TM U200/U200P

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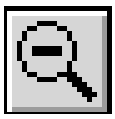

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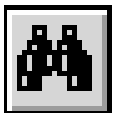

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EPSON®

ESC/POS™
Information Manual

Guide to
TM-U200/U200P

SEIKO EPSON CORPORATION

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ESC/POS™ Information Manual
Guide to TM–U200/U200P
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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 receipt printing.
- **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-U200/U200P series of high-quality POS printers print on roll paper. The printers have the following features:

- ❑ Compact and lightweight.
- ❑ High throughput using bidirectional, minimum distance printing.
- ❑ Semi-automatic paper loading capability.
- ❑ ASB (Automatic Status Back) function that automatically transmits changes in printer status.
- ❑ Wide selections for the user's purposes by the different features of the TM-U200/U200P printers, as follows:

Printer	Features
TM-U200B/PB	The auto-cutter unit is standard equipment.
TM-U200D/PD	Does not include the auto-cutter or take-up units.

Options and Accessories

- ❑ Paper roll near-end sensor
- ❑ Direct connection display modules, DM-D102 and DM-D203.
- ❑ EPSON power supply unit, PS-150.
- ❑ EPSON ribbon cassette, ERC-38 (P) and ERC-38 (B).

Specifications

- ❑ Printing specifications

  Printing method: 9-pin, serial impact dot matrix
  Printing speed: Approximately 3.5 LPS (when printing 40 columns using the the 7 × 9 font with 3-half dot spacing)

  Number of printable columns: 33/40 (when using 3-half dot spacing)
  35/42 (when using 2-half dot spacing)

- ❑ Character specifications

  Character fonts: 9 × 9/7 × 9
  Character pitch: 13.3/16 CPI (when using 3-half dot spacing)
  14.5/17.8 CPI (when using 2-half dot spacing)

  Character size: 1.2 (W) × 3.1 (H) mm
  1.6 (W) x 3.1 (H) mm

  Character sets:

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

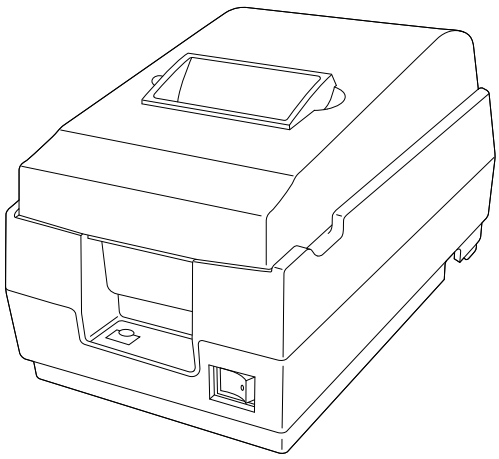
- ❑ Paper specifications

  Paper size: Paper roll: 76 mm +/- 0.5 (W) mm × 83.0 mm diameter

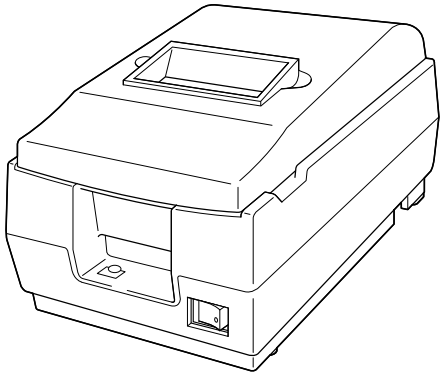
  Thickness: Normal Paper: 0.06 mm – 0.085 mm
  Pressure-sensitive paper: 0.05 mm – 0.08 mm
  (Total Thickness: 0.2 mm or less)

- ❑ Interface: RS-232 (TM-U200B/D serial interface)
  or
  IEEE 1284 (TM-U200PB/PD parallel interface)

- ❑ Data buffer: Maximum approximately 1k bytes



TM-U200D/U200PD



TM-U200B/U200PB

Chapter 1
Command Descriptions

Following this table are all the commands organized by function and described with program examples and print samples.

Supported Commands

Command	Name	Function type	Page number
HT	Horizontal tab	Print position	1-20
LF	Print and line feed	Print	1-4
CR	Print and carriage return	Print	1-4
DLE EOT	Real-time status transmission	Status	1-27
DLE ENQ	Real-time request to printer	Miscellaneous function	1-34
ESC SP	Set right-side character spacing	Character	1-8
ESC !	Select print mode(s)	Character	1-14
ESC %	Select/cancel user-defined character set	Character	1-9
ESC &	Define user-defined characters	Character	1-9
ESC ✻	Select bit-image mode	Bit image	1-21
ESC –	Turn underline mode on/off	Character	1-15
ESC 2	Select default line spacing	Line spacing	1-7
ESC 3	Set line spacing	Line spacing	1-7
ESC <	Return home	Mechanism control	1-30
ESC =	Select peripheral device	Miscellaneous function	1-33
ESC ?	Cancel user-defined characters	Character	1-9
ESC @	Initialize printer	Miscellaneous function	1-31
ESC D	Set horizontal tab positions	Print position	1-20
ESC E	Turn emphasized mode on/off	Character	1-15
ESC G	Turn double-strike mode on/off	Character	1-16
ESC J	Print and feed paper	Print	1-5
ESC K	Print and reverse feed	Print	1-5
ESC R	Select an international character set	Character	1-12
ESC U	Turn unidirectional printing mode on/off	Mechanism control	1-30
ESC a	Select justification	Print position	1-21
ESC c 3	Select paper sensor(s) to output paper-end signals	Paper sensor	1-18
ESC c 4	Select paper sensor(s) to stop printing	Paper sensor	1-18
ESC c 5	Enable/disable panel buttons	Panel button	1-17
ESC d	Print and feed ***n*** lines	Print	1-6

Command	Name	Function type	Page number
ESC e	Print and reverse feed ***n*** lines	Print	1-6
ESC p	Generate pulse	Miscellaneous function	1-33
ESC t	Select character code table	Character	1-13
ESC {	Turn upside-down printing mode on/off	Character	1-16
GS I	Transmit printer ID	Miscellaneous function	1-32
GS V	Select cut mode and cut paper	Mechanism control	1-30
GS a	Enable/disable Automatic Status Back (ASB)	Status	1-22
GS r	Transmit status	Status	1-26
GS z 0	On-line recovery wait time	Miscellaneous function	1-35

❑ The following commands are effective only when 40 bytes is selected as the receive buffer size. The size of the receive buffer is selected by the DIP switches.

Command	Name
HT	Horizontal tab
ESC %	Select/cancel user-defined character set
ESC &	Define user-defined characters
ESC ?	Cancel user-defined characters
ESC D	Set horizontal tab positions

❑ Refer to the **GS z 0** command for changing roll paper.

❑ The functions of these commands are different, depending on the printer models. O indicates supported commands and X indicates unsupported (ignored) commands.

Command	Model			
	TM-U200B	**TM-U200PB**	**TM-U200D**	**TM-U200PD**
ESC c 3	X	O	X	O
GS V (1)	O	O	X	X
GS V (2)	O	O	Only paper feed is executed.	Only paper feed is executed.

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 sets 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
1	Off	00	0	Character font 9 x 9 selected.
	On	01	1	Character font 7 x 9 selected.
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.

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-U200/U200P printers support the following commands for printing characters and advancing paper:

Command	Name
LF	Print and line feed
CR	Print and carriage return
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

When auto line feed is enabled, CR functions in the same way as LF. When auto line feed is disabled, CR prints the data in the print buffer and does not feed the paper. The DIP switch setting enables or disables auto line feed. When using the serial interface, CR executes printing only.

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
```

ESC J *n*

[Name] Print and feed paper

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

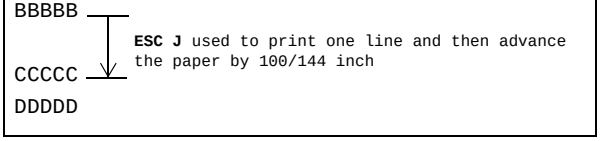
[Range] $0 \le n \le 255$

ESC J *n* prints the data in the print buffer and feeds the paper [***n*** x (1/144)] inches. This means that the printer can feed the paper in half-dot units. This command is used to temporarily feed a specific length without changing the line spacing set by other commands.

Program Example

```
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 K *n*

[Name] Print and reverse feed

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

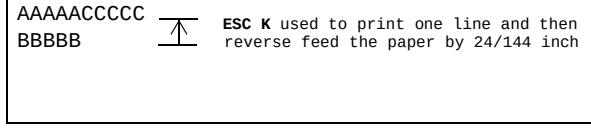
[Range] $0 \le n \le 48$

ESC K *n* prints the data in the print buffer and feeds the paper [$n \times (1/144)$] inches in the reverse direction. This means that the printer can feed paper in half-dot units in the reverse direction. The command is used to temporarily feed a specific length without changing the line spacing set by other commands. Only the TM-U200D/PD supports this command.

Program Example

```
PRINT #1, "AAAAA"; CHR$(&HA);
PRINT #1, "BBBBB"; CHR$(&H1B);"K";CHR$(24);
PRINT #1, "     CCCCC"; CHR$(&HA);
```

Print Sample



ESC d *n*

[Name] Print and feed *n* lines

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

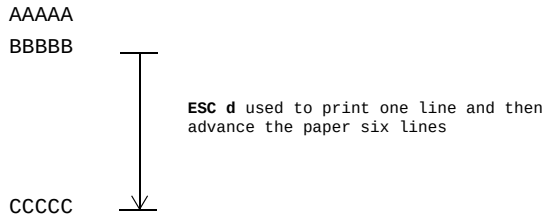
[Range] $0 \le n \le 255$

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 maximum paper feed amount is 40 inches. The default setting of the paper feed amount is 1/6 inch.

Program Example

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

Print Sample



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. 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 48/144 inch. The default setting of the paper feed amount is 1/6 inch. Only the TM-U200D/PD supports this command.

Program Example

```
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 line of Bs

Line Spacing Commands

The TM-U200/U200P printers support the following commands for setting line spacing. These commands only set the line spacing; they do not actually advance the paper. The line spacing set using these commands affects the results of the **LF**, **ESC d**, and **ESC e** commands, or when the paper is advanced using the PAPER FEED button.

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

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]	$0 \le n \le 255$			

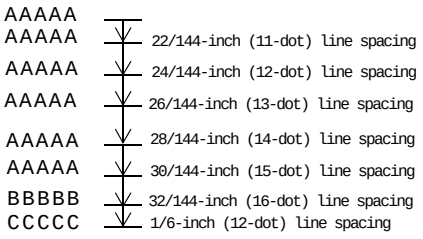
ESC 2 sets the line spacing to 1/6 inch. This is equivalent to 12 dots.

ESC 3 *n* sets the line spacing to [***n*** × (1/144)] inches. The default setting of the paper feed amount is 1/6 inch (*n*=24). The line spacing can be set in half-dot units using this command.

Program Example

```
FOR n=22 TO 32 STEP 2
    PRINT #1, CHR$(&H1B);"3";CHR$(n); ← Set line spacing
   PRINT #1, "AAAAA"; CHR$(&HA);
NEXT n
PRINT #1, CHR$(&H1B);"2"; ← Set default line spacing
PRINT #1, "BBBBB"; CHR$(&HA);
PRINT #1, "CCCCC"; CHR$(&HA);
```

Print Sample



Character Commands

The TM-U200/U200P printers support 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 ?	Cancel user-defined characters
ESC R	Select an international character set
ESC t	Select character code table
ESC !	Select print mode(s)
ESC -	Turn underline mode on/off
ESC E	Turn emphasized mode on/off
ESC G	Turn double-strike mode on/off
ESC {	Turn upside-down printing mode on/off

ESC SP *n*

[Name]	Set right-side character spacing			
[Format]	ASCII	ESC	SP	*n*
	Hex	1B	20	*n*
	Decimal	27	32	*n*
[Range]	$0 \le n \le 255$			

ESC SP *n* sets the right-side character spacing in [***n*** × (1/160)] inches. It is used to change the spacing between characters. The default right-side character spacing is set to 0 (***n***=0). This command can set the right-side character spacing in half-dot units.

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-inch right-side character spacing
BBBBB ← 6/160-inch right-side character spacing
C C C C C ← 12/160-inch 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* × *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] $y = 2$

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

$0 \le x \le 12$ (9 × 9 font)

$0 \le x \le 9$ (7 × 9 font)

$0 \le d1...d$ (y × x) ≤ 255

ESC ? *n*

[Name] Cancel user-defined characters

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

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

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* × *x1*)] ... [*xk d1 ... d*(*y* × *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 bytes in the horizontal direction. Character code range from ASCII code 20H (32) to 7EH (126) can be defined by ***c1*** and ***c2***. Up to 19 user-defined characters can be defined. Data (***d***) specifies a bit printed to 1 and not printed to 0. At 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 @** or **ESC ?** is executed; the user-defined characters are redefined; the power is turned off; or the printer is reset.

ESC ? *n* cancels the user-defined characters defined for the character code ***n***. After the user-defined characters are canceled, the internal character set is printed.

These commands are effective only when the 40 bytes receive buffer size is selected.

Program Example

```
y=2
PRINT #1, CHR$ (&H1B);"&";CHR$(y);"AC";
x=7: PRINT #1, CHR$(x);
FOR i=1 TO y*x
  READ d: PRINT #1, CHR$(d);
NEXT i
x=9: PRINT #1, CHR$(x);
FOR i=1 TO y*x
 READ d: PRINT #1, CHR$(d);
NEXT i
x=9: PRINT #1, CHR$(x);
FOR i=1 TO 2*x
 READ d: PRINT #1, CHR$(d);
NEXT i
PRINT #1, CHR$(&H1B);"%";CHR$(0); ← Cancel
PRINT #1, "A B C D E"; CHR$(&HA);
PRINT #1, CHR$(&H1B);"%";CHR$(1);← Select
PRINT #1, "A B C D E"; CHR$(&HA);
PRINT #1, CHR$(&H1B);"?";"A";← Cancel user-defined
                                character
PRINT #1, "A B C D E"; CHR$(&HA);




DATA &H30,&H00,&H78,&H00,&HFC,&H00,&H78,&H00
DATA &H30,&H00,&H00,&H00,&H00,&H00
DATA &H18,&H00,&H24,&H00,&H42,&H00,&H81,&H00
DATA &H42,&H00,&H24,&H00,&H18,&H00,&H00,&H00
DATA &H00,&H00
DATA &H18,&H00,&H28,&H00,&H4F,&H80,&H80,&H80
DATA &H4F,&H80,&H28,&H00,&H18,&H00,&H00,&H00
DATA &H00,&H00
```

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

Print Sample

```
A  B  C  D  E ← Characters from internal character set
◆  ◊  ↑  D  E ← Characters from user-defined character set
A  ◊  ↑  D  E ← Characters from user-defined character set
                (1 character canceled)
```

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

```
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]	$0 \le n \le 5,\ n = 254, 255$			

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.

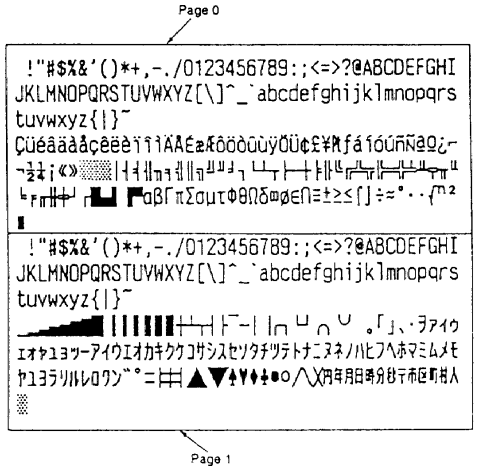
n	**Character code table**
0	Page 0 [PC437 (U.S.A., Standard Europe)]
1	Page 1 [Katakana]
2	Page 2 [PC850 (Multilingual)]
3	Page 3 [PC860 (Portuguese)]
4	Page 4 [PC863 (Canadian-French)]
5	Page 5 [PC865 (Nordic)]
254	Page 254 [Space page]
255	Page 255 [Space page]

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



ESC ! *n*

[Name] Select print mode(s)

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

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

ESC ! *n* selects print modes using ***n*** as follows. The default character font is 7×9. The defaults for other print modes are set to ***n***=1.

Bit	Off/On	Hex	Decimal	Function
0	Off	00	0	Character font 9 x 9 selected.
	On	01	1	Character font 7 x 9 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.

Program Example

```
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
```

ESC – *n*

[Name] Turn underline mode on/off

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

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

ESC – *n* turns underline mode on or off. When ***n***=1 or 49, underline mode is turned on, and when ***n***=0 or 48, underline mode is turned off. The default setting is ***n***=0.

Program Example

```
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 (one-dot width) turned on
BBBBB ← Underline turned off
```

ESC E *n*

[Name] Turn emphasized mode on/off

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

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

ESC E *n* turns emphasized mode on or off. When the LSB (least significant bit) of ***n*** is 1, emphasized mode is turned on; when it is 0, emphasized mode is turned off. The default setting is ***n***=0. Emphasized and double-strike printing appear the same.

Program Example

```
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 G *n*

[Name]	Turn double-strike mode on/off			
[Format]	ASCII	ESC	G	*n*
	Hex	1B	47	*n*
	Decimal	27	71	*n*
[Range]	$0 \le n \le 255$			

ESC G *n* turns double-strike mode on or off. When the LSB (least significant bit) of ***n*** is 1, double-strike mode is turned on; when it is 0, double-strike mode is turned off. The default setting is ***n***=0. Double-strike and emphasized printing appear the same.

Program Example

```
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]	$0 \le n \le 255$			

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. This command is enabled only when input at the beginning of a line.

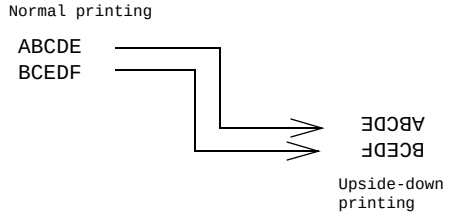
Program Example

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

printing:
  PRINT #1, "ABCDE"; CHR$(&HA);
  PRINT #1, "BCEDF"; CHR$(&HA);

  RETURN
```

Print Sample



Panel Button Command

The TM-U200/U200P printers support the following command for enabling and disabling the panel button (PAPER FEED).

Command	Name
ESC c 5	Enable/disable panel button

ESC c 5 *n*

[Name]	Enable/disable panel button				
[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 PAPER FEED button. When the LSB (least significant bit) of ***n*** is 1, this button is disabled; when it is 0, this button is enabled. To prevent problems caused by accidentally pressing the PAPER FEED button, use this command to disable the button.

In the following cases, the panel button is enabled temporarily, regardless of the setting of this command:

1. During the wait time set by the **GS z 0** command for paper to be inserted, paper can be fed by the PAPER FEED button.
2. During the recovery confirmation time, the PAPER FEED button is enabled, but paper cannot be fed.

Program Example

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

Paper Sensor Commands

The TM-U200/U200P printers support the following command for controlling the paper sensor(s) that stop printing.

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 when all paper sensors are disabled (***n***=0). Bits 0 and 1 indicate the same sensor. If one of the bits is enabled, the paper roll near-end sensor is selected to stop printing.

When the paper roll near-end sensor is enabled, and if the sensor detects a near-end condition during printing, the printer stops printing and goes off-line automatically after the current printing. Replacing a new paper roll starts the printing again (see the **GS z 0** command for replacing a paper roll).

When the paper roll near-end sensor is disabled, and if a paper near-end condition is detected during printing, the PAPER OUT LED comes on, but the printer does not stop printing and does not go off-line.

The paper roll near-end sensor is an option; therefore, if the sensor is not installed, the settings of this command are not effective. The TM-U200/U200P printers are equipped with the paper roll sensor as standard. The paper roll sensor is always enabled, and when a paper-end is detected, the printer stops printing.

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

Bit	Off/On	Hex	Decimal	Function
0,1	Off	00	0	Paper roll near-end sensor disabled.
	On	01,02,03	1,2,3	Paper roll near-end sensor enabled.
2-7	—	00	0	Undefined.

Program Example

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

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 the paper sensor that outputs a paper-end signal to the parallel interface when a paper-end is detected. The default setting is when all sensors are enabled (***n***= 15).

It is possible to select multiple sensors to output signals. Then, if any of the sensors detects a paper end, the paper end signal is output. This command is available only with a parallel interface and is ignored with a serial interface.

The paper near-end sensor is an option; therefore, if the sensor is not equipped, the settings of bits 0 and 1 of this command are not effective.).

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	04	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.

Program Example

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

Print Position Commands

The TM-U200/U200P printers support the following commands for setting the print position.

Command	Name
HT	Horizontal tab
ESC D	Set horizontal tab positions
ESC a	Select justification

HT

[Name] Horizontal tab

[Format]		
	ASCII	HT
	Hex	09
	Decimal	10

HT moves the print position to the next horizontal tab position. This command is used to align the character columns. The command is ignored unless the next horizontal tab position has been set.

ESC D *n*1...*nk* NUL

[Name] Set horizontal tab positions

[Format]				
	ASCII	ESC	D	*n*1...*nk* NUL
	Hex	1B	44	*n*1...*nk* 00
	Decimal	27	68	*n*1...*nk* 0

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

$0 \le k \le 32$

ESC D *n*1...*nk* NUL sets the horizontal tab positions. ***n*** specifies the column number (counted from the beginning of the line) for setting a horizontal tab position. This command deletes any previously set horizontal tab positions. Up to 32 tab positions can be set.

The default tab positions are at intervals of 8 characters (columns 9, 17, 25, etc.) for the 7 × 9 font.

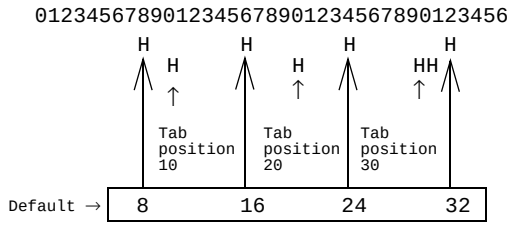
These commands are valid only when the reception buffer capacity is 40 bytes (when DIP switch 1-2 is on).

Program Example

```
PRINT #1, "01234567890123456789012345678901234567890123456";
PRINT #1, CHR$(&HA);
GOSUB ht
PRINT #1, CHR$(&H1B);"D";CHR$(10);CHR$(20);
PRINT #1, 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 a *n*

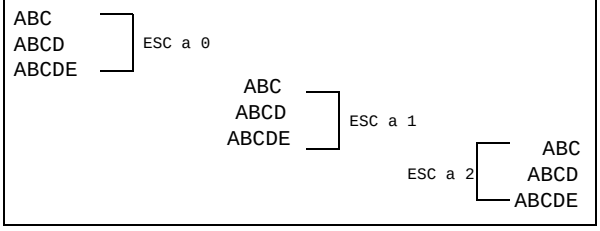
[Name]	Select justification			
[Format]	ASCII	ESC	a	*n*
	Hex	1B	61	*n*
	Decimal	27	97	*n*
[Range]	$0 \le n \le 2$			
	$48 \le n \le 50$			

ESC a *n* aligns all the data in one line to a specified position. Left justification is selected when ***n***=0 or 48, centering is selected when ***n***=1 or 49, and right justification is selected when ***n***=2 or 50. The default setting is left justification (***n***=0). This command is enabled only when input at the beginning of a line.

Program Example

```
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



Bit-Image Command

The TM-U200/U200P printers support the following bit-image command.

Command	Name
ESC ∗	Select bit-image mode

ESC ∗ *m* n_L n_H [*d*]*k*

[Name]	Select bit-image mode						
[Format]	ASCII	ESC	∗	*m*	n_L	n_H	*d1...dk*
	Hex	1B	2A	*m*	n_L	n_H	*d1...dk*
	Decimal	27	42	*m*	n_L	n_H	*d1...dk*
[Range]	$m = 0, 1$						
	$0 \le n_L \le 255$						
	$0 \le n_H \le 3$						
	$0 \le d \le 255$						
	$k = n_L + n_H \times 256$						

ESC * *m nL nH d1...dk* selects a bit-image mode using ***m*** for the number of dots specified by (***nL*** + ***nH*** × 256). ***d*** indicates the bit image data. Set a bit to 1 to print a dot, or set a bit to 0 to not print a dot. This command is used to print a predefined picture or logo. The modes selectable by ***m*** are as follows:

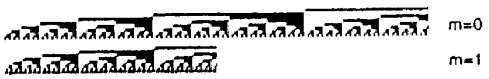
m	Mode	Vertical Direction		Horizontal Direction	
		Dot Density	Number of Dots	Dot Density	Total Number of Dots
0	8-dot single density	72 DPI	8	80 DPI	200
1	8-dot double density	72 DPI	8	160 DPI	400

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



Status Commands

The TM-U200/U200P printers support 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	Transmit real-time 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] $0 \le n \le 255$

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 enabled or disabled. When ***n***=0, ASB is disabled.

The default depends on the DIP switch settings (***n***=0 or ***n***=2). When the printer is disabled by the **ESC =** command and the ASB is enabled, the printer transmits a 4-byte status message whenever the status changes. If the printer goes off-line due to a paper-end condition, bit 0 of the second byte (waiting for on-line recovery) is on from the time the paper roll is inserted to the time the printer goes on-line. See the **GS z 0** command for details of on-line recovery wait time.

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, with "Paper Adequate" status. Bit 3 of the second byte ("Auto-Cutter Error" status) for the TM-U200D/PD is always "No Error Occurred."

The status items are selected using ***n*** as follows:

Bit	Off/On	Hex	Decimal	Status for ASB
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 disabled.
	On	02	2	On-line/off-line 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.

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 PAPER FEED button.
	On	40	64	Paper is being fed by the PAPER FEED button.
7	Off	00	0	Not used. Fixed to Off.

Second byte (error 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 has occurred.
3	Off	00	0	No auto cutter error.
	On	08	8	Auto cutter error has occurred.
4	Off	00	0	Not used. Fixed to Off.
5	Off	00	0	No unrecoverable error.
	On	20	32	Unrecoverable error has occurred.
6	Off	00	0	No temporary abnormality of the print head temperature (high temperature).
	On	40	64	Temporary abnormality of the print head temperature (high temperature) has occurred.
7	Off	00	0	Not used. Fixed to Off.

Third byte (paper sensor information)

Bit	Off/On	Hex	Decimal	Status for ASB
0,1	Off	00	0	Paper near-end sensor: paper adequate.
	On	(03)	(3)	Paper near-end sensor: paper near end.
2,3	Off	00	0	Paper end sensor: paper present.
	On	0C	12	Paper 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.

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.

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 the status specified by ***n*** as follows: paper sensor status as 1 byte of data when ***n***=1 or 49, and drawer kick-out connector status when ***n***=2 or 50. The paper present status of bits 2 and 3 for the paper sensor status is not transmitted because the printer goes off-line when a paper-end is detected by the paper-end sensor. The paper roll near-end sensor is an option; if the sensor is not installed, bits 0 and 1 for the paper sensor status are always in the "Paper Adequate" status.

Program Example

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

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

Bit	Off/On	Hex	Decimal	Status
0,1	Off	00	0	Paper near-end sensor: paper adequate.
	On	(03)	(3)	Paper near-end sensor: paper near end.
2,3	Off	00	0	Paper end sensor: paper present.
	On	0C	12	Paper 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.

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.

DLE EOT *n*

[Name]	Transmit real-time status			
[Format]	ASCII	DLE	EOT	*n*
	Hex	10	04	*n*
	Decimal	16	4	*n*
[Range]	$1 \le n \le 4$			

DLE EOT *n* transmits the specified status in real time. This command is executed if the printer is off-line, the print buffer is full, or an error occurs.

If the printer goes off-line due to a paper-end condition, bit 5 of the printer status (waiting for on-line recovery) is on from the time the paper roll is inserted to the time the printer goes on-line. See the **GS z 0** command for details of on-line recovery wait time.

The paper roll near-end sensor is an option. If the printer is not equipped with the paper near-end sensor, bits 2 and 3 of the paper roll sensor status will always be "Paper Adequate." Bit 3 of the second byte ("Auto-Cutter Error" status) for the TM-U200D/PD is always "No Error Occurred."

n indicates the status function as follows:

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

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 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 paper-end.
6	Off	00	0	No error.
	On	40	64	Error occurs.
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	Off	00	0	No mechanical error.
	On	04	4	Mechanical error occurred.
3	Off	00	0	No auto cutter error.
	On	08	8	Auto cutter error has occurred.
4	On	10	16	Not used. Fixed to On.
5	Off	00	0	Unrecoverable error occurred.
	On	20	32	Recoverable error occurred.
6	Off	00	0	No temporary abnormality of the print head temperature (high temperature).
	On	40	64	Temporary abnormality of the print head temperature (high temperature) has occurred.
7	Off	00	0	Not used. Fixed to Off.

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 near-end sensor: paper adequate.
	On	(0C)	(12)	Paper near-end sensor: paper near end.
4	On	10	16	Not used. Fixed to On.
5,6	Off	00	0	Paper end sensor: paper adequate.
	On	60	96	Paper end sensor: paper not present.
7	Off	00	0	Not used. Fixed to Off.

Mechanism Control Commands

The TM-U200/U200P printers support the following mechanism control commands.

Command	Name
ESC <	Return home
ESC U	Turn unidirectional printing mode on/off
GS V	Select cut mode and cut paper

ESC <

[Name] Return home

[Format]	ASCII	ESC	<
	Hex	1B	3C
	Decimal	27	60

ESC < moves the print head to the home position.

Program Example

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

ESC U *n*

[Name] Turn unidirectional printing mode on/off

[Format]	ASCII	ESC	U	*n*
	Hex	1B	55	*n*
	Decimal	27	85	*n*

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

ESC U *n* turns unidirectional printing mode on or off. When the LSB (least significant bit) of ***n*** is 1, unidirectional printing is turned on; when it is 0, unidirectional printing is turned off and bidirectional printing mode is turned on. Unidirectional printing can be turned on when printing double-height characters to ensure that the top and bottom of the characters are aligned. The default setting is ***n***=0.

Program Example

```
PRINT #1, CHR$(&H1B);"U";CHR$(1); ← Unidirectional printing mode turned on
```

(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*	
[Format] (2)	ASCII	GS	V	*m*	*n*
	Hex	1D	56	*m*	*n*
	Decimal	29	86	*m*	*n*

(1) When ***m*** = 1 or 49, **GS V *m*** executes a partial cut (one point left uncut)

(2) When ***m*** = 66, **GS V *m n*** executes a partial cut (one point left uncut) after paper is fed [cutting position (*n* × approximately 1/144 inch)].

When using the above commands, there is a gap between the auto-cutter position and the print position. These commands are effective only when input at the beginning of a line.

The TM-U200D/U200PD printers are not equipped with the auto-cutter unit; therefore, the **GS V *m*** command is ignored. The **GS V *m n*** command executes paper feeding to the manual cutting position.

Program Example

```
PRINT #1, "          AAAAA"; CHR$(&HA);
PRINT #1, CHR$(&H1B);"J";CHR$(250);
PRINT #1, CHR$(&H1D);"V";CHR$(1);← Cut paper
PRINT #1, "          BBBBB"; CHR$(&HA);
PRINT #1, CHR$(&H1D);"V";CHR$(66);CHR$(0);← Feed paper and cut
```

Print Sample

AAAAA

Partial cut (one point left uncut)

BBBBB

Paper fed to the cutting position and partial cut (one point left uncut) performed

Miscellaneous Function Commands

The TM-U200/U200P printers support the following miscellaneous function commands.

Command	Name
ESC @	Initialize printer
GS I	Transmit printer ID
ESC p	Generate pulse
ESC =	Select peripheral device status
DLE ENQ	Real-time request to printer
GS z 0	Set on-line recovery wait time

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.

Program Example

```
PRINT #1, CHR$(&H1B);"!";CHR$(56);
PRINT #1, "AAAAA"; CHR$(&HA);
PRINT #1, CHR$(&H1B);"@"; ←Initializes the 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] $1 \le n \le 3$

$49 \le n \le 51$

GS I *n* transmits the printer ID specified by ***n*** below. Each printer ID consists of 1 byte of data. The TM-U200 series of printers have the same ID, regardless of the different models. The TM-U200B and TM-U200D can be differentiated by ID type. Type ID = 2 for the TM-U200B. Type ID = 0 for the TM-U200D.

n	Printer ID	Specification	ID (hexadecimal)
1, 49	Printer model ID	TM-U200/U200P	0DH
2, 50	Type ID	See table below.	00H or 02H
3, 51	ROM version ID	Version x.xx ESC/POS	Refer to current ROM version.

Program Example

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

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

Bit	Off/On	Hex	Decimal	Function
0	Off	00	0	No two-byte character code.
1	Off	00	0	No auto-cutter equipped.
	On	02	2	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.

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] $m = 0, 1, 48, 49$

$0 \le t1 \le 255$

$0 \le t2 \le 255$

ESC p *m t1 t2* sends a pulse (on time= ***t1*** × 2 msec / off time= ***t2*** × 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 = *n*

[Name] Select peripheral device status

[Format]				
	ASCII	ESC	=	*n*
	Hex	1B	3D	*n*
	Decimal	27	61	*n*

[Range] $1 \le n \le 3$

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	Off	00	0	Customer display disabled.
	On	02	2	Customer display enabled.
2-7	–	–	–	Undefined.

The printer is enabled when ***n*** = 1 or ***n*** = 3. The printer is disabled when ***n*** = 2. The default setting is *n* = 1 (the printer is enabled).

When the printer is disabled, it ignores all received data, with the exception of the **DLE ENQ 0** and **DLE ENQ 2** commands. Also, if ASB is enabled by the **GS a** command, the printer transmits a 4-byte status message whenever the status changes.

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, " CCCCCC"; CHR$(&HA);
```

Print Sample

```
AAAAA CCCCC
```

DLE ENQ *n*

[Name] Real-time request to printer

[Format]	ASCII	DLE	ENQ	*n*
	Hex	10	05	*n*
	Decimal	16	5	*n*

[Range] *n* = 0, 2

DLE ENQ *n* responds to a request from the host computer specified by ***n*** as shown below. This command is also executed when the printer is disabled. When the printer stops printing due to a paper-end condition, ***n*** = 0 is effective only when the printer is waiting for on-line recovery from the time the paper roll is inserted to the time the printer goes on-line.

The on-line recovery wait time is confirmed by the printer status of ASB or the **DLE EOT** command. ***n*** = 2 is effective only when a recoverable error occurs. The printer can recover from an error without turning off the power. Whether an error occurs or not can be confirmed by the ASB status or the error status of the **DLE EOT** command.

n	**Request**
0	Recovers to on-line.
2	Recovers from an error after clearing the receive and print buffers.

Program Example

```
PRINT #1, CHR$(&H10);CHR$(&H5);CHR$(0);
```

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] $0 \le t1 \le 255$

$0 \le t2 \le 255$

GS z 0 *t1 t2* sets the on-line recovery wait time from the time a new paper roll is installed to when the printer goes on-line. On-line recovery wait time consists of the wait time for a paper to be inserted and the time of a recovery confirmation. This command sets the paper wait time to approximately ***t1*** × 0.5 seconds and the recovery confirmation time to approximately ***t2*** × 0.5 seconds. The paper wait time can be set within a range of 0 seconds to approximately 2 minutes. The recovery confirmation time can be set within a range of approximately 0.5 seconds to approximately 2 minutes, or can be set without time limitation. When setting the recovery confirmation time without a time limitation, set ***t2***=0 and cancel the recovery confirmation time. The paper wait time is set to 3 seconds and the recovery confirmation time is cancelled (no time limitation) with ***t1***=6, ***t2***=0 as the default.

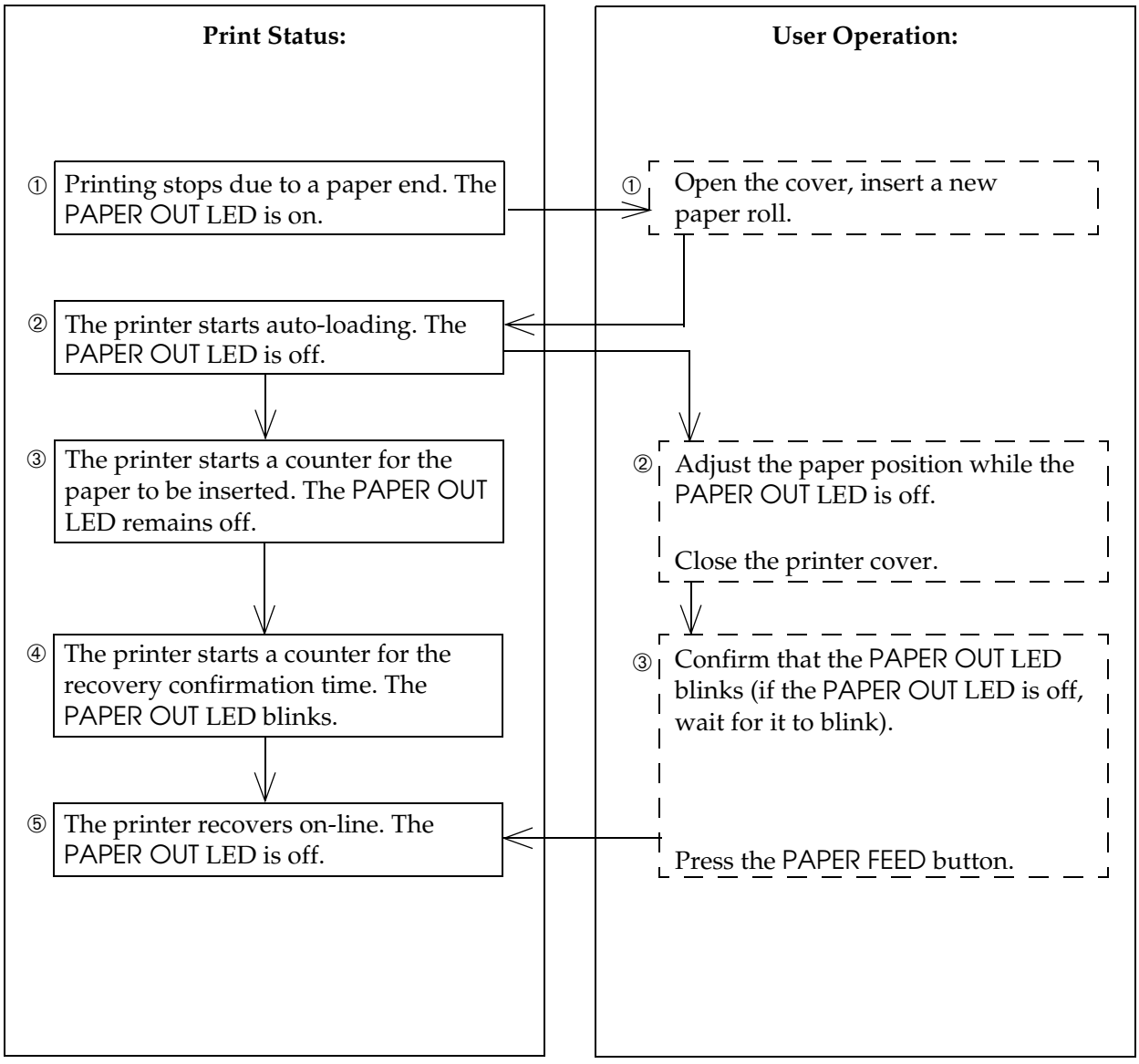
The paper wait time is within ***t1*** × 0.5 seconds from the time the printer finishes loading the paper. During this time, the PAPER OUT LED is off. Paper can be fed by pressing the PAPER FEED button and the printer can be set on-line by using the **DLE ENQ** command.

The recovery confirmation time is within ***t2*** × 0.5 seconds of the end of the paper wait time. During this time, the PAPER OUT LED blinks and paper cannot be fed by pressing the PAPER FEED button. However, the printer can be on-line by pressing the PAPER FEED button. The printer will be on-line when the recovery confirmation time ends or by using the **DLE ENQ** command.

Program Example

```
PRINT #1, CHR$(&H1D);"z0";CHR$ (10); CHR$ (60) ← Sets the paper wait time to 5 seconds and the recovery
                                                  confirmation time to 30 seconds.
```

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, or if the paper near-end sensor (option) is enabled by **ESC c 4** and it detects a near-end.

Printer status ②: → Not printing due to a paper-end
When the sensor detects that a paper roll is inserted, the printer starts auto-loading automatically.

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 auto-loading and the PAPER OUT LED is off. The printer recovery is returned to the on-line status by **DLE ENQ *0***.

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. In this status, the printer cannot feed the paper by the PAPER FEED button, but it can recover on-line by pressing this button. The printer also can recover on-line after the recovery confirmation time, or when **DLE ENQ *0*** is executed.

Printer status ⑤: → Normal operation
The PAPER OUT LED is off, the printer recovers on-line, and it executes normal processing after the on-line recovery wait time (the printer status ③ + ④), when the PAPER FEED button is pressed during the recovery confirmation time, or when **DLE ENQ *0*** is executed.

During the time from ③ to ④ above, bit 0 of the second byte for the ASB or bit 5 of the printer status for the **DLE EOT** command is "waiting for on-line recovery".

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.

Character Code Tables

SP in a table represents space.

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	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	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	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	ー 176	タ 192	ミ 208	二 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	ァ 167	キ 183	ヌ 199	ラ 215	◤ 231	秒 247
8	1000	┆ 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	Ò 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

Page 4 (PC863: Canadian-French)

	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	≥ 242
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	⌐ 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

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	Pt 158	« 174	╛ 190	╬ 206	▐ 222	∈ 238	■ 254
F	1111	Å 143	ƒ 159	¤ 175	┐ 191	╧ 207	▀ 223	∩ 239	SP 255

International character set:

Country	ASCII code (hexadecimal)												
	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	^	`	æ	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	æ	ø	å	ü
Denmark II		#	$	É	Æ	Ø	Å	Ü	é	æ	ø	å	ü

Using Character Code Tables

The example below uses Page 0 (PC437) (see page 1-37) 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

Receipt Issuing

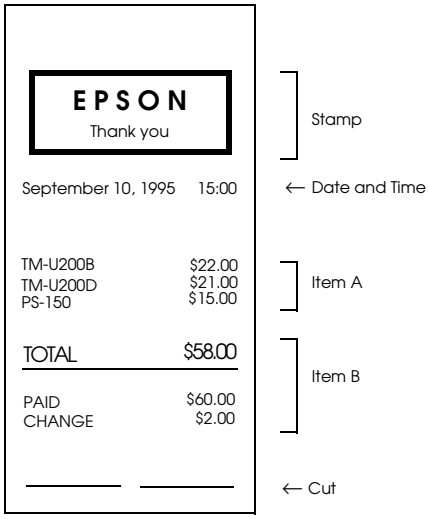
This section presents examples illustrating the functioning of the ESC/POS commands and an actual print sample.

Procedure for Receipt Issuing Using the TM-U200B

Procedure	Commands used	Description
1. Stamp printing	**ESC 3**, **ESC a**, **ESC t**, **ESC !**, **ESC U**, **ESC 2**, **LF**, **CR**	Specifies a print position to the center by using the **ESC a** command. Changes the character code table by using the **ESC t** command, and prints a stamp date in the center of the paper roll in the unidirection. Adjusts line spacing for a 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 t**, **ESC !**, **LF**	Selects the character code table page 1 by using the **ESC t** command, the 7 x 9 font by using the **ESC !** command, and prints the Item A.
4. Print Item B	**ESC !**, **ESC U**, **LF**	Specifies double-height by using the ESC ! command, and prints "TOTAL" in the unidirection. Cancels the 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.

Print Sample

Print Sample



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, "September 10, 1995  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               $22.00"; CHR$(&HA);
PRINT #1, "TM-U200D               $21.00"; CHR$(&HA);
PRINT #1, "PS-150                 $15.00"; CHR$(&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

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
     READ d$: PRINT #1, CHR$ (VAL ("&H"+d$));
NEXT I

PRINT #1, CHR$ (&H1B);"!"; CHR$ (32);← Cancels double-height and double-width modes
FOR I = 1 TO 19
     READ d$: PRINT #1, CHR$ (VAL ("&H"+d$));
NEXT I : PRINT #1, CHR$(&HD);
```

Prints date and time

Item A

Item B

Prints stamp

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$(&HB);"U";CHR$(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 B5, B6, B2, B1, B9, DE, B1, D8, B6, DE, C4, B3, BA, DE, BB, DE,
     B2, CF, BD
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