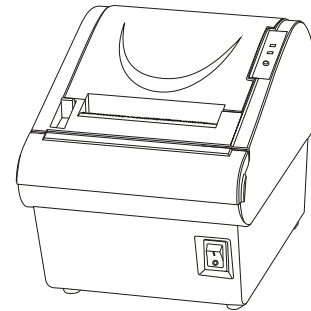Jus'Print

# RP-3180
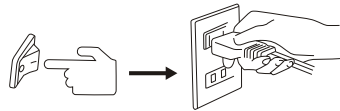MINI Thermal
Printer
USER'S MANUAL

TVS Electronics Limited

# NOTICE
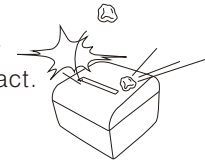
You must use the supplied adapter only. It is dangerous to use other adapters.
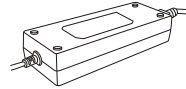
Make sure the printer power is off before plug or unplug the cable.

Please don't place the printer in humidity or dusty space, excessive humidity and dust may damage it.

Do not put foods or drinks on the printer, in case that splash into the printer.

The print head has a high temperature after work. Please don't touch the print head or touch the motor shell in case scalded.

Avoid external impact when operating, do not fall the printer down and avoid vigorously impact.

Do not plug or unplug with your hands wet. You can be electrocuted.

Avoid magnetic objects near the printer.

Don't use tweezers, knife, screwdriver or other hard objects touch the heating piece; for the heating piece will be hurt eternally.
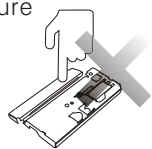
Do not put printer on unstable surface.

# INTRODUCTION

The RP-3180 Thermal Printer is designed for use with electronic instruments such as system ECR, POS, banking equipment, computer peripheral equipment, etc.

The main features of the printer are as follows:
1. High speed printing: 180mm per second max.
2. Low noise thermal printing.
3. RS-232, Parallel, USB interface Selectable.
4. The data buffer allows the unit to receive print data even during printing.
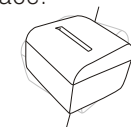5. Peripheral units drive circuit enables control of external devices such as cash drawer.
6. Bar code printing is possible by using a bar code command.
7. Support auto Store Logo or Hello Logo printing.
8. Enable to change some functions by DIP Switch.

Please be sure to read the instruction in this manual carefully before using your new RP-3180.

---

## ⚠ WARNING

Some semiconductor devices are easily damaged by static electricity. You should turn the printer "OFF", before you connect or remove the cables on the rear side, in order to guard the printer against the static electricity. If the printer is damaged by the static electricity, you should turn the printer "OFF".

---

NOTE: The socket-outlet shall be near the equipment and it shall be easy accessible.

All specifications are subjected to change without notice.

# Table of Contents

# Chapter 1. Setting up the Printer

## 1-1. Unpacking

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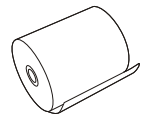
Roll paper

RP-3180

Cable

Or
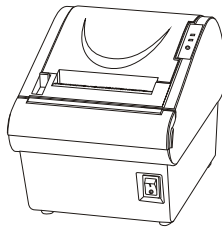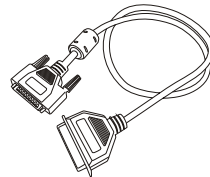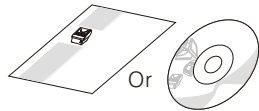
Operator's Manual
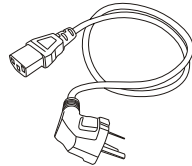
Power cord

AC Adapter

## 1-2. Installing the printer

● Avoid locations in direct sunlight or subject to excessive heat.
● Avoid using or storing the printer in places subject to excessive moisture.
● Do not use or store the printer in a dusty or dirty area. Avoid places subject to intense vibration or shock.
● Choose a stable and flat place for proper use of the printer.
● Make sure that there is enough space around the printer so that it can be used easily.

## 1-3. Using the Printer

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

**Panel lights**

● POWER
  The POWER light(green) is on whenever the printer is on.

● ON LINE
  This light(green) is on when the printer is on line.

POWER

ON LINE

FEED
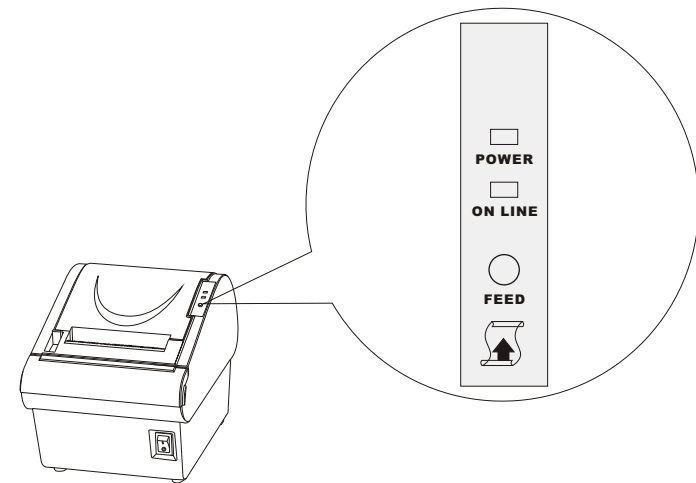
# Chapter 2. Connecting the cables

## 2-1. Connecting the AC Cable
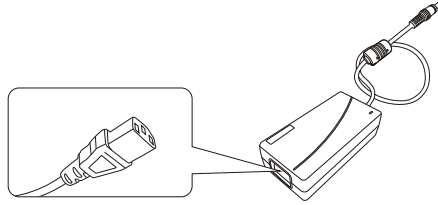
NOTE:To remove the DC cable connector, make sure that the power supply's power cord is unplugged; then grasp the connector at the arrow and pull it straight out.

## 2-2. Connecting the AC adapter to the printer

You can connect up the three cables to the printer. They all connect to the connector panel on the back of the printer, which is shown below:
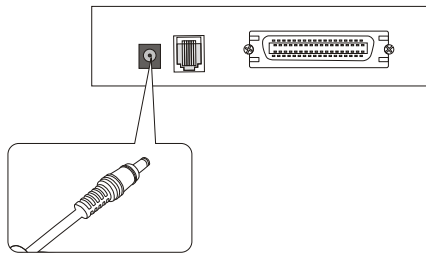
Power Connector Cable

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

## 2-3. Connecting Interface Cable and Drawer Cable to the printer
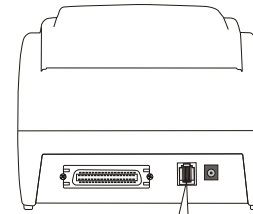
Drawer kick-out Cable                    Interface Connector Cable
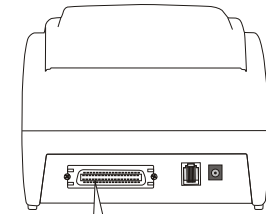
Connect the Host Computer (POS/ECR) to the printer using an interface cable that matches the specifications of the printer and the Host computer (POS/ECR). Be sure to use a drawer that matches the printer's specification.
1). Turn off both the printer and the Host computer (POS/ECR).
2). Plug the interface cable connector into the printer's interface connector, then tighten the screws on both sides of the connector. In case of the parallel interface, squeeze the wire dips on the printer together until they lock in place on both sides of the connector.
3). Plug the drawer cable into the drawer kick-out connector on the back of the printer next to the interface connector. Do not connect a telephone line to the drawer kick-out connector; otherwise the printer and the telephone line may be damaged.
4). Turn on the Printer and Host computer (POS/ECR).

## ⚠ WARNING

When connecting or disconnecting the power supply from the printer, make sure that the power supply is not plugged into an electrical outlet. Otherwise you may damage the power supply or the printer.
If the power supply`s rated voltage and your outlet`s voltage do not match, contact your dealer for assistance. Do not plug in the power cord. Otherwise, you may damage the power supply or the printer.

# Chapter 3. Installing the roll paper

## 3-1. Installing or Replacing the Paper Roll

1. Make sure that the printer is not receiving data; otherwise, data may be lost.
2. Open the paper roll cover by pressing the cover-open button.
3. Remove the used paper roll core if there is one.
4. Insert the 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.



**A**

**B**

**C**
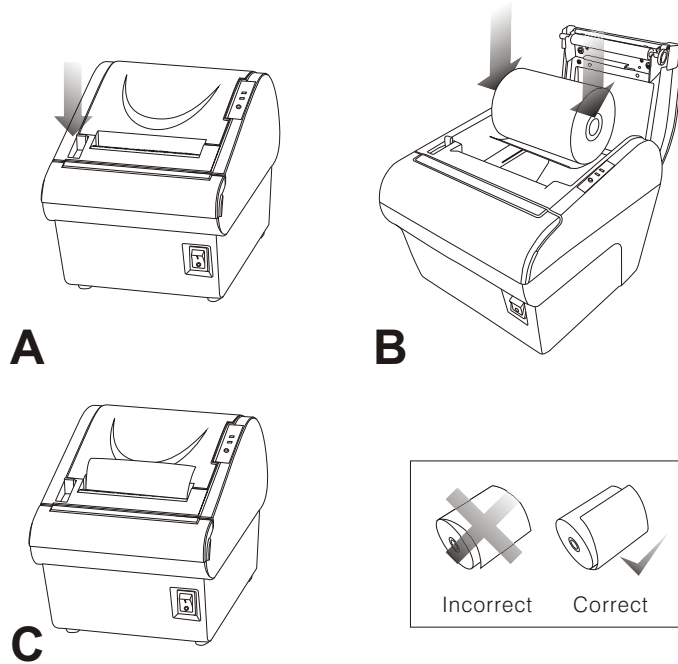
Incorrect    Correct

NOTE: 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.

NOTE: Do not open the print cover while the printer is operating. This may damage the printer.

NOTE: When closing the cover, press the center of printer cover firmly to prevent paper miss-loading

## 3-2. Removing Jammed Paper

1. Turn the printer off and press the cover open button.
2. Remove jammed paper, reinstall the roll, and close the cover.
3. If paper is caught in the cutter and you cannot open the printer cover, open the cutter cover as shown in A.
4. Open the cutter cover.
5. Turn the knob (as shown in B). Until the cutter blade to the normal position.



**B**

**A**
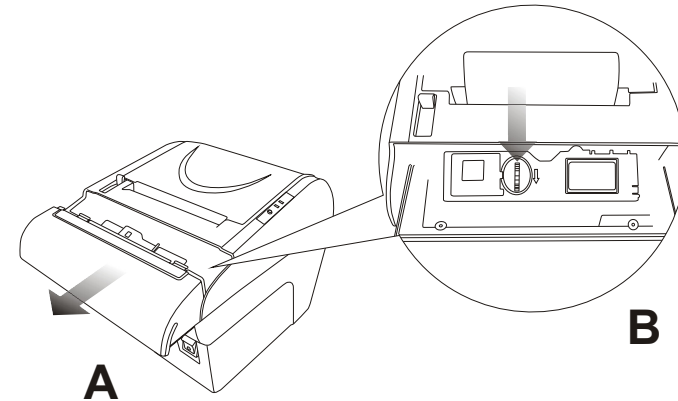
6. Close the cutter cover.
7. Open the printer cover and remove the jammed paper.

NOTE: Do not touch the print head because it can be very hot after printing.

## 3-3. Cleaning the Print Head

Turn off the printer, open the paper roll cover, and clean the thermal elements of the print head with a cotton swab moistened with an alcohol solvent (ethanol, methanol, or IPA).
Recommends cleaning the thermal head periodically (generally every 3 months) to maintain receipt print quality.

NOTE: After printing, the print head can be very hot. Be careful not to touch it and to let it cool before you clean it. Do not damage the print head by touching it with your fingers or any hard object.

# Chapter 4. The self test

The self-test checks whether the printer has any problems. If the printer does not function properly, contact your dealer.
1. Make sure paper roll has been installed properly.
2. Turn on the power while holding down the FEED button. The self-test begins.
3. The printer is ready to receive data when it completes the self-test.

# Chapter 5. Hexadecimal Dumping

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 hexadecimal dump function, the printer prints all commands and data in hexadecimal format along with a guide section to help you find specific commands.
To use the hexadecimal dump function, follow these steps:
1. Make sure that there is a roll paper in the printer.
2. After you make sure that the printer is off.
3. Turn on the power while holding down the on line button, the printer enters the hexadecimal dump mode.
4. Run any software program that sends data to the printer. The printer will print all the codes it receives in a two-column format. The first column contains the hexadecimal codes and the second column gives the ASCII characters that correspond to the codes.

# Chapter 6. DIP Switch Functions

There is a DIP Switch on the bottom of printer. It is easy to change some functions of the printer through setting DIP pins to [On] or [Off].

The default setting for all DIP pins are [ON] Position.

Note: Changes in DIP switch settings are recognized only when the printer power is turned on or when the printer is reset by using the interface. If the DIP switch setting is changed after the printer power is turned on, the change does not effect until the printer is turned on again or is reset.
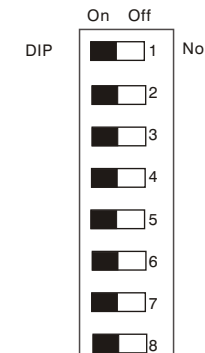
| DIP No | ON/OFF | Function |
|---|---|---|
| | On & On | 96000bps |
| DIP1 & DIP2 | On & Off | 19200bps |
| Baud Rate select | Off & On | 38400bps |
| | Off & Off | 115200bps |
| DIP3 | On | Beeper enable |
| Beeper enable / disable | Off | Beeper disable |
| DIP4 | On | Print Density Light |
| Print Density | Off | Print Density Dark |
| DIP5 | On | Auto-cutter enable |
| Auto-cutter enable / disable | Off | Auto-cutter disable |
| DIP6 | On | Font: 12x24 |
| Default font size select | Off | Font: 9x17 |
| DIP7 | | Reserved |
| DIP8 | | Reserved |
| | | |
| | | |

# Chapter 7.Interface

## RS-232C Cable Connection



PRINTER SIDE(25P) ... HOST SIDE(9P)

| (F.G) 1 | 1 (F.G) |
| (TXD) 2 | 3 (TXD) |
| (RXD) 3 | 2 (RXD) |
|  | 7 (RTS) |
|  | 8 (CTS) |
| (DSR) 6 | 6 (DSR) |
| (DTR) 20 | 4 (DTR) |
| (S.G) 7 | 5 (S.G) |
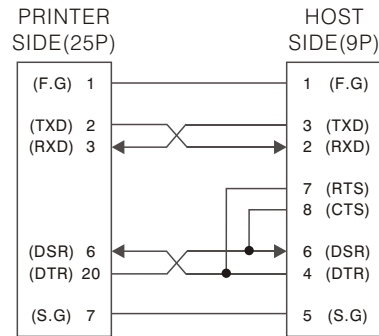
## Interface Connector
## Serial Interface (RS-232)

| Pin No. | Signal name | Direction | Function |
|---|---|---|---|
| 1 | FG | - | Frame Ground |
| 2 | TxD | Output | Transmit Data |
| 3 | RxD | Input | Receive Data |
| 4 | RTS | Output | Ready To Send |
| 5 | CTS | Input | Clear To Send |
| 6 | DSR | Input | Date Set Ready |
| 7 | SG | - | Signal Ground |
| 20 | DTR | Output | Data Terminal Ready |

## Drawer Connector



1  6
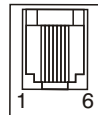
| Pin No. | Signal name | Direction |
|---|---|---|
| 1 | Frame ground | - |
| 2 | Drawer Kick-out drive signal 1 | Output |
| 3 | Drawer open/close signal | Input |
| 4 | +24V | - |
| 5 | Drawer Kick-out drive signal | Output |
| 6 | Signal ground | - |

## Parallel Interface (IEEE-1284)

| Pin No. | Source | Compatibility Mode | Nibble Mode | Byte Mode |
|---|---|---|---|---|
| 1 | Host | nStrobe | HostClk | HostClk |
| 2 | Host/Printer | Data0(LSB) | - | Data0(LSB) |
| 3 | Host/Printer | Data1 | - | Data1 |
| 4 | Host/Printer | Data2 | - | Data2 |
| 5 | Host/Printer | Data3 | - | Data3 |
| 6 | Host/Printer | Data4 | - | Data4 |
| 7 | Host/Printer | Data5 | - | Data5 |
| 8 | Host/Printer | Data6 | - | Data6 |
| 9 | Host/Printer | Data7(MSB) | - | Data7(MSB) |
| 10 | Printer | nAck | PtrClk | PtrClk |
| 11 | Printer | Busy | PtrBusy/Data3,7 | PtrBusy |
| 12 | Printer | Perror | AckDataReq/Data2,6 | AckDataReq |
| 13 | Printer | Select | Xflag/Data1,5 | Xflag |
| 14 | Host | nAutoFd | HostBusy | HostBusy |
| 15 | - | NC | NC | NC |
| 16 | - | GND | GND | GND |
| 17 | - | FG | FG | FG |
| 18 | Printer | Logic-H | Logic-H | Logic-H |
| 19~30 | - | GND | GND | GND |
| 31 | Host | nInit | nInit | nInit |
| 32 | Printer | nFault | nDataAvail/Data0,4 | nDataAvail |
| 33 | - | GND | ND | ND |
| 34 | Printer | Dk_status | ND | ND |
| 35 | Printer | 5V | ND | ND |
| 36 | Host | nSelectIn | 1284-Active | 1284-Active |

# Chapter 7.Specification

| Printing method | Thermal line printing |
|---|---|
| Dot density | 203 dpi×203 dpi (8×8 dots/mm) |
| Printing width | 72 mm {2.83"}, 576 dot positions |
| Characters per line | 48 (default) or 72 |
| Character size | 1.25 × 3.00 mm |
| Number of characters | Alphanumeric characters: 95 |
| Print speed | Approx. 150 mm/s {5.9"/s} max.; 47.2 lps, max. (3.18 mm {1/8"} feed); 35.5lps, max. (4.23 mm {1/6"} feed, at 24 V, 28℃ {82℉ }, density level 1). Speed is adjusted automatically depending on the voltage applied and head temperature. |
| Paper feed speed | Approx. 180 mm/s continuous paper feed |
| Line spacing (default) | 4.23 mm {1/6"} |
| Character structure | 12 x 24 or  9 x 17 |
| Paper roll (single-ply) | Size: Width: 79.5 mm ± 0.5 mm {3.13" ± 0.02"} Maximum outside diameter: 83 mm {3.26"}Paper roll spool diameter: Inside: 12 mm {0.47"}; Outside: 18 mm {0.71"} |
| Interface (compatible) | RS-232C/Bi-directional parallel /USB (OPTION) |
| Receive buffer | 28KB |
| Power supply | + 24 VDC ± 10% |
| Life | Mechanism: 15,000,000 lines Thermal head: 100 million pulses, 100 km Autocutter: 1,500,000 cuts |
| MTBF | 360,000 hours |
| MCBF | 52,000,000 lines |
| Temperature | Operating: 5℃ ~ 45℃ {41℉ ~113℉ } Storage: -10 ℃ ~ 50℃ {14℉ ~122℉ }, except for paper |
| Humidity | Operating: 10 to90% RH Storage: 10 to90% RH, except for paper |
| Overall dimensions | 145(W)×192(D)×142(H)mm |
| Weight (mass) | Approximately:2kg |

# Chapter 8.PRINT CONTROL COMMAND

## 8-1 Command List

| No. | Command | Description | Hexadecimal Code | Page |
|---|---|---|---|---|
| 1 | LF | Printing and paper feed | <0A> | 13 |
| 2 | CR | Back to printing | <0D> | 13 |
| 3 | ESC ! | Select print mode | <1B><21><n> | 13 |
| 4 | ESC * | Specifying the bit image mode | <1B><2A><m><n1><n2>d1...dk | 14 |
| 5 | ESC 2 | Specifying 1/6-inch line feed rate | <1B><32> | 15 |
| 6 | ESC 3 | Setting line feed rate of minimum pitch | <1B><33><n> | 15 |
| 7 | ESC 9 | Generating the specified pulses | <1B><39><m><n1><n2> | 16 |
| 8 | ESC @ | Initializing the printer | <1B><40> | 16 |
| 9 | ESC A | Set line spacing | <1B><41><n> | 16 |
| 10 | ESC D | Select character Double-height mode | <1B><44> | 16 |
| 11 | ESC H | Select character Double-height mode | <1B><48><n> | 17 |
| 12 | ESC I | Select character Double-height mode | <1B><49> | 17 |
| 13 | ESC J | Printing and feeding paper in minimum pitch | <1B><4A><n> | 17 |
| 14 | ESC L | Selecting page mode | <1B><4C> | 17 |
| 15 | ESC V | Printing bit image | <1B><56><n1><n2>d1...dk | 18 |
| 16 | ESC W | Defining the print area in page mode | <1B><57><xL><xH><yL><yH><dxL><dxH> <dyL><dyH> | 18 |
| 17 | ESC X | Select character Double-width mode | <1B><58><n> | 19 |
| 18 | ESC d | Printing and feeding the paper by "n" lines | <1B><64><n> | 20 |
| 19 | ESC I | Full cut | <1B><69> | 20 |
| 20 | ESC j | Printing and feeding paper in minimum pitch | <1B><6A><n> | 20 |
| 21 | ESC m | Partial cut | <1B><6D> | 21 |
| 22 | ESC p | Generating the specified pulses | <1B><70><m><n1><n2> | 21 |
| 23 | ESC M | Select character fonts | <1B><4D><n> | 21 |
| 24 | GS ! | Select character size | <1D><21><n> | 22 |
| 25 | GS * | Defining the download bit image | <1D><2A><n1><n2>d1...dk | 23 |
| 26 | GS / | Printing the downloaded bit image | <1D><2F><m> | 23 |
| 27 | GS V | Cutting the paper | (1)<1D><56><m> (2)<1D><56><m><n> | 24 |
| 28 | GS v 0 | Printing of raster bit image | <1D><76><30><m><xL><xH> <yL><yH>d1...dk | 25 |
| 29 | GS h | Specifying the height of the bar code | <1D><68><n> | 26 |
| 30 | GS k | Printing the bar code | (1)<1D><6B><m>d1...dk<NUL> (2)<1D><6B><m><n>d1...dk | 26 |
| 31 | FS p | Print NV bit image | <1C><70><n> | 27 |
| 32 | FS q | Define NV bit image | <1C><71><n> | 28 |

## 8-2 Descriptions of Each Item

| | |
|---|---|
| [Name] | The name of the command. |
| [Format] | The code sequence. |
| [Range] | Gives the allowable ranges for the arguments. |
| [Description] | Describes the command's function. |
| [Details] | Describes the usage of the command in detail. |
| [Default] | Gives the default values, if any, for the command parameters. |
| [Example] | Gives examples of how to use the command. |

Hex indicates the hexadecimal equivalents.
Decimal indicates the decimal equivalents.

## 8-3 Control Commands

### LF

| | |
|---|---|
| [Name] | Print and line feed |
| [Format] | ASCII    LF |
| | Hex      0A |
| | Decimal  10 |
| [Description] | Prints the data in the print buffer and feeds one line based on the current line spacing. |
| [Details] | This command sets the print position to the beginning of the line. |
| [See Also] | ESC 2, ESC 3 |

### CR

| | |
|---|---|
| [Name] | Print and carriage return |
| [Format] | ASCII    CR |
| | Hex      0D |
| | Decimal  13 |
| [Description] | When automatic line feed is enabled, this command functions the same as LF; |
| | When automatic line feed is disabled, this command is ignored. |
| [Details] | • Sets the print starting position to the beginning of the line. |
| | • The automatic line feed is ignored with a serial interface model. |
| [See Also] | LF |

### ESC ! N

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

[Description]    Selects print mode(s) using n as follows:

| Bit | Off/On | Hex | Decimal | Function |
|---|---|---|---|---|
| 0 | | | | Default font |
| 1 | - | - | - | Undefined |
| 2 | - | - | - | Undefined |
| 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 not selected |
| | On | 20 | 32 | Double-width mode selected |
| 6 | - | - | - | Undefined |
| 7 | - | - | - | Undefined |

| | |
|---|---|
| [Details] | • When both double-height and double-width modes are selected, quadruple size characters are printed. |
| | • The printer can underline all characters. |
| | • When some characters in a line are double or more height, all the characters on the line are aligned at the baseline. |
| | • GS ! can also select character size. However, the setting of the last received command is effective. |
| | • Emphasized mode is effective for alphanumeric and Kanji. All print modes except emphasized mode is effective only for alphanumeric. |
| [Default] | N = 0 |
| [See Also] | GS ! |

### (1)ESC * m n1 n2 d1...dk

| | |
|---|---|
| [Name] | Select bit-image mode |
| [Format] | ASCII    ESC    *    m    n1    n2    d1...dk |
| | Hex      1B    2A    m    n1    n2    d1...dk |
| | Decimal  27    42    m    n1    n2    d1...dk |
| [Range] | $m = 0, 1, 32, 33, 0 \leqslant n1 \leqslant 255, 0 \leqslant n2 \leqslant 3, 0 \leqslant d \leqslant 255$ |
| [Description] | Selects a bit-image mode using m for the number of dots specified by (n1 + n2 x 256). Set a bit to 1 to print a dot, or set a bit to 0 to not print a dot. d indicates the bit image data. The modes selectable by m are as follows: |

| m | Mode | Vertical Direction | | Horizontal Direction | |
|---|---|---|---|---|---|
| | | Number of Dots | Dot Density (dpi) | Dot Density (dpi) | Number of Data (K) |
| 0 | 8-dot single-density | 8 | 60 | 90 | n1 + n2 x 256 |
| 1 | 8-dot double-density | 8 | 60 | 180 | n1 + n2 x 256 |
| 32 | 24-dot single-density | 24 | 180 | 90 | (n1 + n2 x 256) x 3 |
| 33 | 24-dot double-density | 24 | 180 | 180 | (n1 + n2 x 256) x 3 |

[dpi: dots per 25.4 mm {1"}]

[Details]
- If the values of m is out of the specified range, n1 and data following are processed as normal data.
- The n1 and n2 indicate the number of dots of the bit image in the horizontal direction.
  The number of dots is calculated by n1 + n2 x 256.
- If the bit-image data input exceeds the number of dots to be printed on a line, the excess data is ignored.
- d indicates the bit-image data. Set a corresponding bit to 1 to print a dot or to 0 to not print a dot.
- After printing a bit image, the printer returns to normal data processing mode.
- This command is not affected by print modes (emphasized, double-strike, underline, character size or white/black reverse printing), except upside-down printing mode.

## ESC 2

| [Name] | Select default line spacing |
|---|---|
| [Format] | ASCII ESC 2 |
| | Hex 1B 32 |
| | Decimal 27 50 |
| [Description] | Selects approximately 4.23 mm {1/6"} spacing. |
| [Details] | The line spacing can be set independently in standard mode and in page mode. |
| [See Also] | ESC 3 |

## ESC 3 n

| [Name] | Set line spacing |
|---|---|
| [Format] | ASCII ESC 3 n |
| | Hex 1B 33 n |
| | Decimal 27 51 n |
| [Range] | $0 \leqslant n \leqslant 255$ |
| [Description] | Sets the line spacing to [n x vertical or horizontal motion unit]. |
| [Details] | - The line spacing can be set independently in standard mode and in page mode. |
| | - In standard mode, the vertical motion unit (y) is used. |
| | - The maximum paper feed amount is 1016 mm {40"}. Even if a paper feed amount of more than 1016 mm {40"} is set, the printer feeds the paper only 1016 mm {40"}. |
| [Default] | Approx 4.23mm {1/6"}. |
| [See Also] | ESC 2 |

## ESC 9 m n1 n2

| [Name] | Generating the specified pulses |
|---|---|
| [Format] | ASCII ESC 9 m n1 n2 |
| | Hex 1B 39 m n1 n2 |
| | Decimal 27 57 m n1 n2 |
| [Range] | $m = 0, 0 \leqslant n1 \leqslant 255, 0 \leqslant n2 \leqslant 255$ |
| [Description] | The signals specified by n1 and n2 are output to the connector pin specified by m. |

## ESC @

| [Name] | Initialize printer |
|---|---|
| [Format] | ASCII ESC @ |
| | Hex 1B 40 |
| | Decimal 27 64 |
| [Description] | 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. |
| [Details] | - The data in the receive buffer is not cleared. |
| | - The macro definition is not cleared. |
| | - The NV bit image data is not cleared. |
| | - The data of the NV user memory is not cleared. |

## ESC A n

| [Name] | Set line spacing |
|---|---|
| [Format] | ASCII ESC A n |
| | Hex 1B 41 n |
| | Decimal 27 65 n |
| [Range] | $0 \leqslant n \leqslant 255$ |
| [Description] | Sets the line spacing to [n x vertical or horizontal motion unit]. |
| [Details] | - The line spacing can be set independently in standard mode and in page mode. |
| | - In standard mode, the vertical motion unit (y) is used. |
| | - The maximum paper feed amount is 1016 mm {40"}. Even if a paper feed amount of more than 1016 mm {40"} is set, the printer feeds the paper only 1016 mm {40"}. |
| [Default] | Approx 4.23mm {1/6"}. |
| [See Also] | ESC 2 |

## ESC D

| [Name] | Select character Double-height mode |
|---|---|
| [Format] | ASCII ESC D |
| | Hex 1B 44 |
| | Decimal 27 68 |
| [Description] | Select character Double-height mode. |

## ESC H n

| | | | |
|---|---|---|---|
| [Name] | Select character Double-height mode | | |
| [Format] | ASCII | ESC | H | n |
| | Hex | 1B | 48 | n |
| | Decimal | 27 | 72 | n |
| [Range] | $1 \leqslant n \leqslant 8$ | | |
| [Description] | Select character Double-height mode. | | |

## ESC I

| | | | |
|---|---|---|---|
| [Name] | Select character Double-height mode | | |
| [Format] | ASCII | ESC | I |
| | Hex | 1B | 49 |
| | Decimal | 27 | 73 |
| [Description] | Select character Double-height mode. | | |

## ESC J n

[Name]       Print and feed paper
[Format]     ASCII ESC J n
             Hex 1B 4A n
             Decimal 27 74 n
[Range]      0 = n = 255
[Description] Prints the data in the print buffer and feed the paper [n x vertical or horizontal motion unit].
[Details]    ● After printing is completed, this command sets the print starting position to the beginning of the line.
             ● The paper feed amount set by this command does not affect the values set by **ESC 2** or **ESC 3**.
             ● In standard mode, the printer uses the vertical motion unit (y).
             ● The maximum line spacing is 1016mm{40"}. When the setting value exceeds the maximum, it is converted to the maximum automatically.

## ESC L

[Name]       Select page mode
[Format]     ASCII       ESC       L
             Hex          1B        4C
             Decimal      27        76
[Description] Switches from standard mode to page mode.
[Details]    ● This command is enabled only when processed at the beginning of a line in standard mode.
             ● This command has no effect in page mode.
             ● The following command is not available in page mode, Print raster bit image: **GS v 0**
             ● The printer returns to standard mode when power is turned on, the printer is reset, or **ESC @** is used.

## ESC V n1 n2 d1...dk
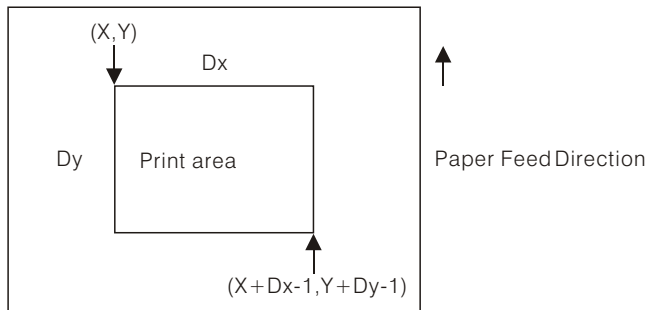
[Name]       Printing bit image
[Format]     ASCII       ESC       V    n1    n2    d1...dk
             Hex          1B        56   n1    n2    d1...dk
             Decimal      27        86   n1    n2    d1...dk
[Range]      $0 \leqslant n1, n2 \leqslant 65535$
[Description] n1, n2: number of dot lines in the vertical direction.
             n1 represents the least significant byte and n2 represents the most significant byte.
             Number of dot lines = n2 x 256 + n1   Ignored when n1 = n2 = 0.
[Details]    ● Enter the image data following n1 and n2. The amount of image data is as follows: Amount of image data = (n2 x 256 + n1) x 72 bytes
             ● The data following n1 and n2 is printed out entirely as image data.
             ● Enter the data from the leftmost of the top dot line to the bottom dot line.
             ● If you specify bit image without entering CR or LF after inputting characters for a range not exceeding one line, the characters of that line and the bit image are overlapped when printed out. At this time, all modifications to characters are valid. Note that the characters are not normally printed out when overlapped unless a value more than the character height is specified by n2 x n1. You can not overlap bit images with stamps or ruler lines.  If you specify bit images, the stamp or the ruler line is suspended.  After the bit image is complete, the print-out of stamps or ruler line restarts.

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

[Name]       Defining the print area in page mode
[Format]     ASC II       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 = xL, xH, yL, yH, dxL, dxH, dyL, dyH = 255
             except for dxL = dxH = 0 or dyL = dyH = 0
[Description] Defines the location and size of the print area.
             ● Horizontal start point = [(xL + xH x 256) x basic calculation pitch] inches
             ● Vertical start point = [(yL + yH x 256) x basic calculation pitch] inches
             ● Horizontal length = [(dxL + dxH x 256) x basic calculation pitch] inches
             ● Vertical length = [(dyL + dyH x 56) x basic calculation pitch] inches
[Details]    ● When standard mode is selected, this command only executes the internal flagging of the printer without affecting the printing in standard mode.
             ● If the horizontal start point or vertical start point is out of the printable area, this command is canceled and the next data is handled as normal data.

- If the horizontal length or vertical length is 0, this command is canceled and the next data is handled as normal data.
- If the "horizontal start point + horizontal length" is greater than the horizontal printable area, the "horizontal printable area - horizontal start point" is taken as the horizontal length.
- If the "vertical start point + vertical length" is greater than the vertical printable area, the "ertical printable area  vertical start point" is taken as the vertical length.
- Fractions resulting from calculations are corrected with the minimum pitch of the mechanism, and the remainder are omitted.
- The horizontal start point and horizontal length are calculated with the basic calculation pitch (x). The vertical start point and vertical length are calculated with the basic calculation pitch (y).
- When the horizontal starting position , vertical starting position, printing area width, and printing area height are defined as X, Y, Dx, and Dy respectively, the printing area is set as shown in the figure below.

```
        (X,Y)
          |      Dx
          v  ┌─────────────┐            ↑
             │             │           ↑
    Dy       │  Print area │      Paper Feed Direction
             │             │
             └──────▲──────┘
                    |
              (X+Dx-1,Y+Dy-1)
```

- This printable area for this printer is approximately 72.2 mm $\{512/180"\}$ in the horizontal direction and approximately 117.3 mm $\{1662/360"\}$ in the vertical direction.

[Default]    $XL = xH = yL = yH = 0$
$dxL = 0, dxH = 2, dyL = 126, dyH = 6$

## ESC  X  n

| [Name] | Select character Double-width mode | | |
|---|---|---|---|
| [Format] | ASCII | ESC | X | n |
| | Hex | 1B | 58 | n |
| | Decimal | 27 | 88 | n |
| [Range] | $1 \leqslant n \leqslant 8$ | | |
| [Description] | Select character Double-width mode. | | |

## ESC  d  n

| [Name] | Print and feed n lines | | |
|---|---|---|---|
| [Format] | ASCII | ESC | d | n |
| | Hex | 1B | 64 | n |
| | Decimal | 27 | 100 | n |
| [Range] | $0 \leqslant n \leqslant 255$ | | |
| [Description] | Prints the data in the print buffer and feeds n lines. | | |

[Details]
- This command sets the print starting position to the beginning of the line.
- This command does not affect the line spacing set by ESC 2 or ESC 3.
- The maximum paper feed amount is 1016 mm $\{40"\}$. If the paper feed amount (n x line spacing) of more than 1016 mm $\{40"\}$ is specified, the printer feeds the paper only 1016 mm $\{40"\}$.

[See Also]    ESC 2, ESC 3

## ESC  I

| [Name] | Full cut | | |
|---|---|---|---|
| [Format] | ASCII | ESC | i |
| | Hex | 1B | 69 |
| | Decimal | 27 | 105 |
| [Description] | Cut the paper fully. | | |

[Details]
- During cutting, printing and paper feeding is stopped.
- This command is valid only when an auto-cutter is connected.

## ESC  j  n

| [Name] | Print and feed paper | | |
|---|---|---|---|
| [Format] | ASCII | ESC | j | n |
| | Hex | 1B | 6A | n |
| | Decimal | 27 | 106 | n |
| [Range] | $0 \leqslant n \leqslant 255$ | | |
| [Description] | Prints the data in the print buffer and feed the paper [n x  vertical or horizontal motion unit]. | | |

[Details]
- After printing is completed, this command sets the print starting position to the beginning of the line.
- The paper feed amount set by this command does not affect the values set by ESC 2 or ESC 3.
- In standard mode, the printer uses the vertical motion unit (y).
- The maximum line spacing is 1016mm $\{40"\}$. When the setting value exceeds the maximum, it is converted to the maximum automatically.

## ESC m

| | |
|---|---|
| [Name] | Partial cut |
| [Format] | ASCII      ESC      m |
| | Hex      1B      6D |
| | Decimal    27      109 |
| [Description] | Cut the paper partially. |
| [Details] | ● During cutting, printing and paper feeding is stopped. |
| | ● This command is valid only when an auto-cutter is connected. |

## ESC p m n1 n2

| | |
|---|---|
| [Name] | Generating the specified pulses |
| [Format] | ASCII      ESC      p      m      n1      n2 |
| | Hex      1B      70      m      n1      n2 |
| | Decimal    27      112      m      n1      n2 |
| [Range] | m = 0, 0 ≤ n1 ≤ 255 , 0 ≤ n2 ≤ 255 |
| [Description] | The signals specified by "n1" and "n2" are output to the connector pin specified by "m". |

## ESC M n

| | |
|---|---|
| [Name] | Select character fonts |
| [Format] | ASCII      ESC      M      n |
| | Hex      1B      4D      n |
| | Decimal    27      77      n |
| [Range] | n = 0,1,48,49 |
| [Description] | Selects character fonts. |

| N | Function |
|---|---|
| 0,48 | Character font A (12 x 24) selected. |
| 1,49 | Character font B (9 x 17) selected. |

| | |
|---|---|
| [Details] | The *ESC !* command can also select the character fonts. However, the setting of the last received command is effective. |

## GS ! N

| | |
|---|---|
| [Name] | Select character size |
| [Format] | ASCII      GS      !      n |
| | Hex      1D      21      n |
| | Decimal    29      33      n |
| [Range] | 0 ≤ n ≤ 255 |
| | (1 ≤ vertical number of times ≤ 8, 1 ≤ horizontal number of times ≤ 8) |
| [Description] | Selects the character height using bits 0 to 2 and selects the character width using bits 4 to 7, as follows: |

| Bit | Function | Hex Number | Decimal Number |
|---|---|---|---|
| 0 | | | |
| 1 | Character height selection. See Table 2 | | |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | Character width selection. See Table 1 | | |
| 6 | | | |
| 7 | | | |

Table 1 Character Width Selection

| Hex | Decimal | Width |
|---|---|---|
| 00 | 0 | 1 x (Standard) |
| 10 | 16 | 2 x (Double width) |
| 20 | 32 | 3 x |
| 30 | 48 | 4 x |
| 40 | 64 | 5 x |
| 50 | 80 | 6 x |
| 60 | 96 | 7 x |
| 70 | 112 | 8 x |

Table 2 Character Height Selection

| Hex | Decimal | Width |
|---|---|---|
| 00 | 0 | 1 x (Standard) |
| 01 | 1 | 2 x (Double height) |
| 02 | 2 | 3 x |
| 03 | 3 | 4 x |
| 04 | 4 | 5 x |
| 05 | 5 | 6 x |
| 06 | 6 | 7 x |
| 07 | 7 | 8 x |

| | |
|---|---|
| [Details] | ● If n is outside of the defined range, this command is ignored. |
| | ● In standard mode, the vertical direction is the paper feed direction, and the horizontal direction is perpendicular to the paper feed direction. However, when character orientation changes in 90. clockwise-rotation mode, the relationship between vertical and horizontal directions are reversed. |
| | ● In page mode, vertical and horizontal directions are based on the character orientation. |
| | ● When characters are enlarged with different sizes on one line, all the characters on the line is aligned at the baseline. |
| | ● The ESC ! command can also turn double-width and double-height modes on or off. However, the setting of the last received command is effective. |
| [Default] | n = 0 |
| [See Also] | ESC ! |

## GS * n1 n2 d1...d(n1 x n2 x 8)

| | |
|---|---|
| [Name] | Define downloaded bit image |
| [Format] | ASCII    GS    *    n1    n2    d1...d(n1 x n2 x 8) |
| | Hex    1D    2A    n1    n2    d1...d(n1 x n2 x 8) |
| | Decimal    29    42    n1    n2    d1...d(n1 x n2 x 8) |
| [Range] | $1 \leq n1 \leq 255, 1 \leq n2 \leq 48, n1 \times n2 \leq 1536, 0 \leq d \leq 255$ |
| [Description] | Defines a downloaded bit image using the number of dots specified by n1 and n2. |

- n1 specifies the number of dots in the horizontal direction.
- n2 specifies the number of dots in the vertical direction.

[Details]
- The number of dots in the horizontal direction is n1 x 8, in the vertical direction it is n2 x8.
- If n1 x n2 is out of the specified range, this command is disabled.
- The d indicates bit-image data. Data (d) specifies a bit printed to 1 and not printed to 0.
- The downloaded bit image definition is cleared when:
  1. ESC @ is executed.
  2. Printer is reset or the power is turned off.
- The following figure shows the relationship between the downloaded bit image and the printed data.
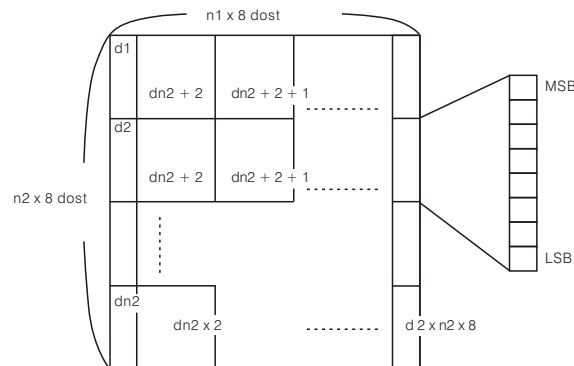


[See Also]    GS /

## GS / m

| | |
|---|---|
| [Name] | Print downloaded bit image |
| [Format] | ASCII    GS    /    m |
| | Hex    1D    2F    m |
| | Decimal    29    47    m |
| [Range] | $0 \leq m \leq 3, 48 \leq m \leq 51$ |
| [Description] | Prints a downloaded bit image using the mode specified by m. |
| | Modes that can be selected by "m" are shown below. |

| m | Mode Name | Dot Density in Vertical Direction | Dot Density in Horizontal Direction |
|---|---|---|---|
| 0,48 | NORMAL MODE | 203 DPI | 203 DPI |
| 1,49 | DOUBLE WIDTH MODE | 203 DPI | 101 DPI |
| 2,50 | DOUBLE HEIGHT MODE | 101 DPI | 203 DPI |
| 3,51 | QUADRUPLE SIZE MODE | 101 DPI | 101 DPI |

[Details]
- When data exist in the print buffer, this command is ignored.
- When a downloaded bit image has not been defined, this command is ignored.
- A portion of a downloaded bit image exceeding one line length is not printed.
- A downloaded character and a downloaded bit image cannot be defined simultaneously.

[See Also]    GS *

## (1) GS V m
## (2) GS V m n

| | |
|---|---|
| [Name] | Select cut mode and cut paper |
| [Format] | (1) ASCII    GS    V    m |
| |     Hex    1D    56    m |
| |     Decimal    29    86    m |
| | (2) ASCII    GS    V    m    n |
| |     Hex    1D    56    m    n |
| |     Decimal    29    86    m    n |
| [Range] | (1) m = 1 , 49 |
| | (2) m = 66, $0 \leq n \leq 255$ |
| [Description] | Performs the specified paper cutting. |

| m | Print mode |
|---|---|
| 1, 49 | Partial cut (one point left uncut) |
| 66 | Feeds paper (cutting position + [n x (vertical motion unit)]), and cuts the paper partially (one point left uncut). |

[Details]    For (1) and (1) :
- This command is effective only processed at the beginning of a line.
  For (1) :
- Only the partial cut is available; there is no full cut.
  For (2) :
- When n = 0, the printer feeds the paper to the cutting position and cuts it.
- When n ≠ 0, the printer feeds the paper to (cutting position + [n x vertical motion unit]) and cuts it.
- The paper feed amount is calculated using the vertical motion unit (y). However, the value cannot be less than the minimum horizontal movement amount, and it must be in even units of the minimum horizontal movement amount.

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

| | |
|---|---|
| [Name] | Printing of raster bit image |
| [Format] | ASC II     GS   v   0   m  xL  xH  yL  yH  d1...dk |
| | Hex        1D  76  30   m  xL  xH  yL  yH  d1...dk |
| | Decimal   29  118  48   m  xL  xH  yL  yH  d1...dk |
| [Range] | $0 \leqslant m \leqslant 3$, $48 \leqslant m \leqslant 51$, $0 \leqslant xL \leqslant 255$, $0 \leqslant xH \leqslant 255$, |
| | $0 \leqslant yL \leqslant 255$, $0 \leqslant yH \leqslant 8$, $0 \leqslant d \leqslant 255$, |
| | $k = (xL + xH \times 256) \times (yL + yH \times 256)$, however, $k \neq 0$ |
| [Description] | Prints raster bit images in mode "m". |

| m | Mode Name | Dot Density in Vertical Direction | Dot Density in Horizontal Direction |
|---|---|---|---|
| 0,48 | NORMAL MODE | 203 DPI | 203 DPI |
| 1,49 | DOUBLE WIDTH MODE | 203 DPI | 101 DPI |
| 2,50 | DOUBLE HEIGHT MODE | 101 DPI | 203 DPI |
| 3,51 | QUADRUPLE SIZE MODE | 101 DPI | 101 DPI |

- xL, xH specify the number of data in horizontal direction of the bit image to (xL+xH x 256) bytes.
- yL, yH specify the number of data in vertical direction of the bit image to (yL+yH x 256) bytes.

[Details]
- In STANDARD MODE, this command is valid only when there is no print data in the print buffer.
- Any of the print modes (Character size, emphasis, double strike, inverting, underlining, back-to-white reversing, etc.) does not affect the raster bit image.
- If the print area specified by GS L and GS W is narrower than a minimum width, the print area for that line only is extended to the minimum width. The minimum width is one dot in NORMAL MODE (m=0, 48) and DOUBLE HEIGHT MODE (m=2,50), and 2 dots in DOUBLE WIDTH MODE (m=1, 49) and QUADRUPLE SIZE MODE (m=3, 51).
- Any part of data that is out of the print area is only read and discarded in units of dot.
- The setting of ESC a (Aligning characters) are also valid for the raster bit image.
- If this command is executed during macro definition, the macro definition is suspended, and the processing of the command starts. The macro is left undefined.
- "d" denotes defined data. Dots to be printed are specified as "1" and those not to be printed as "0".

[Example]　　　　When xL+xH x 256= 64:

---
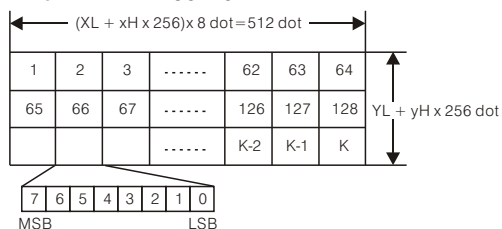
## GS h n

| | |
|---|---|
| [Name] | Define downloaded bit image |
| [Format] | ASCII     GS   h   n |
| | Hex      1D  68  n |
| | Decimal  29  104  n |
| [Range] | $1 \leqslant n \leqslant 255$ |
| [Description] | Selects the height of the bar code. |
| | n specifies the number of dots in the vertical direction. |
| [Details] | N = 162 |
| [See Also] | GS k |

## (1) GS k m d1...dk NUL
## (2) GS k m n d1...dn

| | |
|---|---|
| [Name] | Print the bar code |
| [Format] | (1) ASCII    GS   V   m   d1...dk   Nul |
| |     Hex      1D  6B  m   d1...dk   00 |
| |     Decimal  29  107  m   d1...dk   0 |
| | (2) ASCII    GS   k   m   n     d1...dn |
| |     Hex      1D  6B  m   n     d1...dn |
| |     Decimal  29  107  m   n     d1...dn |
| [Range] | (1) $0 \leqslant m \leqslant 6$ (k and d depends on the bar code system used) |
| | (2) $65 \leqslant m \leqslant 73$ (n and d depends on the bar code system used) |
| [Description] | Selects a bar code system and prints the bar code. m selects a bar code system as follows: |

For (1) :

| m | Bar Code System | Number of Characters | Remarks |
|---|---|---|---|
| 2 | JAN13 (EAN13) | $12 \leqslant k \leqslant 13$ | $48 \leqslant d \leqslant 57$ |
| 3 | JAN 8 (EAN8) | $7 \leqslant k \leqslant 8$ | $48 \leqslant d \leqslant 57$ |
| 4 | CODE39 | $1 \leqslant k$ | $48 \leqslant d \leqslant 57$, $65 \leqslant d \leqslant 90$, 32, 36, 37, 43, 45, 46, 47 |

For (2) :

| m | Bar Code System | Number of Characters | Remarks |
|---|---|---|---|
| 67 | JAN13 (EAN13) | $12 \leqslant k \leqslant 13$ | $48 \leqslant d \leqslant 57$ |
| 68 | JAN 8 (EAN8) | $7 \leqslant k \leqslant 8$ | $48 \leqslant d \leqslant 57$ |
| 69 | CODE39 | $1 \leqslant k \leqslant 255$ | $48 \leqslant d \leqslant 57$, $65 \leqslant d \leqslant 90$, 32, 36, 37, 43, 45, 46, 47 |
| 73 | CODE128 | $2 \leqslant k \leqslant 255$ | $0 \leqslant d \leqslant 127$ |

[Details]　　　**For (1):**
- This command ends with a NUL code.
- When the bar code system used is JAN13 (EAN13), the printer prints the bar code after receiving 13 bytes bar code data and processes the following data as normal data.
- When the bar code system used is JAN8 (EAN8), the printer prints the bar code after receiving 8 bytes bar code data and processes the following data as normal data.

**For (2):**

- n indicates the number of bar code data, and the printer processes n bytes from the next character data as bar code data.
- If n is outside of the specified range, the printer stops command processing and processes the following data as normal data.
  
  **In standard mode:**
- If d is outside of the specified range, the printer only feeds paper and processes the following data as normal data.
- If the horizontal size exceeds printing area, the printer only feeds the paper.
- This command feeds as much paper as is required to print the bar code, regardless of the line spacing specified by **ESC 2** or **ESC 3**.
- This command is enabled only when no data exists in the print buffer. When data exists in the print buffer, the printer processes the data following m as normal data.
- After printing bar code, this command sets the print position to the beginning of the line.
  
  **In page mode:**
- This command develops bar code data in the print buffer, but does not print it. After processing bar code data, this command moves the print position to the right side dot of the bar code.
- If d is out of the specified range, the printer stops command processing and processes the following data as normal data. In this case the data buffer position does not change.
- If bar code width exceeds the printing area, the printer does not print the bar code but moves the data buffer position to the left side out of the printing area.

## FS p n m

| [Name] | Print NV bit image |
|---|---|
| [Format] | ASC II      FS   p   n   m |
| | Hex      1C   70   n   m |
| | Decimal    28   112 n    m |
| [Range] | $1 \leqslant n \leqslant 4$ |
| | $0 \leqslant m \leqslant 3, 48 \leqslant m \leqslant 51$, |

[Description]    Prints a NV bit image n using the mode specified by m.

| m | Mode | Vertical Dot Density | Horizontal Dot Density |
|---|---|---|---|
| 0,48 | Normal | 203 DPI | 203 DPI |
| 1,49 | Double-width | 203 DPI | 101 DPI |
| 2,50 | Double-heigh | 101 DPI | 203 DPI |
| 3,51 | Quadruple | 101 DPI | 101 DPI |

N is the number of the NV bit image .
M specifies the bit image mode.

---

**FS q n [xL xH yL yH d1...dk]1...[xL xH yL yH d1...dk]n**

| [Name] | Define NV bit image |
|---|---|
| [Format] | ASC II      FS   q   n    [xL xH yL yD d1...dk]1 |
| | Hex      1C   71   n    [xL xH yL yD d1...dk]1 |
| | Decimal    28   113 n    [xL xH yL yD d1...dk]1 |
| [Range] | $1 \leqslant n \leqslant 4$ |
| | $0 \leqslant xL \leqslant 72$ |
| | $xH = 0$ |
| | $0 \leqslant yL \leqslant 255$ |
| | $0 \leqslant yL \leqslant 1$ (when $1 \leqslant (yL + yH \times 256) \leqslant 288$) |
| | $0 \leqslant d \leqslant 255$ |
| | $k = (xL + xH \times 256) \times (yL + yH \times 256) \times 8$ |
| | Total defined data area = 2M bits (256K bytes) |

[Description]    Define the NV bit image specified by n..

- N specifies the number of the defined NV bit image .
- XL, xH specifies (xL+xH x 256) x8 dots in the horizontal direction for the NV bit image you are defining.
- YL, yH specifices (yL+yH x 256) x 8 dots in the vertical direction for the NV bit image you are defining.

[Example]    When $xL = 64, xH = 0, yL = 96, yH = 0$
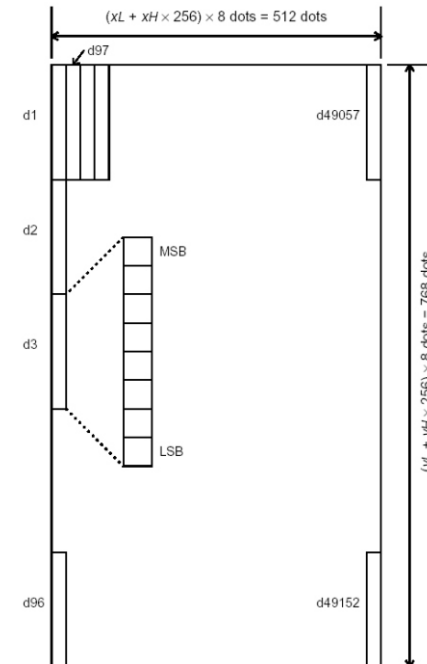
# Chapter 10. Printer Driver

## 10-1. How to use *Logo Download Tool*

RP-3180 receipt printer supports Store Logo printing. You can download max four images into printer and select which one to print on receipt.

1) Install the driver for Logo Download Tool on Computer.
2) Run [Logo Download Tool].
3) Select the correct connected port of printer. The default port is LTP1.
4) Click [Open file] to select a image.

NOTE: **\*** The image must be Monochrome BMP file.

   **\*** The Size of Monochrome BMP file must be less than 576x2304 dots.

   **\*** The height should be in multiple of 8 dots in Monochrome BMP file.

   **\*** Herewith, strongly recommend to use *Microsoft Paint Tool* to edit image file. Otherwise, the printer will be failed to download or print.
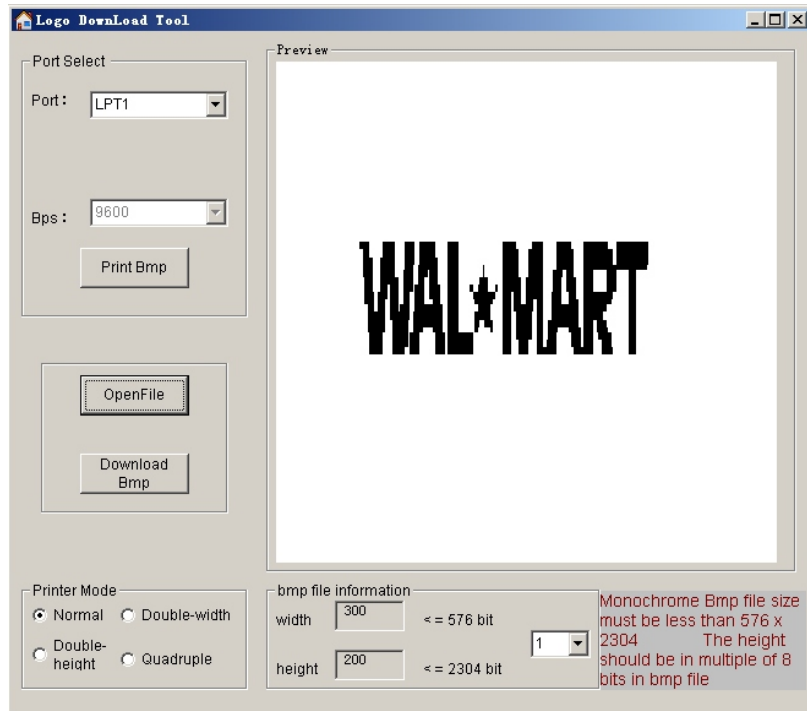


5) Click [download bmp], and wait the printer to save the data.
6) After the printer download the image successfully, you can preview the image on the frame and the bmp file information as well.
7) Click [Print Bmp] button to check the printing effect.
   There are four Printing Mode options: Normal, Double-width, Double-height and Quadruple. The default mode is Normal printing.
8) Select [1] to download the first image.
   Select [2] to download the second image.
   Select [3] to download the third image.
   Select [4] to download the fourth image.
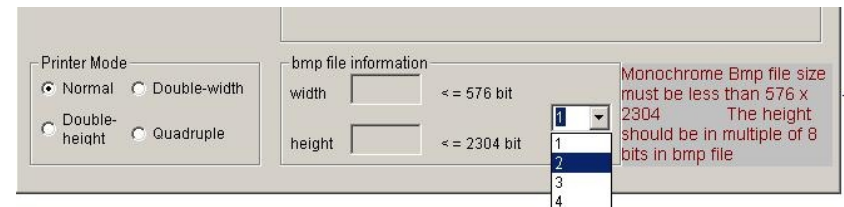


Note: The images will be saved into the flash memory of printer.
   Any new download operation will overwrite the former image.
   Please use RP-3180 printer driver to set the image printing mode.

## 10-2.Setting Printer Properties

The printer driver software can be found from CD disk packaged with printer.

1) Install the printer driver software.
   The printer driver should be installed according to following steps:
● Go to [Printers and Faxes] folder, click [Add a printer];
● Click [next] according to the direction of installation;
● Click [have disk...] , to find & open *.inf file of printer driver.
   See Pic 10.2-1
● And then start to install the printer software. See Pic 10.2-2
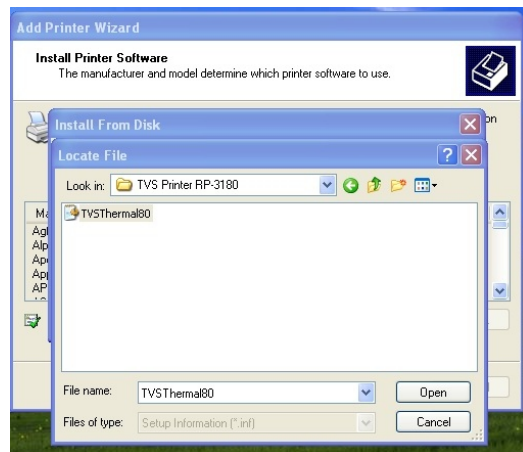


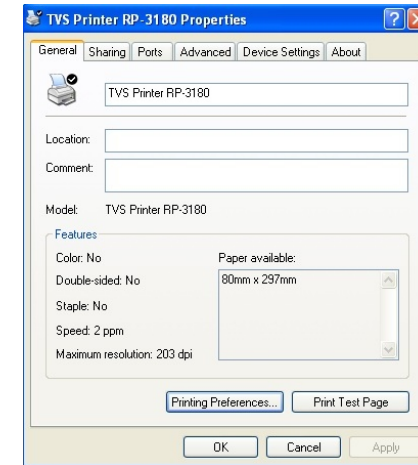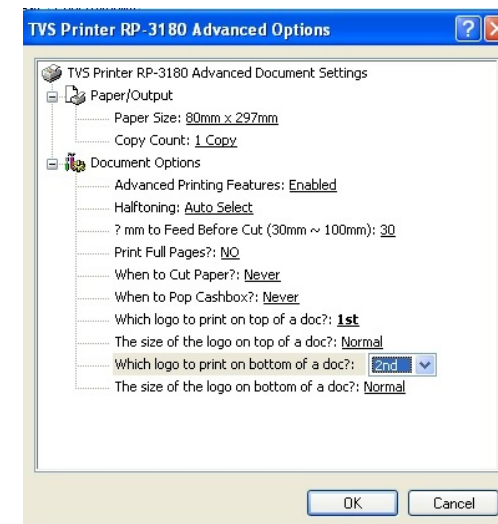Pic 10.2-1
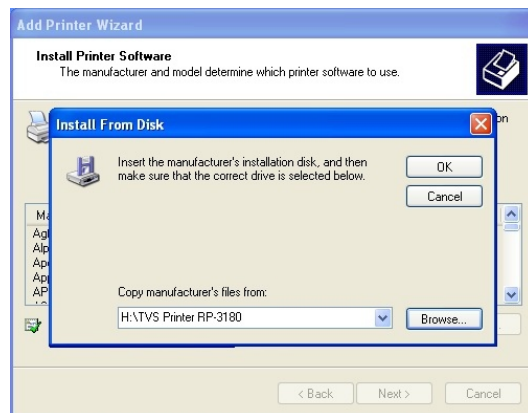


Pic 10.2-2

2) After install the software successfully, open [Printing Preferences...].



Pic 10.2-3

3) Open [Printing Preferences...]and [Advance] to go to Advanced Options.
   Now, you can reset the Document Options by select the right items.
   See Pic 10.2-4.



Pic 10.2-4

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