012345678901234567890123456";
PRINT #1, CHR$(&HA);
GOSUB ht
PRINT #1, CHR$(&H1B);"D";CHR$(10);CHR$(20);
CHR$(30);CHR$(0);
GOSUB ht
END

ht:
  FOR i=1 TO 4
    PRINT #1, CHR$(&H9); "H";
  NEXT i
  PRINT #1, CHR$(&HA);
  RETURN
```


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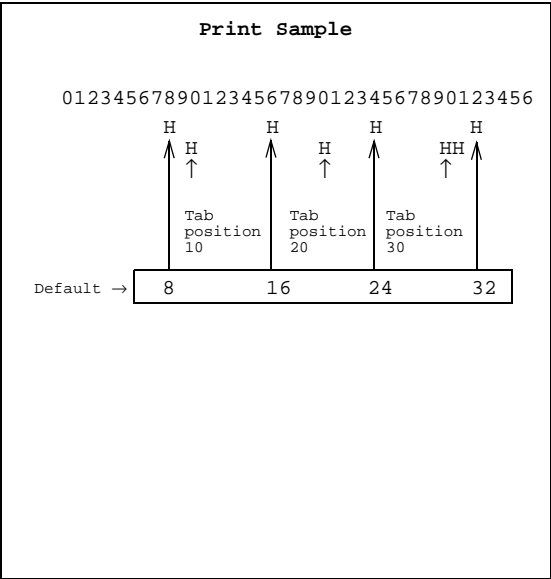
ESC W *xL* *xH* *yL* *yH* *dxL* *dxH* *dyL* *dyH*

[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] $0 \le xL \le 255$, $xH=0$, $0 \le yL \le 255$, $0 \le yH \le 1$,
$0 \le dxL \le 255$, $dxH=0$, $0 \le dyL \le 255$, $0 \le dyH \le 1$
(except for $dxL = dxH = 0$ or $dyL = dyH = 0$)

ESC T n

[Name]	Select print direction in page mode
[Format]	ASCII	ESC	T	*n*
	Hex	1B	54	*n*
	Decimal	27	84	*n*

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

ESC W *xL* *xH* *yL* *yH* *dxL* *dxH* *dyL* *dyH* sets the size and position of the printing area in page mode as follows:

Horizontal starting position = $(xL + xH \times 256)$
Vertical starting position = $(yL + yH \times 256)$
Printing area width = $(dxL + dxH \times 256)$ dots
Printing area height = $(dyL + dyH \times 256)$ dots

The default settings are as follows:
$xL = xH = yL = yH = 0$
$dxL = 210$, $dxH = 0$, $dyL = 224$, $dyH = 1$

This command is enabled only in page mode. If this command is entered in standard mode, an internal flag is activated and the command is enabled when the printer selects page mode.

For **ESC W** and **ESC T**, one dot equals 1/80 inch in the horizontal direction and 1/60 inch in the vertical direction.

ESC T *n* selects the print direction and starting position in page mode specified by *n* as shown below. The default setting is *n*=0. This command is enabled only in page mode. If this command is entered in standard mode, an internal flag is activated and the command is enabled when the printer selects page mode.   .

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)
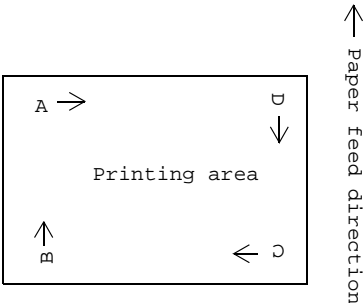
```
                    Program Example                              Print Sample

PRINT #1, CHR$(&H1B);"L";← Select page mode
PRINT #1, CHR$(&H1B);"W";CHR$(0);CHR$(0);CHR$(0);CHR$(0);
CHR$(100);CHR$(0);CHR$(100);CHR$(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, CHR$(&H1B);"T";CHR$(1);
PRINT #1, "CCCCC"; CHR$(&HA);← Store characters for printing
PRINT #1, "DDDDD"; CHR$(&HA);← Store characters for printing
PRINT #1, CHR$(&H1B);"T";CHR$(2);
PRINT #1, "EEEEE"; CHR$(&HC);← Batch print and return to standard mode
```

Print Sample:
```
┌─ ─ ─ ─ ─ ─ ─ ─ ─┐
│ AAAAA           │
│ BBBBB           │
│                 │ ← Printing
│                 │   area set
│                 │   by ESC W
│ CCCCC           │
│ DDDDD           │
│         EEEEE   │
└─ ─ ─ ─ ─ ─ ─ ─ ─┘
```
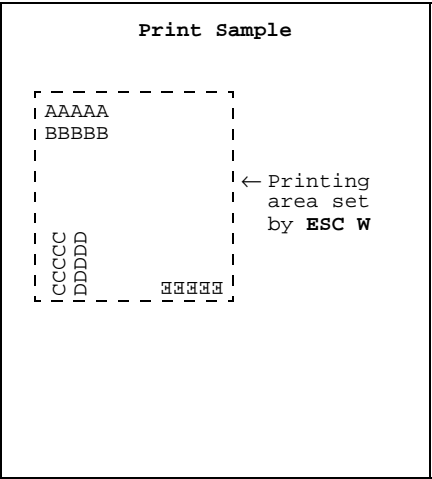
Bit-Image Command

The TM-295/295P supports the following bit-image command:

Command	Name
ESC ∗	Select bit-image mode

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]

$m = 0, 1$

$0 \le nL \le 255$

$0 \le nH \le 3$

$0 \le d \le 255$

$k = nL + nH \times 255$

ESC ∗ *m nL nH d1 ... dk* selects a bit-image mode using *m* for the number of dots specified by ($nL + nH \times 256$). This command is used to print a predefined picture or logo. The modes selectable by *m* are as follows:

| *m* | Mode | Vertical Direction | | Horizontal Direction | |
		Number of Dots	Dot Density (DPI)	Dot Density (DPI)	Maximum Number of Dots
0	8-dot single-density	8	60	80	210
1	8-dot double-density	8	60	160	420

```
                    Program Example

m=0:  GOSUB bitimage8
m=1:  GOSUB bitimage8
END

bitimage8:
  PRINT #1, CHR$(&H1B);"*";CHR$(m);CHR$(180);CHR$(0);
  FOR i=1 TO 180
    PRINT #1, CHR$(i);
  NEXT i
  PRINT #1, CHR$(&HA);
  RETURN
```

Print Sample

m=0
m=1
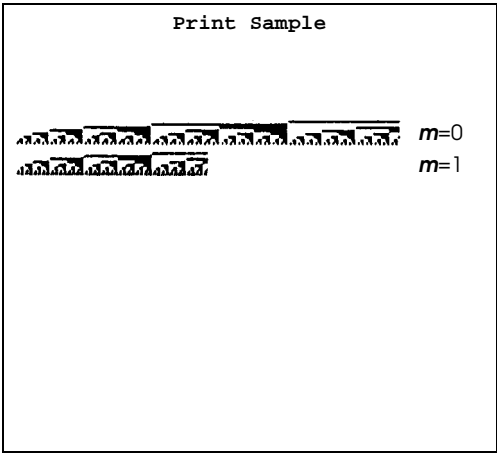
Status Commands

The TM-295/295P supports the following status transmission commands. These commands can be used to determine the status of the printer, paper sensors, and peripheral devices connected to the printer.

Command	Name
GS a	Enable/disable Automatic Status Back (ASB)
GS r	Transmit status
DLE EOT	Real-time status transmission
ESC u	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]	$0 \leq n \leq 255$			

GS a *n* selects a status for ASB transmission. ASB is enabled if any status item is selected. The printer automatically transmits a 4-byte status message whenever the status changes. Multiple status items can be selected. When *n*=0, ASB is disabled. The default setting is *n*=0. If ASB is enabled when the printer is disabled by the **ESC =** command, the printer transmits a 4-byte status message whenever the status changes. The status items are selected 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, 4	—	—	—	Undefined.
5	Off	00	0	Slip paper sensor status disabled.
	On	20	32	Slip paper sensor status enabled.
6, 7	—	—	—	Undefined.

```
                         Program Example


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

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	—	—	—	Undefined.
6	Off	00	0	Paper is not being fed by the FORWARD or REVERSE button.
	On	40	64	Paper is being fed by the FORWARD or REVERSE button.
7	Off	00	0	Not used. Fixed to Off.

Second byte (error information)

Bit	Off/On	Hex	Decimal	Status for ASB
0-3	—	—	—	Undefined.
4	Off	00	0	Not used. Fixed to Off.
5	Off	00	0	No unrecoverable error.
	On	20	32	Unrecoverable error occurred.
6	—	—	—	Undefined.
7	Off	00	0	Not used. Fixed to Off.

Third 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	Off	00	0	Slip paper detected by BOF sensor.
	On	20	32	Slip paper not detected by BOF sensor.
6	Off	00	0	Slip paper detected by TOF sensor.
	On	40	64	Slip paper not detected by TOF sensor.
7	Off	00	0	Not used. Fixed to Off.

Fourth byte (paper sensor information)

Bit	Off/On	Hex	Decimal	Status for ASB
0	Off	00	0	Slip paper selected.
1	Off	00	0	Slip paper printing possible.
	On	02	2	Slip paper printing not possible.
2, 3	—	—	—	Not used.
4	Off	00	0	Not used. Fixed to Off.
5, 6	—	—	—	Undefined.
7	Off	00	0	Not used. Fixed to Off.

GS r *n*

[Name]	Transmit status			
[Format]	ASCII	GS	r	*n*
	Hex	1D	72	*n*
	Decimal	29	114	*n*
[Range]	$1 \le n \le 2$			
	$49 \le n \le 50$			

GS r *n* transmits 1 byte of status data specified by *n* as follows: paper sensor status when *n*=1 or 49 and drawer kick-out connector status when *n*=2 or 50.

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

Bit	Off/On	Hex	Decimal	Status
0	Off	00	0	Slip paper detected by BOF sensor.
	On	01	1	Slip paper not detected by BOF sensor.
1	Off	00	0	Slip paper detected by TOF sensor.
	On	02	2	Slip paper not detected by TOF sensor.
2, 3	—	—	—	Undefined.
4	Off	00	0	Not used. Fixed to Off.
5, 6	—	—	—	Undefined.
7	Off	00	0	Not used. Fixed to Off.

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.

```
                        Program Example


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

DLE EOT *n*

[Name]	Real-time status transmission		
[Format]	ASCII	DLE	EOT	*n*
	Hex	10	04	*n*
	Decimal	16	4	*n*
[Range]	$1 \le n \le 3$		
	n=5		

DLE EOT *n* transmits the specified status in real time. With the serial interface model, this command is executed even if the printer is off-line or the receive buffer is full. However, with the parallel interface model, this command cannot be executed if the printer is off-line or the receive buffer is full, since the printer is busy and unable to receive data. *n* indicates the status function as follows:

n	Function
1	Transmit printer status
2	Transmit off-line status
3	Transmit error status
5	Transmit slip paper status

```
                          Program Example

PRINT #1, CHR$(&H10);CHR$(&H4);CHR$(2); ← Transmits off-line status
```

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, 6	—	—	—	Undefined.
7	Off	00	0	Not used. Fixed to Off.

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	—	—	—	Undefined.
3	Off	00	0	Paper is not being fed by the FORWARD or REVERSE button.
	On	08	8	Paper is being fed by the FORWARD or REVERSE 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 paper-end.

Bit	Off/On	Hex	Decimal	Status
6	Off	00	0	No error.
	On	40	64	Error occurred.
7	Off	00	0	Not used. Fixed to Off.

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, 3	—	—	—	Undefined.
4	On	10	16	Not used. Fixed to On.
5	Off	00	0	No unrecoverable error.
	On	20	32	Unrecoverable error occurred.
6	—	—	—	Undefined.
7	Off	00	0	Not used. Fixed to Off.

Slip paper status (*n*=5)

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	Slip paper selected.
3	Off	00	0	Does not wait for slip paper insertion.
	On	08	8	Waits for slip paper insertion.
4	On	10	16	Not used. Fixed to On.
5	Off	00	0	Slip paper detected by BOF sensor.
	On	20	32	Slip paper not detected by BOF sensor.
6	Off	00	0	Slip paper detected by TOF sensor.
	On	40	64	Slip paper not detected by TOF sensor.
7	Off	00	0	Not used. Fixed to Off.

ESC u *n*

[Name]	Transmit peripheral device status		
[Format]	ASCII	ESC	u	*n*
	Hex	1B	75	*n*
	Decimal	27	117	*n*
[Range]	*n* = **0, 48**		

ESC u *n* transmits the status of drawer kick-out connector pin 3 as 1 byte of data when *n*=0 or 48. This command allows the host to determine the status of a peripheral device. **GS r** is preferred for checking the status because **ESC u** is not a recommended command.

Peripheral device status

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.

```
                        Program Example


PRINT #1, CHR$(&H1B);"p";CHR$(0);CHR$(25);CHR$(250); ← Generates a pulse
PRINT #1, CHR$(&H1B);"u";CHR$(0);
```

ESC v

[Name]	Transmit paper sensor status		
[Format]	ASCII	ESC	v
	Hex	1B	76
	Decimal	27	118

ESC v transmits the status of a paper sensor as 1 byte of data. **GS r** is preferred for checking the status because **ESC v** is not a recommended command.   The status to be transmitted is shown in the table below.

Paper sensor status

Bit	Off/On	Hex	Decimal	Status
0	Off	00	0	Slip paper detected by BOF sensor.
	On	01	1	Slip paper not detected by BOF sensor.
1	Off	00	0	Slip paper detected by TOF sensor.
	On	02	2	Slip paper not detected by TOF sensor.
2, 3	—	—	—	Undefined.
4	Off	00	0	Not used. Fixed to Off.
5, 6	—	—	—	Undefined.
7	Off	00	0	Not used. Fixed to Off.

```
                    Program Example

PRINT #1, CHR$(&H1B);"v";
```

Mechanism Control Commands

The TM-295/295P supports the following mechanism control commands:

Command	Name
ESC F	Set/cancel cut sheet reverse eject
ESC q	Release

ESC F *n*

[Name]	Set/cancel cut sheet reverse eject		
[Format]	ASCII	ESC	F	*n*
	Hex	1B	46	*n*
	Decimal	27	70	*n*
[Range]	$0 \leq n \leq 255$		

ESC F *n* selects or cancels the slip paper reverse eject specified by **FF**. When the LSB (least significant bit) of *n* is 1, reverse ejection is selected; when it is 0, reverse ejection is canceled (forward ejection is automatically selected). The default setting is *n*=0.

```
                    Program Example

PRINT #1, CHR$(&H1B);"F";CHR$(1); ← Slip paper reverse ejection selected
```

ESC q

[Name]	Release		
[Format]	ASCII	ESC	q
	Hex	1B	71
	Decimal	27	113

ESC q releases the paper. This command is available only in standard mode.

```
                    Program Example

PRINT #1, CHR$(&H1B);"q"
```

Miscellaneous Function Commands

The TM-295/295P supports the following miscellaneous function commands:

Command	Name
ESC =	Select peripheral device
ESC @	Initialize printer
ESC p	Generate pulse
ESC L	Select page mode
GS I	Transmit printer ID

ESC = *n*

[Name]	Select peripheral device			
[Format]	ASCII	ESC	=	*n*
	Hex	1B	3D	*n*
	Decimal	27	61	*n*
[Range]	$0 \leq n \leq 3$			

ESC = *n* selects the device to which the host computer sends data, based on the value of *n* as follows:

Bit	Off/On	Hex	Decimal	Function
0	Off	00	0	Printer disabled.
	On	01	1	Printer enabled.
1-7	—	—	—	Undefined.

When the LSB (least significant bit) of *n* is 1, the printer is enabled; when it is 0, the printer is disabled. The default setting is *n*=1.

```
                    Program Example

PRINT #1, CHR$(&H1B);"=";CHR$(1);← Printer enabled
PRINT #1, "AAAAA";
PRINT #1, CHR$(&H1B);"=";CHR$(0);← Printer disabled
PRINT #1, " BBBBB";
PRINT #1, CHR$(&H1B);"=";CHR$(1);← Printer enabled
PRINT #1, " CCCCC"; CHR$(&HA);
```

```
                Print Sample

AAAAA CCCCC
```

ESC @

[Name]	Initialize printer		
[Format]	ASCII	ESC	@
	Hex	1B	40
	Decimal	27	64

ESC @ initializes the printer. All settings, including character font and line spacing settings, are canceled. The data in the print buffer is cleared and the printer mode is reset to the mode that was in effect when the power was turned on. The DIP switch settings are not checked again, and the data in the receive buffer is not cleared.

```
                   Program Example


PRINT #1, CHR$(&H1B);"!";CHR$(48);
PRINT #1, "AAAAA"; CHR$(&HA);
PRINT #1, CHR$(&H1B);"@";
PRINT #1, "BBBBB"; CHR$(&HA);
```

Print Sample

AAAAA

BBBBB ← All settings are canceled after **ESC @** is executed

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 ≤ *t1* ≤ 255					
	0 ≤ *t2* ≤ 255					

ESC p *m t1 t2* sends a pulse (on time= $t1 \times 2$ msec ∕ off time= $t2 \times 2$ msec) to the specified connector pin. When *m*=0 or 48, the pulse is sent to drawer kick-out connector pin 2; when *m*=1 or 49, the pulse is sent to drawer kick-out connector pin 5.

```
                Program Example


PRINT #1, CHR$(&H1B);"p";CHR$(0);CHR$(25);CHR$(250);
```

ESC L

[Name]	Select page mode		
[Format]	ASCII	ESC	L
	Hex	1B	4C
	Decimal	27	76

ESC L switches from standard mode to page mode. This command is enabled only when input at the beginning of a line in standard mode; it has no effect in page mode. Standard mode is selected as the default. When **FF** is entered in page mode, the printer returns to standard mode.

```
                    Program Example

PRINT #1, CHR$(&H1B);"L";← Select page mode
PRINT #1, CHR$(&H1B);"W";CHR$(0);CHR$(0);CHR$(0);
CHR$(0);CHR$(50);CHR$(0);CHR$(50);CHR$(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
```

GS I *n*

[Name]	Transmit printer ID			
[Format]	ASCII	GS	I	*n*
	Hex	1D	49	*n*
	Decimal	29	73	*n*
[Range]	$1 \le n \le 3$			
	$49 \le n \le 51$			

GS I *n* transmits the printer ID specified by *n* as follows. Each printer ID consists of 1 byte of data.

n	Printer ID	Specification	ID
1, 49	Printer model ID	TM-295/295P	02H
2, 50	Type ID	See table below.	00H
3, 51	ROM version ID	Version x.xx ESC/POS	Refer to current ROM version.

Type ID (*n=2* or *50*)

Bit	Off/On	Hex	Decimal	Function
0	Off	00	0	Two-byte character code not supported.
1	Off	00	0	Not auto-cutter equipped.
2, 3	—	—	—	Undefined.
4	Off	00	0	Not used. Fixed to Off.
5, 6	—	—	—	Undefined.
7	Off	00	0	Not used. Fixed to Off.

```
                    Program Example

PRINT #1, CHR$(&H1D);"I";CHR$(1);← Transmits printer ID
```

Character Code Tables

SP in a table represents space. Refer to page 1-35 for information on how to read these tables.

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

HEX	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
HEX 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	β 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	¢ 155	½ 171	╗ 187	╦ 203	█ 219	δ 235	√ 251
C 1100	FF 12	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	₧ 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	─ 128	┴ 144	SP 160	─ 176	タ 192	ミ 208	═ 224	× 240
1 0001	▬ 129	┬ 145	° 161	ア 177	チ 193	ム 209	╟ 225	円 241
2 0010	▬ 130	┤ 146	┌ 162	イ 178	ツ 194	メ 210	╪ 226	年 242
3 0011	▬ 131	├ 147	┘ 163	ウ 179	テ 195	モ 211	┤ 227	月 243
4 0100	▬ 132	─ 148	、 164	エ 180	ト 196	ヤ 212	◢ 228	日 244
5 0101	▬ 133	─ 149	· 165	オ 181	ナ 197	ユ 213	◣ 229	時 245
6 0110	▬ 134	│ 150	ヲ 166	カ 182	ニ 198	ヨ 214	◤ 230	分 246
7 0111	■ 135	┘ 151	ア 167	キ 183	ヌ 199	ラ 215	◥ 231	秒 247
8 1000	┃ 136	┌ 152	イ 168	ク 184	ネ 200	リ 216	♠ 232	┯ 248
9 1001	┃ 137	┐ 153	ウ 169	ケ 185	ノ 201	ル 217	♥ 233	市 249
A 1010	┃ 138	└ 154	エ 170	コ 186	ハ 202	レ 218	♦ 234	区 250
B 1011	┃ 139	┘ 155	オ 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	ユ 173	ス 189	ヘ 205	ン 221	○ 237	人 253
E 1110	■ 142	╰ 158	ヨ 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

International character set

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
U.S.A.		#	$	@	[	\	]	^	`	{	¦	}	~
France		#	$	à	°	ç	§	^	`	é	ù	è	¨
Germany		#	$	§	Ä	Ö	Ü	^	`	ä	ö	ü	ß
U.K.		£	$	@	[	\	]	^	`	{	¦	}	~
Denmark I		#	$	@	Æ	Ø	Å	^	`	œ	ø	å	~
Sweden		#	¤	É	Ä	Ö	Å	Ü	é	ä	ö	å	ü
Italy		#	$	@	°	\	é	^	ù	à	ò	è	ì
Spain		Pt	$	@	¡	Ñ	¿	^	`	¨	ñ	}	~
Japan		#	$	@	[	¥	]	^	`	{	¦	}	~
Norway		#	¤	É	Æ	Ø	Å	Ü	é	œ	ø	å	ü
Denmark II		#	$	É	Æ	Ø	Å	Ü	é	œ	ø	å	ü

Using the Character Code Tables

The example below uses Page 0 (PC437) (see page 1-33) 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

Chapter 2

Application

This chapter presents an example illustrating ESC/POS command functions and printing results. The example shows a procedure and program for printing in page mode with the TM-295.

Page Mode Printing

Procedure	Commands Used	Description
1. Select page mode	**ESC L**	Selects page mode.
2. Transmit border data	**ESC W, ESC T, ESC ∗**	Sets the printing area for developing the border data with **ESC W**. Sets the printing direction with **ESC T** and transmits the border data using a bit image.
3. Transmit a message	**ESC T, ESC !, LF, ESC 2, ESC 3**	Sets the printing direction with **ESC T** and transmits a message. Adjusts the line spacing between data with **ESC 2** and **ESC 3**. Sets the font size with **ESC !**.
4. Transmit symbol data	**ESC 3, ESC W, ESC T, ESC ∗**	Sets the printing area for developing the symbol data with **ESC W**. Sets the printing direction with **ESC T** and transmits the symbol data using a bit image.
5. Print all data collectively	**FF**	Prints all data in page mode collectively and returns to standard mode.

Print Sample
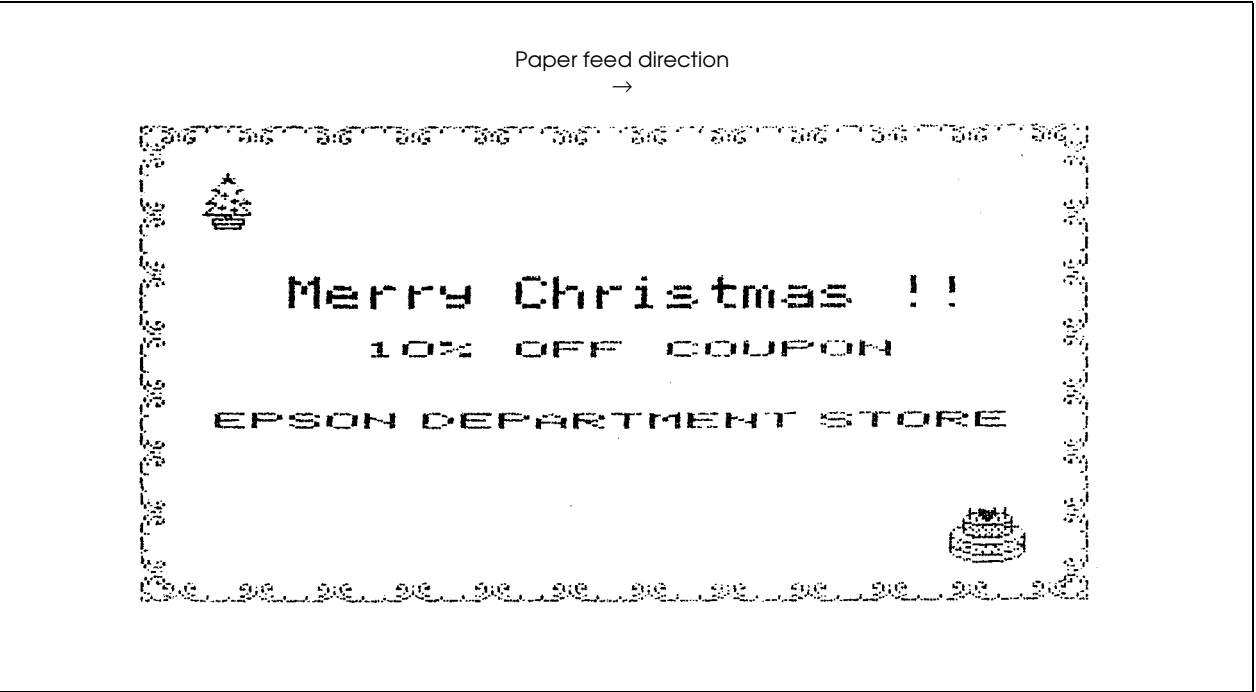
Program Example

```
PRINT #1, CHR$(&H1B);"@";← Initializes the printer
PRINT #1, CHR$(&H1B);"L";← Selects page mode
PRINT #1, CHR$(&H1B);"W";CHR$(0);CHR$(0);CHR$(0);CHR$(0);CHR$(200);CHR$(0);CHR$(44);CHR$(1);
PRINT #1, CHR$(&H1B);"T";CHR$(0);← Selects printing direction (left → right)
n=8 : GOSUB border
PRINT #1, CHR$(&H1B);"T";CHR$(1);← Selects printing direction (bottom → top)
n=12 : GOSUB border
PRINT #1, CHR$(&H1B);"T";CHR$(2);← Selects printing direction (right → left)
n=8 : GOSUB border
PRINT #1, CHR$(&H1B);"T";CHR$(3);← Selects printing direction (top → bottom)
n=12 : GOSUB border


PRINT #1, CHR$(&H1B);"T";CHR$(1);← Selects printing direction (bottom → top)
PRINT #1, CHR$(&H1B);"3";CHR$(70);
PRINT #1, CHR$(&HA);← Adjusts print starting position
PRINT #1, CHR$(&H1B);"2";← Sets line spacing to 1/6 inch
PRINT #1, CHR$(&H1B);"!";CHR$(48);
PRINT #1, "    Merry Christmas!!";CHR$(&HA);CHR$(&HA);
PRINT #1, CHR$(&H1B);"!";CHR$(32);
PRINT #1, "      10% OFF COUPON ";CHR$(&HA);CHR$(&HA);CHR$(&HA);
PRINT #1, "  EPSON DEPARTMENT STORE";CHR$(&HA);


PRINT #1, CHR$(&H1B);"W";CHR$(20);CHR$(0);CHR$(4);CHR$(1);CHR$(24);CHR$(0);CHR$(24);CHR$(0);
PRINT #1, CHR$(&H1B);"T";CHR$(1);← Selects printing direction (bottom → top)
PRINT #1, CHR$(&H1B);"3";CHR$(8);
PRINT #1, CHR$(&H1B);"*";CHR$(0);CHR$(24);CHR$(0);
  PRINT #1, CHR$(0);CHR$(0);CHR$(0);CHR$(0);CHR$(0);CHR$(0);
  PRINT #1, CHR$(0);CHR$(1);CHR$(3);CHR$(5);CHR$(40);CHR$(56);
  PRINT #1, CHR$(240);CHR$(56);CHR$(40);CHR$(5);CHR$(3);CHR$(1);
  PRINT #1, CHR$(0);CHR$(0);CHR$(0);CHR$(0);CHR$(0);CHR$(0);
PRINT #1, CHR$(&H1B);"*";CHR$(0);CHR$(24);CHR$(0);
  PRINT #1, CHR$(0);CHR$(0);CHR$(0);CHR$(0);CHR$(0);CHR$(8);
  PRINT #1, CHR$(25);CHR$(42);CHR$(76);CHR$(130);CHR$(71);CHR$(226);
  PRINT #1, CHR$(64);CHR$(17);CHR$(59);CHR$(145);CHR$(76);CHR$(42);
  PRINT #1, CHR$(25);CHR$(8);CHR$(0);CHR$(0);CHR$(0);CHR$(0);
PRINT #1, CHR$(&H1B);"*";CHR$(0);CHR$(24);CHR$(0);
  PRINT #1, CHR$(0);CHR$(0);CHR$(0);CHR$(0);CHR$(64);CHR$(192);
  PRINT #1, CHR$(64);CHR$(92);CHR$(87);CHR$(85);CHR$(85);CHR$(117);
  PRINT #1, CHR$(85);CHR$(117);CHR$(213);CHR$(85);CHR$(87);CHR$(92);
  PRINT #1, CHR$(64);CHR$(192);CHR$(64);CHR$(0);CHR$(0);CHR$(0);
```

Transmits border data

Transmits a message

Transmits symbol A
(Christmas tree) data

Program Example (continued)

```
PRINT #1, CHR$(&H1B);"W";CHR$(160);CHR$(0);CHR$(20);CHR$(0);CHR$(24);CHR$(0);CHR$(24);CHR$(0);
PRINT #1, CHR$(&H1B);"T";CHR$(1);← Selects printing direction (bottom → top)
PRINT #1, CHR$(&H1B);"*";CHR$(0);CHR$(24);CHR$(0);
  PRINT #1, CHR$(0);CHR$(0);CHR$(0);CHR$(0);CHR$(7);CHR$(9);
  PRINT #1, CHR$(125);CHR$(16);CHR$(22);CHR$(120);CHR$(124);CHR$(62);
  PRINT #1, CHR$(62);CHR$(124);CHR$(120);CHR$(22);CHR$(16);CHR$(125);
  PRINT #1, CHR$(9);CHR$(7);CHR$(0);CHR$(0);CHR$(0);CHR$(0);
PRINT #1, CHR$(&H1B);"*";CHR$(0);CHR$(24);CHR$(0);
  PRINT #1, CHR$(31);CHR$(36);CHR$(65);CHR$(66);CHR$(241);CHR$(41);
  PRINT #1, CHR$(73);CHR$(172);CHR$(148);CHR$(172);CHR$(196);CHR$(172);
  PRINT #1, CHR$(148);CHR$(172);CHR$(196);CHR$(172);CHR$(148);CHR$(105);
  PRINT #1, CHR$(73);CHR$(241);CHR$(66);CHR$(65);CHR$(36);CHR$(31);
PRINT #1, CHR$(&H1B);"*";CHR$(0);CHR$(24);CHR$(0);
  PRINT #1, CHR$(240);CHR$(72);CHR$(36);CHR$(100);CHR$(18);CHR$(82);
  PRINT #1, CHR$(82);CHR$(137);CHR$(169);CHR$(137);CHR$(153);CHR$(201);
  PRINT #1, CHR$(137);CHR$(153);CHR$(201);CHR$(169);CHR$(137);CHR$(18);
  PRINT #1, CHR$(82);CHR$(18);CHR$(36);CHR$(164);CHR$(200);CHR$(240);


PRINT #1, CHR$(&H1B);← Prints data collectively and returns to standard mode
END


Border:
  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
```

Transmits symbol B
(Christmas cake) data

Chapter 3
## Command Reference

Command Classification

ESC/POS printer commands in this chapter are classified by function and by *sheet* and *grade*. The sheet and grade classification is called *matrix classification*.

The *sheet* classification is divided into *single sheet commands* and *multiple sheet commands*. The *grade* classification is separated into *basic commands* and *extension commands*.

Basic commands are defined as fundamental printer controls, including print commands and character type selection commands. *Extension commands* are defined as control codes for functions specific to individual printers. These commands are further divided into *mechanical extension commands* that relate to additional mechanical functions such as stamp and auto-cutter units, *hardware extension commands* that relate to additional hardware functions such as panel button control, and *software extension commands* that relate to additional software functions such as user-defined and Kanji character control.

The commands can also be classified by function, which is how they are presented in Chapter 1 and the Function Type table in this chapter. The function types, such as Print Commands and Line Spacing Commands, are briefly explained in the corresponding sections of Chapter 1.

The illustration below shows the ESC/POS command overview diagram for printers.
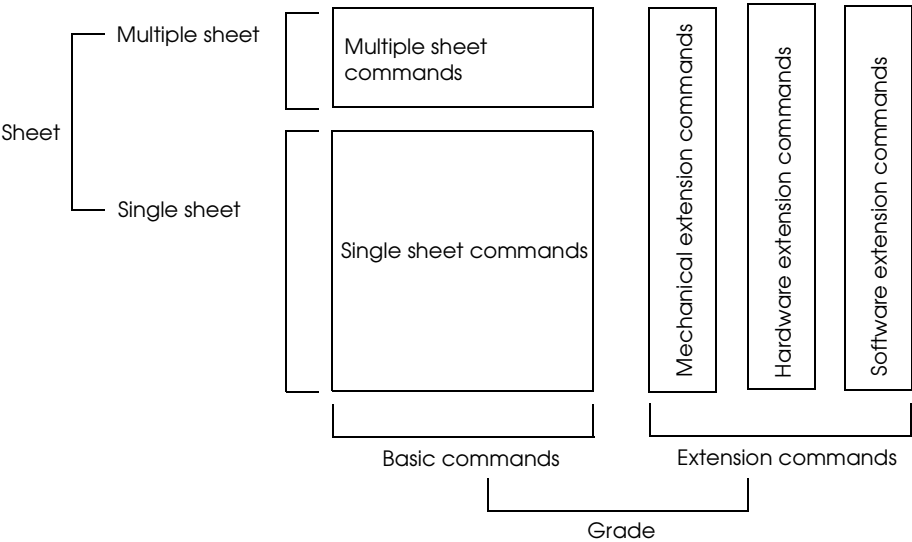
Function Type

Function Type	Command	Name	Matrix Category	Supported Command
Print commands	**LF**	Print and line feed	Basic single	●
	FF	1. Print and eject cut sheet (in standard mode)	Mechanical extension	●
		2. Print and return to standard mode (in page mode)	Mechanical extension	●
		3. Print and feed label to print starting position (on label)	Mechanical extension	
	CR	Print and carriage return	Mechanical extension	(TM-295P only)
	ESC FF	Print data in page mode	Software extension	
	ESC J	Print and feed paper	Mechanical extension	●
	ESC K	Print and reverse feed	Mechanical extension	●
	ESC d	Print and feed *n* lines	Basic single	●
	ESC e	Print and reverse feed *n* lines	Mechanical extension	●
	GS FF	Print and eject label	Hardware extension	
Line spacing commands	**ESC 2**	Select default line spacing	Mechanical extension	●
	ESC 3	Set line spacing	Mechanical extension	●
	ESC C	Set cut sheet eject length	Mechanical extension	●
Character commands	**CAN**	Cancel print data in page mode	Software extension	●
	ESC SP	Set right-side character spacing	Basic single	●
	ESC !	Select print mode(s)	Basic single	●
	ESC %	Select/cancel user-defined character set	Software extension	●
	ESC &	Define user-defined characters	Software extension	●
	ESC –	Turn underline mode on/off	Software extension	
	ESC ?	Cancel user-defined characters	Software extension	
	ESC E	Turn emphasized mode on/off	Software extension	
	ESC G	Turn double-strike mode on/off	Software extension	
	ESC R	Select an international character set	Basic single	●
	ESC V	Turn 90° clockwise rotation mode on/off	Software extension	
	ESC r	Select print color	Mechanical extension	
	ESC t	Select character code table	Basic single	●
The TM-295/295P supports the commands marked with a ● in the "Supported Command" column.				

Function Type	Command	Name	Matrix Category	Supported Command
Character commands (continued)	ESC z	Turn parallel printing mode on/off for receipt and journal paper	Mechanical extension	
	ESC {	Turn upside-down printing mode on/off	Basic single	●
	GS !	Select character size	Software extension	
	GS B	Turn white/black reverse printing mode on/off	Software extension	
	GS b	Turn smoothing mode on/off	Software extension	
Paper sensor commands	ESC c 3	Select paper sensor(s) to output paper-end signals	Mechanical extension	(TM-295P only)
	ESC c 4	Select paper sensor(s) to stop printing	Mechanical extension	●
Panel button commands	ESC c 5	Enable/disable panel buttons	Hardware extension	●
	ESC c 6	Enable/disable ON-LINE switch	Hardware extension	
Printing paper commands	ESC c 0	Select paper type(s) for printing	Basic multiple	
	ESC c 1	Select paper type(s) for command settings	Mechanical extension	
	ESC f	Set cut sheet wait time	Mechanical extension	●
Print position commands	HT	Horizontal tab	Software extension	●
	RS	Journal tab	Mechanical extension	
	ESC $	Set absolute print position	Software extension	
	ESC D	Set horizontal tab positions	Software extension	●
	ESC T	Select print direction in page mode	Software extension	●
	ESC W	Set printing area in page mode	Software extension	●
	ESC \	Set relative print position	Software extension	
	ESC a	Select justification	Software extension	
	GS $	Set absolute vertical print position in page mode	Software extension	
	GS L	Set left margin	Software extension	
	GS W	Set printing area width	Software extension	
	GS \	Set relative vertical print position in page mode	Software extension	
Mechanism control commands	ESC <	Return home	Mechanical extension	
	ESC F	Set/cancel cut sheet reverse eject	Mechanical extension	●
	ESC U	Turn unidirectional printing mode on/off	Mechanical extension	
	ESC i	Partial cut (one point left uncut)	Mechanical extension	
The TM-295/295P supports the commands marked with a ● in the "Supported Command" column.				

Function Type	Command	Name	Matrix Category	Supported Command
Mechanism control commands (continued)	ESC m	Partial cut (three points left uncut)	Mechanical extension	
	ESC o	Stamp	Mechanical extension	
	ESC q	Release	Mechanical extension	●
	GS V	Select cut mode and cut paper	Mechanical extension	
Status commands	DLE EOT	Real-time status transmission	Hardware extension	●
	DLE EOT BS	Real-time MICR status transmission	Hardware extension	
	ESC u	Transmit peripheral device status	Hardware extension	●
	ESC v	Transmit paper sensor status	Hardware extension	●
	GS ENQ	Transmit real-time printer status	Hardware extension	
	GS a	Enable/disable Automatic Status Back (ASB)	Hardware extension	●
	GS r	Transmit status	Hardware extension	●
Bit-image commands	ESC ✱	Select bit-image mode	Basic single	●
	GS ✱	Define user-defined bit image	Software extension	
	GS /	Print user-defined bit image	Software extension	
Bar code commands	GS H	Select printing position of HRI characters	Software extension	
	GS f	Select font for HRI characters	Software extension	
	GS h	Set bar code height	Software extension	
	GS k	Print bar code	Software extension	
	GS w	Set bar code width	Software extension	
Macro function commands	GS :	Start/end macro definition	Software extension	
	GS ^	Execute macro	Software extension	
Kanji control commands	FS !	Select print mode(s) for Kanji characters	Software extension	
	FS &	Select Kanji character mode	Software extension	
	FS –	Turn underline mode on/off for Kanji characters	Software extension	
	FS .	Cancel Kanji character mode	Software extension	
	FS 2	Define user-defined Kanji characters	Software extension	
	FS C	Select Kanji character code system	Software extension	
	FS S	Set Kanji character spacing	Software extension	
	FS W	Turn quadruple-size mode on/off for Kanji characters	Software extension	

The TM-295/295P supports the commands marked with a ● in the "Supported Command" column.

Function Type	Command	Name	Matrix Category	Supported Command
MICR commands	**FS a 0**	Read check paper	Mechanical extension	
	FS a 1	Load check paper to print starting position	Mechanical extension	
	FS a 2	Eject check paper	Mechanical extension	
	FS b	Request retransmission of check paper reading result	Mechanical extension	
	FS c	MICR mechanism cleaning	Mechanical extension	
Miscellaneous function commands	**DLE ENQ**	Real-time request to printer	Software extension	
	ESC =	Select peripheral device	Software extension	●
	ESC @	Initialize printer	Basic single	●
	ESC L	Select page mode	Software extension	●
	ESC S	Select standard mode	Software extension	
	ESC p	Generate pulse	Hardware extension	●
	FS L	Select double-density page mode	Software extension	
	GS <	Initialize printer mechanism	Mechanical extension	
	GS A	Adjust label position to start printing	Hardware extension	
	GS C 0	Select counter print mode	Software extension	
	GS C 1	Select count mode (A)	Software extension	
	GS C 2	Set counter	Software extension	
	GS C ;	Select count mode (B)	Software extension	
	GS E	Select head control method	Hardware extension	
	GS I	Transmit printer ID	Hardware extension	●
	GS P	Set horizontal and vertical motion units	Software extension	
	GS c	Print counter	Software extension	
	GS z 0	On-line/off-line recovery wait time	Mechanical extension	

The TM-295/295P supports the commands marked with a ● in the "Supported Command" column.

Reference Table

Command	Name	Function	Supported Command																		
			TM-267II	TM-T Series				TM-L Series		TM-U200		TM-300/300M				TM-270	TM-U375 TM-U375M	TM-U925	TM-U950 TM-U950M	TM-215S	TM-295
				T60	T80	T80M	T85	L60	L60II	B	D	A	B	C	D						
HT	Horizontal tab	Moves the printing position to the next horizontal tab position.	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●			●	●
LF	Print and line feed	Prints the data in the print buffer and feeds the paper based on the current line spacing.	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
FF	1. Print and eject cut sheet (in standard mode)	Prints the data in the print buffer and ejects the cut sheet.														●	●	●	●		●
	2. Print and return to standard mode (in page mode)	Prints the data in the print buffer and returns to standard mode.					●		●								●				●
	3. Print and feed label to print starting position (on label)	Prints the data in the print buffer and feeds the next label to the print starting position.						●	●												

The commands supported by each printer are marked by a ● or a O. The functions of the commands marked by a O may differ, depending on the printer model.

Command	Name	Function	TM-267II	TM-T Series				TM-L Series		TM-U200		TM-300/300M				TM-270	TM-U375 TM-U375M	TM-U925	TM-U950 TM-U950M	TM-215S	TM-295
				T60	T80	T80M	T85	L60	L60II	B	D	A	B	C	D						
CR	Print and carriage return	When auto line feed is enabled, this command functions in the same way as **LF**. When auto line feed is disabled, this command prints the data in the print buffer and does not feed the paper.	○	○	○		○		○	●	●	●	●	●	●	○	●	●	●	●	○
CAN	Cancel print data in page mode	Deletes all the print data in the printable area in page mode.					●		●								●				●
RS	Journal tab	Moves the print position to the beginning of the journal paper.																	●		
DLE EOT	Real-time status transmission	Transmits a specified status in real time.					●		●	●	●						●	●	●		●
DLE EOT BS	Real-time MICR status transmission	Transmits MICR status in real time.																○	○		
DLE ENQ	Real-time request to printer	Responds to a request from the host computer upon receiving this command.					●			●	●						●	●	●		
ESC FF	Print data in page mode	Prints the data in the print buffer in page mode.					●		●												
ESC SP	Set right-side character spacing	Sets the right-side character spacing.	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

The commands supported by each printer are marked by a ● or a ○. The functions of the commands marked by a ○ may differ, depending on the printer model.

Command	Name	Function	TM-267II	TM-T Series T60	T80	T80M	T85	TM-L Series L60	L60II	TM-U200 B	D	TM-300/300M A	B	C	D	TM-270	TM-U375 TM-U375M	TM-U925	TM-U950 TM-U950M	TM-215S	TM-295
ESC !	Select print mode(s)	Selects a print mode(s).	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
ESC $	Set absolute print position	Sets the print starting position from the beginning of the line.		●	●	●	●	●	●								●	●	●		
ESC %	Select/ cancel user-defined character set	Selects or cancels the user-defined character set.	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
ESC &	Define user-defined characters	Defines user-defined characters for a specified character code.	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
ESC ∗	Select bit-image mode	Selects a bit-image mode for a specified number of dots.	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
ESC –	Turn underline mode on/off	Turns underline mode on or off.				●	●	●	●	●	●	○	○	○	○		●	●	●		
ESC 2	Select default line spacing	Sets the line spacing to 1/6 inch.	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
ESC 3	Set line spacing	Sets the line spacing to a specified value.	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
ESC <	Return home	Moves the print head to the left-most position.								●	●	●	●	●	●		●	●	●		
ESC =	Select peripheral device	Selects the device to which the host computer sends data.		●	●	●	●	●	●	●	●						●	●	●		●
ESC ?	Cancel user-defined characters	Cancels the user-defined characters for a specified character code.					●		●	●	●						●	●	●		

The commands supported by each printer are marked by a ● or a O. The functions of the commands marked by a O may differ, depending on the printer model.

Command	Name	Function	TM-267II	TM-T Series				TM-L Series		TM-U200		TM-300/300M				TM-270	TM-U375 TM-U375M	TM-U925	TM-U950 TM-U950M	TM-215S	TM-295
				T60	T80	T80M	T85	L60	L60II	B	D	A	B	C	D						
ESC @	Initialize printer	Clears the data in the print buffer and resets the printer mode to the mode that was in effect when the power was turned on.	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
ESC C	Set cut sheet eject length	Sets the eject length for a cut sheet to a specified number of lines.														●	●	●	●		●
ESC D	Set horizontal tab positions	Sets the horizontal tab positions.	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●			●	●
ESC E	Turn emphasized mode on/off	Turns emphasized mode on or off.				●	●	●	●	●	●	○	○	○	○		●	●	●		
ESC F	Set/cancel cut sheet reverse eject	Sets or cancels the slip paper reverse eject specified by **FF**.																			●
ESC G	Turn double-strike mode on/off	Turns double-strike mode on or off.				●	●	●	●	●	●	○	○	○	○		●	●	●		
ESC J	Print and feed paper	Prints the data in the print buffer and feeds the paper a specified distance.	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
ESC K	Print and reverse feed	Prints the data in the print buffer and feeds the paper a specified distance in the reverse direction.									●				●			●	●		●
ESC L	Select page mode	Switches from standard mode to page mode.					●		●								●				●

The commands supported by each printer are marked by a ● or a O. The functions of the commands marked by a O may differ, depending on the printer model.

Command	Name	Function	TM-267II	TM-T Series				TM-L Series		TM-U200		TM-300/300M				TM-270	TM-U375 TM-U375M	TM-U925	TM-U950 TM-U950M	TM-215S	TM-295
				T60	T80	T80M	T85	L60	L60II	B	D	A	B	C	D						
ESC R	Select an international character set	Selects a country's character set.	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
ESC S	Select standard mode	Switches from page mode to standard mode.					●		●												
ESC T	Select print direction in page mode	Selects the print direction and starting position in page mode.					●		●								●				●
ESC U	Turn unidirectional printing mode on/off	Turns unidirectional printing mode on or off.								●	●	●	●	●	●		●	●	●	●	
ESC V	Turn 90° clockwise rotation mode on/off	Turns 90° clockwise rotation mode on or off.		●	●	●	●	●	●							●	●				
ESC W	Set printing area in page mode	Sets the position and the size of the printing area in page mode.					●		●								●				●
**ESC **	Set relative print position	Sets the print starting position based on the current position.		●	●	●	●	●	●								●	●	●		
ESC a	Select justification	Aligns all the data in one line to a specified position.		●	●	●	●	●	●	●	●						●	●	●		
ESC c 0	Select print paper(s)	Selects paper type(s) for printing.												●	●	●	●	●	●		
ESC c 1	Select paper type(s) for command settings	Selects paper type(s) for use with various command settings.														●	●	●	●		

The commands supported by each printer are marked by a ● or a O. The functions of the commands marked by a O may differ, depending on the printer model.

Command	Name	Function	TM-267II	TM-T Series				TM-L Series		TM-U200		TM-300/300M				TM-270	TM-U375 TM-U375M	TM-U925	TM-U950 TM-U950M	TM-215S	TM-295
				T60	T80	T80M	T85	L60	L60II	B	D	A	B	C	D						
ESC c 3	Select paper sensor(s) to output paper-end signals	Selects paper sensor(s) to output paper-end signals.		○	○		○		○	○	○	○	○	○	○	○	○		○		○
ESC c 4	Select paper sensor(s) to stop printing	Selects the paper sensor that stops printing when the paper runs out.	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		●
ESC c 5	Enable/ disable panel buttons	Enables or disables the panel buttons.	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		●
ESC c 6	Enable/ disable on-line switch	Enables or disables the ON-LINE switch.	●													●					
ESC d	Print and feed *n* lines	Prints the data in the print buffer and feeds *n* lines.	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		●
ESC e	Print and reverse feed *n* lines	Prints the data in the print buffer and feeds *n* lines in the reverse direction.									●			●				●	●		●
ESC f	Set cut sheet wait time	Sets the time that the printer waits for a cut sheet to be inserted and the time from insertion of the sheet until printing starts.												○	○	●	●	●	●		●
ESC i	Partial cut (one point left uncut)	Executes a partial cut of the paper with one point left uncut.	●		●	●	●					●	●					●	●		
ESC m	Partial cut (three points left uncut)	Executes a partial cut of the paper with three points left uncut.	●		●	●						●	●					●	●		

The commands supported by each printer are marked by a ● or a ○. The functions of the commands marked by a ○ may differ, depending on the printer model.

Command	Name	Function	TM-267II	TM-T Series				TM-L Series		TM-U200		TM-300/300M				TM-270	TM-U375 TM-U375M	TM-U925	TM-U950 TM-U950M	TM-215S	TM-295
				T60	T80	T80M	T85	L60	L60II	B	D	A	B	C	D						
ESC o	Stamp	Executes stamp printing.																●	●		
ESC p	Generate pulse	Sends a specified pulse to a specified connector pin.		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
ESC q	Release	Releases the paper.														●	●				●
ESC r	Select print color	Selects the print color.	●									●	●	●	●					●	
ESC t	Select character code table	Selects a page from the character code table.	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
ESC u	Transmit peripheral device status	Transmits the status of a specified connector pin.		○	○	●	●	●	●			○	○	○	○	○	●	●	●	●	●
ESC v	Transmit paper sensor status	Transmits the status of a paper sensor.	●	○	○	●	●	●	●			○	○	○	○	○	●	●	●	●	●
ESC z	Turn parallel printing mode on/off for receipt and journal paper	Turns parallel printing mode on or off for receipt and journal paper.																●			
ESC {	Turn upside-down printing mode on/off	Turns upside-down printing mode on or off.	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
FS !	Select print mode(s) for Kanji characters	Selects print mode(s) for Kanji characters.				●						○	○	○	○		○		○		
FS &	Select Kanji character mode	Selects Kanji character mode.				●						○	○	○	○		○		○		

The commands supported by each printer are marked by a ● or a ○. The functions of the commands marked by a ○ may differ, depending on the printer model.

Command	Name	Function	TM-267II	T60	T80	T80M	T85	L60	L60II	B	D	A	B	C	D	TM-270	TM-U375 TM-U375M	TM-U925	TM-U950 TM-U950M	TM-215S	TM-295
				TM-T Series				TM-L Series		TM-U200		TM-300/300M									
FS –	Turn underline mode on/off for Kanji characters	Turns underline mode on or off for Kanji characters.				●						○	○	○	○		○		○		
FS .	Cancel Kanji character mode	Cancels Kanji character mode.				●						○	○	○	○		○		○		
FS 2	Define user-defined Kanji characters	Defines user-defined Kanji characters for specified character codes.				●						○	○	○	○		○		○		
FS C	Select Kanji character code system	Selects the Kanji character code system.				●						○	○	○	○		○		○		
FS L	Select double-density page mode	Switches from standard mode to double-density page mode.															○				
FS S	Set Kanji character spacing	Selects the right- and left-side Kanji character spacing.				●						○	○	○	○		○		○		
FS W	Turn quadruple-size mode on/off for Kanji characters	Turns quadruple-size mode on or off for Kanji characters.				●						○	○	○	○		○		○		
FS a 0	Read check paper	Selects the MICR function and reads the check paper.																○	○		
FS a 1	Load check paper to print starting position	Loads check paper to the print starting position.																○	○		

The commands supported by each printer are marked by a ● or a O. The functions of the commands marked by a O may differ, depending on the printer model.

Command	Name	Function	TM-267II	TM-T Series T60	T80	T80M	T85	TM-L Series L60	L60II	TM-U200 B	D	TM-300/300M A	B	C	D	TM-270	TM-U375 TM-U375M	TM-U925	TM-U950 TM-U950M	TM-215S	TM-295
FS a 2	Eject check paper	Ejects the check paper.																O	O		
FS b	Request retransmission of check paper reading result	Retransmits the previous check paper (MICR character) reading results.																O	O		
FS c	MICR mechanism cleaning	Cleans the MICR mechanism.																O	O		
GS ENQ	Transmit real-time printer status	Transmits the status of the printer upon receiving this command.																●	●		
GS FF	Print and eject label	Prints the data in the print buffer and ejects the label.						●	●												
GS !	Select character size	Selects the character width and height.					●		●												
GS $	Set absolute vertical print position in page mode	Sets the absolute vertical print starting position for characters in page mode.					●		●												
GS *	Define user-defined bit image	Defines a user-defined bit image using a specified number of dots.		●	●	●	●	●	●								●	●	●		
GS /	Print user-defined bit image	Prints a user-defined bit image using a specified mode.		●	●	●	●	●	●								●	●	●		

The commands supported by each printer are marked by a ● or a O. The functions of the commands marked by a O may differ, depending on the printer model.

Command	Name	Function	TM-267II	TM-T Series				TM-L Series		TM-U200		TM-300/300M				TM-270	TM-U375 TM-U375M	TM-U925	TM-U950 TM-U950M	TM-215S	TM-295
				T60	T80	T80M	T85	L60	L60II	B	D	A	B	C	D						
GS :	Start/end macro definition	Starts or ends a macro definition.		●	●	●	●	●	●												
GS <	Initialize printer mechanism	Feeds a label to the print starting position.						●	●												
GS A	Adjust label position to start printing	Sets the label position relative to the default position.						●	●												
GS B	Turn white/black reverse printing mode on/off	Turns white/black reverse printing mode on or off.					●		●												
GS C 0	Set counter print mode	Selects a print mode for the serial counter.						●	●												
GS C 1	Select count mode (A)	Selects a count mode for the serial counter.						●	●												
GS C 2	Set counter	Sets the counter value.						●	●												
GS C ;	Select count mode (B)	Selects a count mode for the serial counter and specifies the counter value.						●	●												
GS E	Select head control method	Selects the print speed and head energizing time.										●	●	●	●		●	●	●		

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Command	Name	Function	TM-267II	TM-T Series				TM-L Series		TM-U200		TM-300/300M				TM-270	TM-U375 TM-U375M	TM-U925	TM-U950 TM-U950M	TM-215S	TM-295
				T60	T80	T80M	T85	L60	L60II	B	D	A	B	C	D						
GS H	Select printing position of HRI characters	Selects the printing position of HRI characters when printing a bar code.		●	●	●	●	●	●												
GS I	Transmit printer ID	Transmits a specified printer ID.					●		●	●	●						●	●	●		●
GS L	Set left margin	Sets the left margin using specified values.					●		●								●				
GS P	Set horizontal and vertical motion units	Sets the horizontal and vertical motion units.					●		●								●	●	●		
GS V	Select cut mode and cut paper	Cuts the specified paper.					●			●											
GS V	Select cut mode and cut paper	Advances the specified paper to the cut position and performs the cut.					●			●	●										
GS W	Set printing area width	Sets the printing area width to a defined area.					●		●								●				
**GS **	Set relative vertical print position in page mode	Moves the vertical print starting position in page mode to a specified distance from the current position.					●		●												
GS ^	Execute macro	Executes a macro.		●	●	●	●	●	●												
GS a	Enable/ disable Automatic Status Back (ASB)	Selects a status for ASB transmission.					●		●	●	●						●	●	●		●

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Command	Name	Function	TM-267II	T60	T80	T80M	T85	L60	L60II	B	D	A	B	C	D	TM-270	TM-U375 TM-U375M	TM-U925	TM-U950 TM-U950M	TM-215S	TM-295
GS b	Turn smoothing mode on/off	Selects or cancels smoothing.					●		●												
GS c	Print counter	Selects a serial counter value in the print buffer and increments or decrements the counter value.						●	●												
GS f	Select font for HRI characters	Selects a font for the HRI characters used when printing a bar code.		●	●	●	●	●	●												
GS h	Set bar code height	Selects the height of a bar code.		●	●	●	●	●	●												
GS k	Print bar code ①	Selects a bar code system and prints the bar code.		●	●	●	●	●	●												
GS k	Print bar code ②	Selects a bar code system and prints the bar code.					●		●												
GS r	Transmit status	Transmits a specified status.					●		●	●	●						●	●	●		●
GS w	Set bar code width	Selects the horizontal size of the bar code.		●	●	●	●	●	●												
GS z 0	On-line/off-line recovery wait time	Sets the on-line/off-line recovery wait time.								●	●										

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