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MODEL : LK-T210

Receipt Printer User's Manual



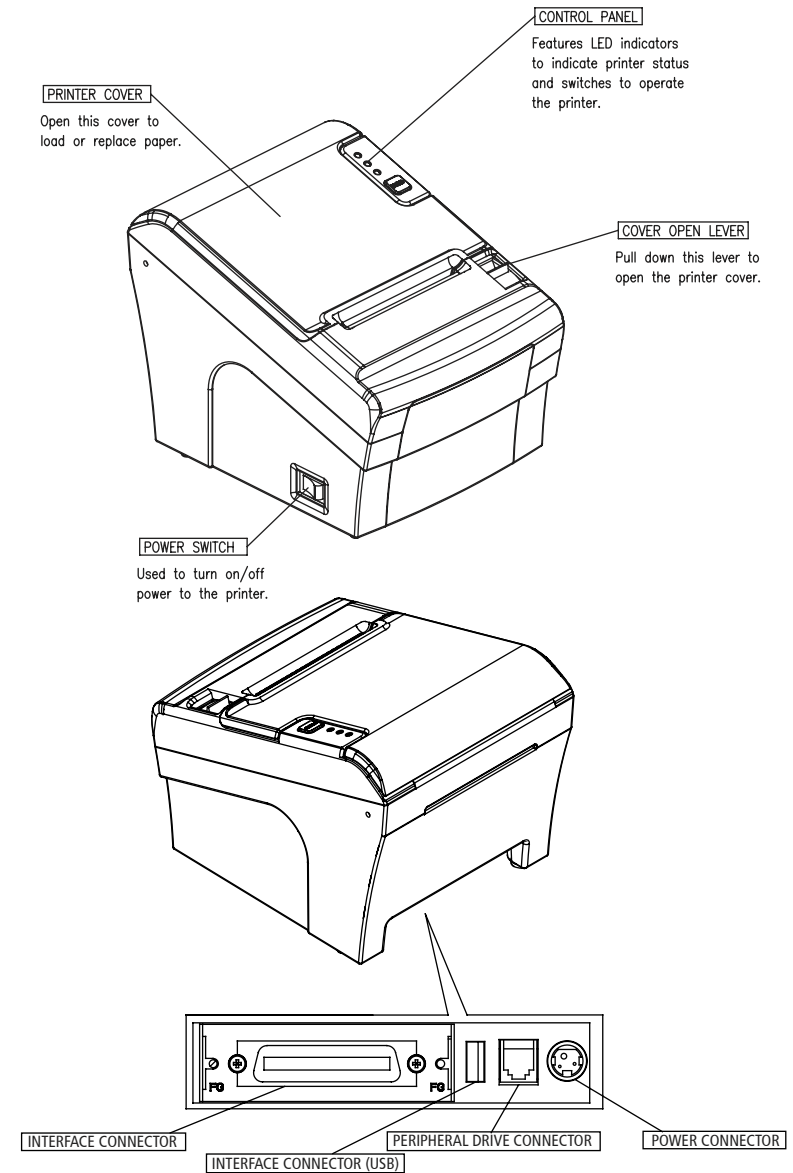
Disposal of Old Electrical&Electronic Equipment(Applicable in the European Union and other European countries with separate collection systems)

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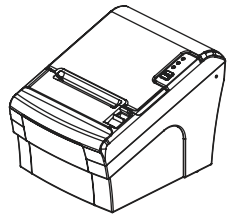
1. Parts Identifications



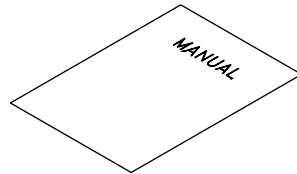
2. Setting Up the Printer

2-1. Unpacking

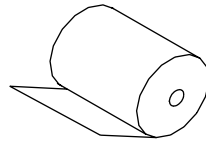
Your printer box should include these items. If any items are damaged or missing, please contact your dealer for assistance.



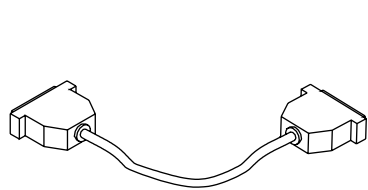
The Printer



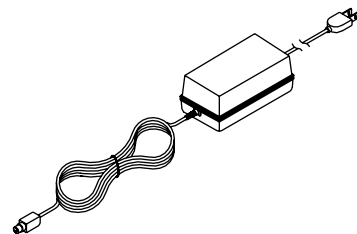
User's Manual



Roll Paper



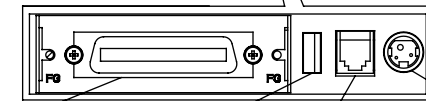
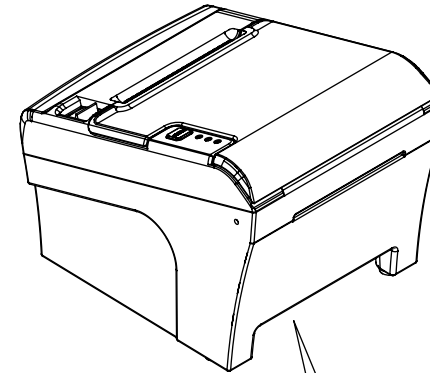
Interface Cable(optional)



Adaptor(option)

2-2. Connecting the Cables

You can connect up the cables required for printing to the printer. They all connect to the connector panel on the back of the printer, which is shown below :



INTERFACE CONNECTOR

For connection to a host computer.

INTERFACE CONNECTOR (USB)

For connection to a host computer.

PERIPHERAL DRIVE CONNECTOR

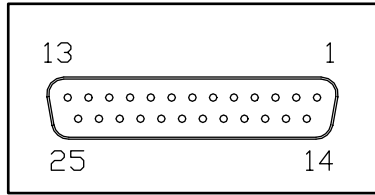
Connects to peripheral units such as cash drawer, etc. Do not connect this to a telephone.

POWER CONNECTOR

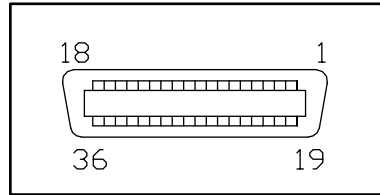
For connection of the AC adapter. Never unplug the AC adapter while the printer is on.

Before connecting any of the cables, make sure that both the printer and the computer are turned off.

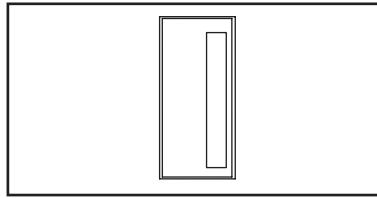
2-2-1. Interface Connector



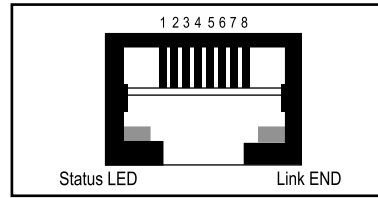
<D-SUB 25 Female Serial>



<Centronics Parallel>



<USB "A" Type>



<Ethernet>

Serial Interface

| PIN | SIGNAL | I/O | DESCRIPTION |
|-------|--------|--------|--|
| 2 | TXD | Output | Printer transmit data line RS-232C level |
| 3 | RXD | Input | Printer receive data line RS-232C level |
| 4, 20 | DTR | Output | Printer handshake to host line RS-232C level |
| 6 | DSR | Input | Data Send Ready |
| 1, 7 | GND | - | System Ground |

USB Interface

| PIN | SIGNAL | I/O | DESCRIPTION |
|-----|--------|-----|----------------------------|
| 1 | +3.3V | - | +3.3V |
| 2 | DATA- | - | Printer transmit data line |
| 3 | DATA+ | - | Printer transmit data line |
| 4 | GND | - | System Ground |

Centronics Parallel Interface

| PIN | SIGNAL | I/O | DESCRIPTION |
|-------|-------------|--------------|--|
| 1 | STROBE- | Input | Synchronize signal Data received |
| 2~9 | DATA 0~7 | Input/Output | Data bit Transmitted 0~7 |
| 10 | ACK- | Output | Data receiving completed. |
| 11 | BUSY | Output | Impossible to print of data receiving. |
| 12 | PE | Output | Paper empty |
| 13 | SELECT | Output | Printer status for ON/OFF line |
| 14 | AUTO FEED- | Input | Paper auto feed signal |
| 15 | GROUND | - | System ground |
| 16 | GROUND | - | System ground |
| 17 | NC | - | |
| 18 | LOGIC-H | - | +3.3V |
| 19~30 | GROUND | - | System ground |
| 31 | INIT- | Input | Initialize |
| 32 | ERROR- | Output | Printer error |
| 33 | GROUND | - | System ground |
| 34 | NC | - | |
| 35 | NC | - | |
| 36 | SELLECT IN- | Input | Printer select signal |

Ethernet Interface

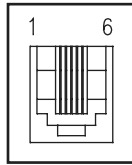
| PIN | SIGNAL | I/O |
|-----|------------|---------------|
| 1 | Data Out + | Output Data + |
| 2 | Data Out - | Output Data - |
| 3 | GND | Ground |
| 4 | Data IN + | Input Data + |
| 5 | Data IN - | Input Data - |
| 6 | N.C | |
| 7 | N.C | |
| 8 | N.C | |

This equipment is indoor use and all the communication wirings are limited to inside of the building.

2-2-2. Cash Drawer Connector

The printer can operate two cash drawers with a 6 pin RJ-11 modular connector.

The driver is capable of supplying a maximum current of 1.0A/24VDC for 510ms or less when not printing.



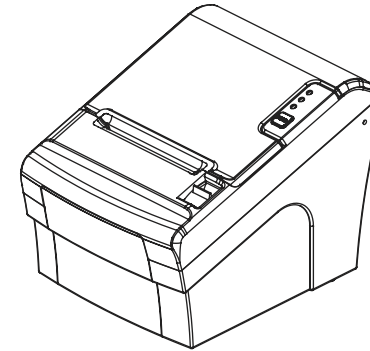
| PIN | SIGNAL | DESCRIPTION |
|-----|--------------------------------|-------------|
| 1 | Signal GND | - |
| 2 | Drawer kick-out drive signal 1 | Output |
| 3 | Drawer open/close signal | Input |
| 4 | +24V | - |
| 5 | Drawer kick-out drive signal 2 | Output |
| 6 | Signal GND | - |

Caution : To avoid an overcurrent, the resistance of the drawer kick-out solenoid must be 24 Ω or more.

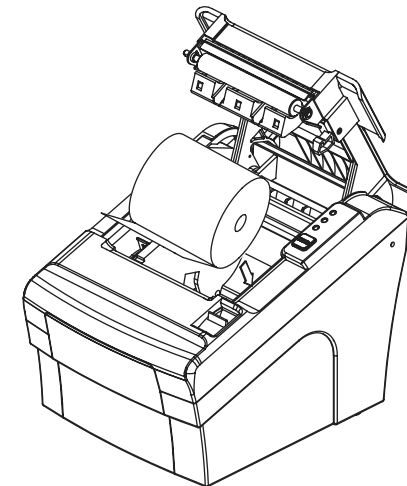
2-3. Loading the Roll Paper

Notes: Be sure to use paper rolls that meet the specifications. Do not use paper rolls that have the paper glued to the core because the printer cannot detect the paper end correctly.
(Turn off power switch)

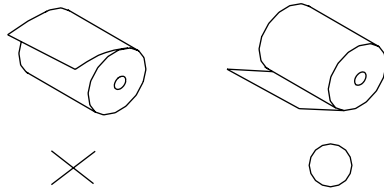
1. Make sure that the printer is not receiving data; Otherwise, data may be lost.
2. Open the paper roll cover by pushing down the cover open button.



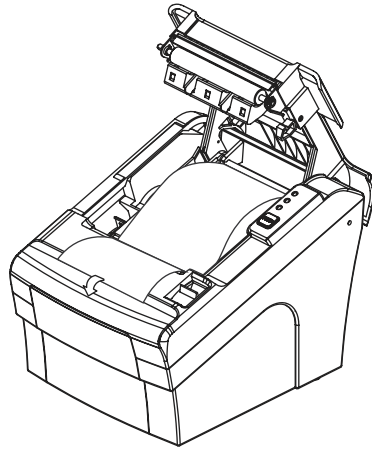
3. Remove the used paper roll core if there is one inside.
4. Insert new paper roll as shown.



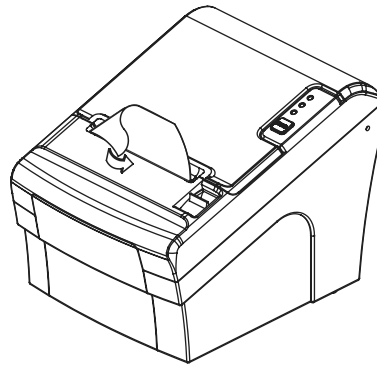
5. Be sure to note the correct direction that the paper comes off the roll.



6. Pull out a small amount of paper, as shown. Then, close the cover.



7. Tear off the paper as shown.



2-4. Dip Switch Setting

The printer is set up at the factory to be appropriate for almost all users. On the other hand, offers some more settings for users with special requirements. It has DIP switches that allow you to change communication setting, such as handshaking and parity check, as well as print density. Your printer has two sets of DIP switches. The functions of the switches are shown in the following tables.

♣Note : Power off. And open the cover of Dip Switch and change setting.

2-4-1. Serial Interface Specification

DIP Switch Setting (Standard)

| SW | FUNCTION | ON | OFF |
|----|----------------|------------------|---------------|
| 2 | Hexadecimal | HEXDUMP | NORMAL |
| 5 | Cut Mode | Full Cut | Partial Cut |
| 6 | Handshaking | XON/XOFF | DTR/DSR |
| 8 | Paper Low Mode | Paper Low Detect | Do not detect |

Print Density

| Function | SW-3 | SW-4 |
|-----------|------|------|
| Low Power | ON | ON |
| Normal | OFF | ON |
| Normal | ON | OFF |
| Dark | OFF | OFF |

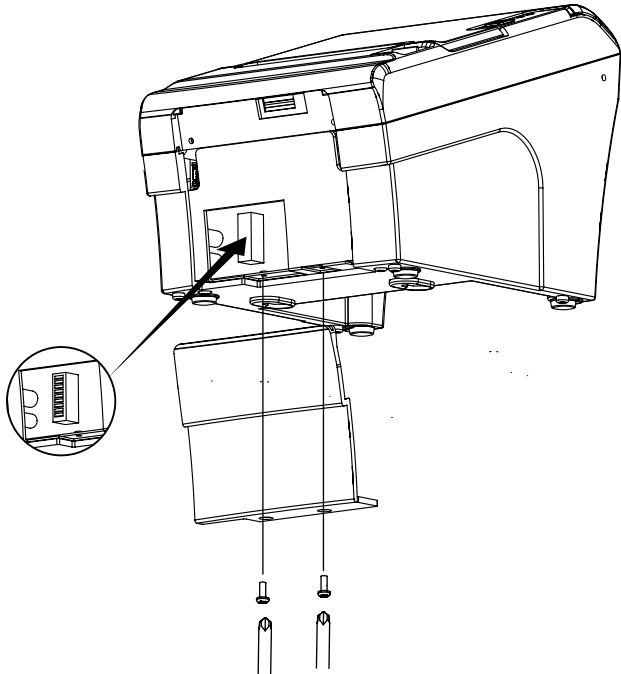
Baud rate selection

| Transmission Speed | SW-9 | SW-10 |
|--------------------|------|-------|
| 115200 BPS | ON | ON |
| 9600 BPS | OFF | ON |
| 19200 BPS | ON | OFF |
| 38400BPS | OFF | OFF |

♣ CAUTION:

Turn off the printer while removing the DIP switch cover to prevent an electric short, which can damage the printer.

1. Make sure the printer is turned off.
2. Remove the screw from the DIP switch cover. Then, take off the DIP switch cover as shown in the illustration below.



3. Set the switches using a pointed tool, such as tweezers or a small screwdriver.
4. Replace the DIP switch cover. Then, secure it with the screw.

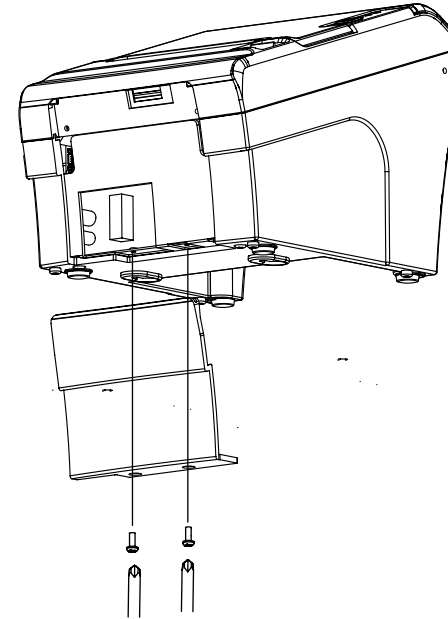
The new settings take effect when you turn on the printer.

♣ CAUTION:

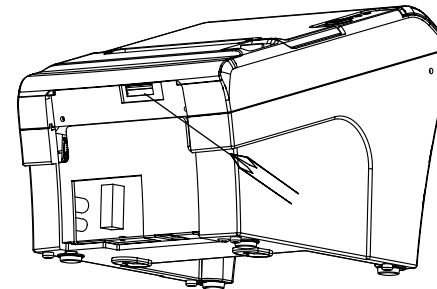
When the paper is jammed with cutter, the top cover might be stuck. In this case, repeat power on and off several times.

If the top cover is still stuck, please follow the steps to release the papers from jamming.

1. Make sure the printer is turned off.
2. Remove the screw from the DIP switch cover. Then, take off the DIP switch cover as shown in the illustration below.



3. Turn screw with drivers to a direction until paper is released from the cutter.

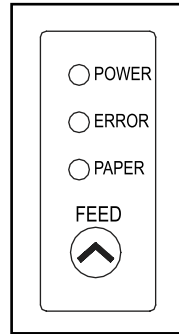


3. Control panel and other functions

3-1. Control panel

You can control the basic paper feeding operations of the printer with the button on the control panel. The indicator lights help you to monitor the printer's status.

Control Panel



Button

The button can be disabled by the ESC c 5 command.

Press the FEED button once to advance paper one line. You can also hold down the FEED button to feed paper continuously.

3-2. Error indicators

This section explains the different patterns signaled by the three LED indicators located on the top cover of the printer.

| STATUS | PAPER | ERROR | POWER | REMARKS |
|----------------|-------|-------|-------|---|
| | RED | RED | GREEN | |
| Power off | OFF | OFF | OFF | Normal power is not supplied to the printer |
| Power on | OFF | OFF | ON | Normal power is supplied to the printer |
| On line | OFF | OFF | ON | Normal error-free mode |
| Cover open | OFF | ON | ON | Close cover |
| Paper empty | OFF | ON | ON | Insert new paper roll |
| Paper near end | ON | OFF | ON | Paper is low |
| Test mode | OFF | OFF | ON | Ignored error led |

4. Self Test

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

Running the self test

1. Make sure the printer is turned off and the printer cover is closed properly.
2. While holding down the FEED button, turn on the printer using the switch on the front of the printer to begin the self-test. The Self Test prints the printer settings and then prints the following, Cuts the paper, and pauses. (Error LED On)

Self-test printing

Please press the PAPER FEED button.

3. Press the FEED button to continue printing.
The printer prints a pattern using the built-in character set.
4. The self test automatically ends and cuts the paper after printing the following.

***** Completed *****

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

5. Hexadecimal Dump

This feature allows experienced users to see exactly what data is coming to the printer. This can be useful in finding software problems.

When you turn on the hex dump function, the printer prints all commands and other data in hexadecimal format along with a guide section to help you find specific commands.

To use the hex dump feature, follow these steps

1. After you make sure that the printer is off and Dip s/w 1-2 is ON, turn on the printer.
2. Run any software program that sends data to the printer. The printer prints "Hexadecimal Dump" and then all the codes it receives in a two-column format. The first column contains the hexadecimal codes and the second column gives the ASC II characters that correspond to the codes.

Hexadecimal Dump

```
1B 21 00 1B 26 02 40 40 !..& . @ @
```

```
1B 25 01 1B 63 34 00 1B .%.. c4 ..
```

```
41 42 43 44 45 46 47 48 ABCDEFGH
```

A period (.) is printed for each code that has no ASC II equivalent.

3. Turn off the printer, and make sure that Dip sw 1-2 off.

4. Turn on the printer.

6. Specifications

Appendix A : Specifications

6-1. General Specifications

- (1) Printing Method Direct line thermal printing.

- (2) Print speed 200mm/sec.

- (3) Dot density

| | |
|---------------------|-----------------------------------|
| 180 DPI (Hor / Ver) | 180 / 180 (0.142mm / 0.142mm dot) |
|---------------------|-----------------------------------|

- (4) Printing Width

| | |
|---------|---------------------|
| 180 DPI | Max 72mm (512 dots) |
|---------|---------------------|

- (5) Number of print columns.

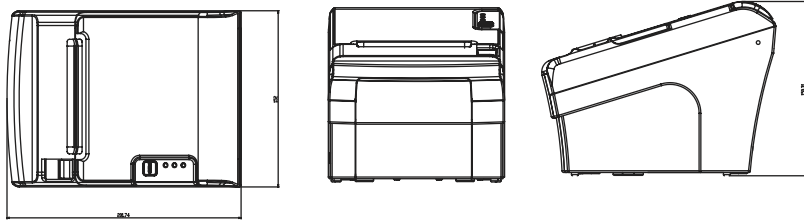
No. of columns

| | Font "A" | Font "B" |
|---------|----------|----------|
| 180 DPI | 42 | 56 |

- (6) Roll paper Refer to chapter 2 for details on the recommended roll Paper.
Paper width : 50mm~82.5mm
Roll diameter : Max. Ø83mm

- (7) Weight 3.75 lbs (1.7Kg)

(8) Overall dimension



6-2. Auto Cutter Specifications

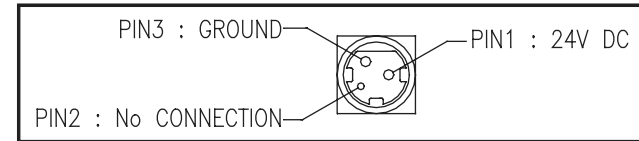
- | | |
|------------------------|-------------------------|
| (1) Cutting Frequency | Max. 30 cuts per minute |
| (2) Thickness of paper | 0.06 ~ 0.09 mm |
| (3) Cutter Life | 1.5 million cuttings |

6-3. Interface

RS232C Serial Interface, Centronics Parallel Interface(IEEE1284), USB Interface
USB COMBO Interface, Ethernet Interface(10Mbps), Wi-fi(802.11b)

6-4. Electrical Characteristics

- | | |
|-------------------------|---|
| (1) Input Voltage | DC 24V \pm 10% |
| (2) Current Consumption | Operating: Approx. 1.5 A (at ASC II printing) Peak : Approx. 10 A (at print duty 100%, For 10 seconds or less) Stand-by : Approx. 0.15 A |
| (3) Power Connector | |



♣ Important!

When connecting or disconnecting the power supply from the printer, be sure that the following cautions are observed.

- (1) Use a power supply (Limited Power Supply) of DC 24V±10% and more than 2.5A.
- (2) Be careful about installing the printer in an area where there is noise.
- (3) Take the appropriate measure to protect against electrostatic AC line noise, etc.

6-5. Environmental Requirements

(1) Operating

Temperature 5°C to 40°C
Humidity 10% to 90% RH (without condensation)

(2) Transport/Storage (except paper)

Temperature -20°C to 60°C
Humidity 10% to 90% RH (without condensation)

6-6. Reliability

- (1) MCBF
60 million lines (based on an average printing rate of 12.5% with paper thickness in the range of from 65µm - 75µm)
35 million lines (based on an average printing rate of 12.5% with paper thickness in the range of from 76µm - 150µm)
- (2) Head Life 160Km
- (3) Cutter Life 1.5 million cuttings (if the paper thickness is between 65 and 90µm)

6-7. Certification

- (1) FCC PART15 CLASS A
- (2) UL/cUL (UL 60950-1)
- (3) MIC
- (4) CE-EMCD (CE-EMCD Class B should use Parallel shield Cable complied with IEEE-1284 standards)
- (5) RoHS (TUV)
- (6) CCC

7. Command List

| No. | Command | Function | REMARKS |
|-----|---------|--|---------|
| 1 | HT | Horizontal tab | |
| 2 | LF | Print and line feed | |
| 3 | CR | Print and carriage return | |
| 4 | FF | Print and return to standard mode(in page mode) | |
| 5 | CAN | Cancel print data in page mode | |
| 6 | DLE EOT | Real-time status transmission | |
| 7 | DLE ENQ | Real-time request to printer | |
| 8 | DLE DC4 | Generate pulse at real-time | |
| 9 | ESC FF | Print data in page mode | |
| 10 | ESC SP | Set right-side character spacing | |
| 11 | ESC ! | Select print mode(s) | |
| 12 | ESC \$ | Set absolute print position | |
| 13 | ESC % | Select/cancel user-defined character set | |
| 14 | ESC & | Define user-defined characters | |
| 15 | ESC * | Set bit-image mode | |
| 16 | ESC - | Turn underline mode on/off | |
| 17 | ESC 2 | Select default line spacing | |
| 18 | ESC 3 | Set line spacing | |
| 19 | ESC = | Select peripheral device | |
| 20 | ESC ? | Cancel user-defined characters | |
| 21 | ESC @ | Initialize printer | |
| 22 | ESC D | Set horizontal tab positions | |
| 23 | ESC E | Turn emphasized mode on/off | |
| 24 | ESC G | Turn double-strike mode on/off | |
| 25 | ESC J | Print and feed paper using minimum units | |
| 26 | ESC L | Select page mode | |
| 27 | ESC M | Select character font | |
| 28 | ESC R | Select an international character set | |
| 29 | ESC S | Select standard mode | |
| 30 | ESC T | Select print direction in page mode | |
| 31 | ESC V | Turn 90° clockwise rotation mode on/off | |
| 32 | ESC W | Set printing area in page mode | |
| 33 | ESC \ | Set relative print position | |
| 34 | ESC a | Select justification | |
| 35 | ESC c 3 | Select paper sensor(s) to output paper-end signals | |
| 36 | ESC c 4 | Select paper sensor(s) to stop printing | |
| 37 | ESC c 5 | Enable/disable panel buttons | |
| 38 | ESC d | Print and feed paper n lines | |
| 39 | ESC p | General pulse | |

| No. | Command | Function | REMARKS |
|-----|-----------------|---|---------|
| 40 | ESC t | Select character code table | |
| 41 | ESC { | Turn upside-down printing mode on/off | |
| 42 | FS p | Print NV bit image | |
| 43 | FS q | Define NV bit image | |
| 44 | GS ! | Select character size | |
| 45 | GS \$ | Set absolute vertical print position in page mode | |
| 46 | GS * | Define downloaded bit image | |
| 47 | GS / | Print downloaded bit image | |
| 48 | GS B | Turn white/black reverse printing mode on/off | |
| 49 | GS H | Select printing position of HRI characters | |
| 50 | GS I | Transmit printer ID | |
| 51 | GS L | Set left margin | |
| 52 | GS P | Set horizontal and vertical motion units | |
| 53 | GS V | Select cut mode and cut paper | |
| 54 | GS W | Set printing area width | |
| 55 | GS \ | Set relative vertical print position in page mode | |
| 56 | GS a | Enable/disable Automatic Status Back(ASB) | |
| 57 | GS f | Select font for HRI characters | |
| 58 | GS h | Set bar code height | |
| 59 | GS k | Print bar code | |
| 60 | GS r | Transmit status | |
| 61 | GS v 0 | Print raster bit image | |
| 62 | GS w | Set bar code width | |
| | | | |
| | | | |
| | < Add > | | |
| 1 | ESC i | Full cut | |
| 2 | ESC m | Partial cut | |
| 3 | FS ! | Set print mode(s) for Kanji characters | |
| 4 | FS & | Select Kanji character mode | |
| 5 | FS - | Turn underline mode on/off for Kanji character | |
| 6 | FS . | Cancel Kanji character mode | |
| 7 | FS 2 c1 d1...dk | Define user-defined Kanji characters | |
| 8 | FS C | Select Kanji character code system | |
| 9 | FS S 1 2 | Set Kanji character spacing | |
| 10 | FS W | Turn quadruple-size mode on/off for Kanji character | |
| 11 | RS | Beep Sound | |