



i n v e n t

User Guide

HP USB Receipt Printer
for Point of Sale Systems

Document Part Number: 419217-001

May 2006

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User Guide

HP USB Receipt Printer

First Edition (May 2006)

Document Part Number: 419217-001

Contents

1 Product Features

Identifying User Controls	1–2
Identifying Rear Connectors	1–3

2 Setting Up the Printer

Loading the Starter Paper Roll	2–1
Connecting the Cables	2–3
Installing Drivers	2–5
Running the Startup Diagnostics Test	2–5

3 Operating the Printer

Using Printer Controls	3–1
Reset Button	3–1
Paper Feed Button	3–1
LED Indicators	3–1
Beep Indicators	3–2
Loading the Receipt Paper	3–2
Configuring the Printer	3–3

4 Maintenance Guidelines

Cleaning the Printer	4–1
Cleaning the Thermal Printhead	4–1

A Troubleshooting

Solving Common Problems	A-1
Using the Worldwide Web.	A-3
Preparing to Call Technical Support	A-3

B Technical Specifications

HP USB Receipt Printer.	B-1
Characters.	B-3
Print Modes	B-3
Print Size	B-3
Thermal Paper Specifications	B-4
Print Zones for 80 mm Paper	B-5
Adjusting Print Density	B-7
Duty Cycle Restrictions (Printing Solid Blocks).	B-8

Product Features

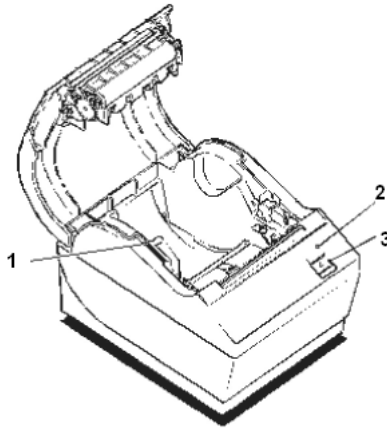


The HP USB Receipt Printer is designed to work with point of sale system hardware and program applications. The receipt printer features:

- Thermal printing technology
- Drop-in paper loading and top exit for receipts
- Software generated indicator beeps
- LED status indicator
- 8 dots/mm print resolution with up to 130 mm/second throughput speed
- USB power cable provided
- Selectable 44 or 56 columns of print on 80 mm wide thermal paper

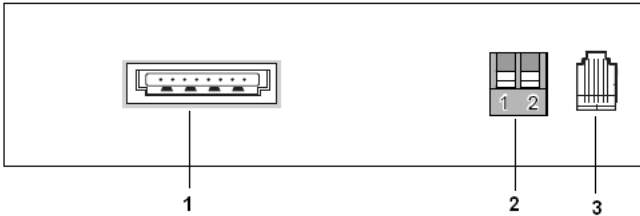
- Software and regulatory notices for this product are available on the *Point of Sale System Software and Documentation CD*.

Identifying User Controls



-
- 1 Reset Button - resets the printer if a paper jam or fault condition occurs. After pressing the reset button, the printer performs a start-up routine, as if having been turned off, then on again.
 - 2 LED indicator - shows printer status. A continuous green (non-flashing) light indicates an On, no-fault condition.
 - 3 Paper Feed button - advances the paper. Use this button in conjunction with the reset button to print the diagnostic mode or to access the configuration menu.
-

Identifying Rear Connectors



-
- 1 USB Power Connector - connects the printer to the POS computer and provides power to the printer.
 - 2 DIP Switches - enable changes to the configuration menu settings.
 - 3 Cash Drawer Connector - connects the printer to the cash drawer.
-

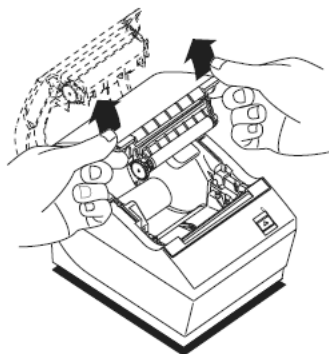
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Setting Up the Printer

Before setting up the receipt printer, ensure power is turned off to the printer, POS computer and other attached devices.

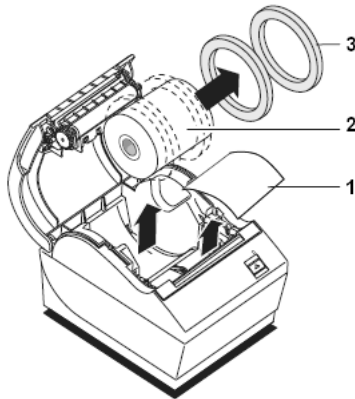
Loading the Starter Paper Roll

1. Open the rear cover by pushing up on each side of the cover until it unsnaps.



2. Remove the test printout ❶, then lift the starter paper roll ❷ out of the paper bucket and slide the two paper roll supports ❸ off.

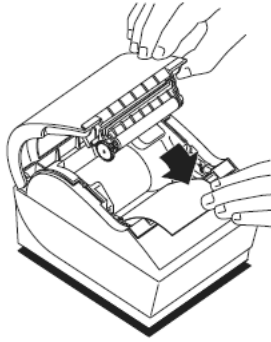
Discard the paper roll supports.



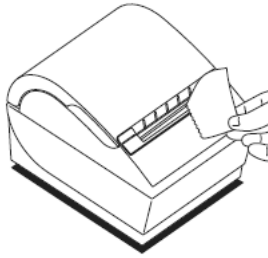
3. Remove all tape on the leading edge of the roll.
4. Place the starter paper roll back into the bucket so that it unrolls from the bottom.



5. Close the rear cover.



6. Tear excess paper across the tear-off blade.



Connecting the Cables

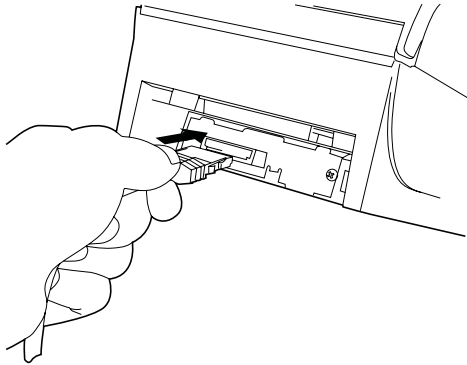


Place the printer on a level surface and position it in a location that allows access to cables, room to open the cover and away from traffic areas to limit the chance of being bumped or damaged.

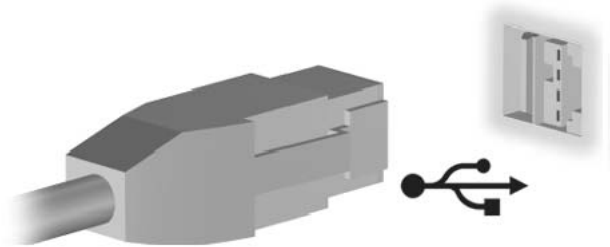


CAUTION: Connect cables to the printer before turning on power to the POS computer.

1. Turn off the POS computer.
2. Open the connector cover on the rear of the printer.
3. Plug the USB power cable into the interface connector on the receipt printer.



4. Plug the other end of the USB power cable into the 24V powered USB connector on the POS computer.



5. Plug the cash drawer cable into the cash drawer connector (RJ12) on the printer and the other end of the cable (RJ45) to the interface connector on the cash drawer.

6. Close the connector cover on the rear of the receipt printer, ensuring that the USB and cash drawer cables are aligned with the slots provided for each connector.
7. Turn on the POS computer.

The receipt printer will beep and the green LED on the top cover will light up initializing the printer.

Installing Drivers

To install the printer drivers:

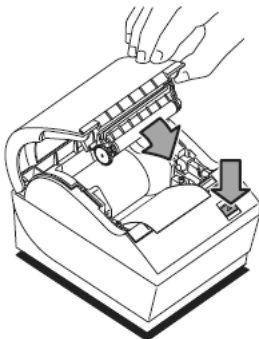
1. Follow the steps in the previous section to connect the printer cables and turn on the POS computer.
2. Click Next when the “Found New Hardware Wizard” window launches on the desktop.
3. Insert the *HP Point of Sale System Software and Documentation* CD, supplied with the printer, into the CD or DVD drive on the POS computer. The CD will run automatically and open a Windows Explorer view of the folders and files on the CD. Close Windows Explorer.
4. Click Next and the Wizard will locate the receipt printer drivers on the CD in the D:\POS\Receipt_Printer\USB folder (where D: is the drive letter of the computer’s optical drive).
5. Follow the installation instructions on the screen to install the drivers.
6. Click Finish.

Running the Startup Diagnostics Test

Run diagnostics to test the startup cycle of the printer.

1. Open the rear cover by pushing up on each side of the cover until it unsnaps.

2. Press and hold the paper feed button while closing the rear cover.



If the printer passes the startup diagnostic test, the printer emits a two-tone beep (low then high frequency) and prints all of the configuration menu settings. The paper feed button is enabled and the printer is ready for normal operation.

If the printer fails the startup diagnostic test, the printer beeps and the LED flashes a set number of times indicating the nature of the failure. If a failure occurs and the conditions below can not be corrected, contact an authorized HP service provider.

LED and Tone Sequence	Possible Condition
Two-tone beep (high and low frequencies)	Startup diagnostics completed successfully
Single beep, single LED flash	Indicates a data transmission boot failure
Double beep, double LED flash	Indicates memory failure

Triple beep, triple LED flash	Indicates a programmable ROM failure
Two-tone beep (high and low frequencies), continuous flashing of LED	Indicates a data transmission error occurred or the DIP switch is in ON position, indicating Flash Download Mode

Operating the Printer

Using Printer Controls

Reset Button

If a paper jam or fault condition occurs, press the reset button to reset the printer. The printer performs a start-up routine, as if having been turned off, then on again.

Paper Feed Button

Press the paper feed button to advance the paper. Use this button in conjunction with the reset button to print the diagnostic mode or allow access to the configuration menu.

LED Indicators

The green LED provide printer status by shining or flashing. A continuous (non-flashing) LED represents an “ON,” no-fault condition.

LED Indicator	Status
Flashes slowly	Printhead is too hot or voltages out of range
Flashes quickly	Paper is out, cover is off, knife is unable to home or knife jam

Beep Indicators

A single beep indicates the printer has successfully completed its start-up routine (after having been reset or the power turned on). If the printer beeps twice, a problem may be indicated. Refer to Appendix A, “Troubleshooting,” in this guide to determine the problem and solution.

Loading the Receipt Paper

Change the paper when either of the following conditions occur:

- Color stripe appears on the receipt paper, indicating the paper is low. Change the paper as soon as possible to avoid running out of paper part way through a transaction.
- Green LED flashes quickly indicating the paper is out. Change the paper immediately or data may be lost.



CAUTION: Do not operate the printer or POS computer to print if the printer runs out of paper. The printer will not operate without paper, but it may continue to accept data from the POS computer. Because the printer cannot print that additional data, it may be lost.

To load paper into the printer:

1. Open the rear cover by lifting up on each side of the cover until it unsnaps.
2. Remove the used paper roll.
3. Tear off the end of the new roll, so that the edge is loose.
4. Place the new roll into the paper bucket with a few inches of paper extending over the cabinet front.



CAUTION: The paper must unroll from the bottom to ensure that the printer will print and to prevent paper jamming.

5. Close the cover. Pull the excess paper across the tear-off blade and remove.
6. Advance the paper, if necessary, by pressing the paper feed button.



In the event of a paper jam, remove the roll and tear a new clean edge. Place the roll into the paper bucket, so that it unrolls from the bottom of the roll.

Configuring the Printer

The printer is shipped with all print functions and parameters preset. The following functions and settings can be changed using the configuration menu.

- Communication interface
- Printer emulations
- Printer settings and functions

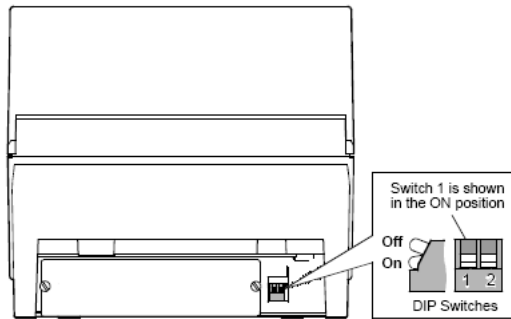


CAUTION: If you must change the settings do so carefully to avoid changing other functions.

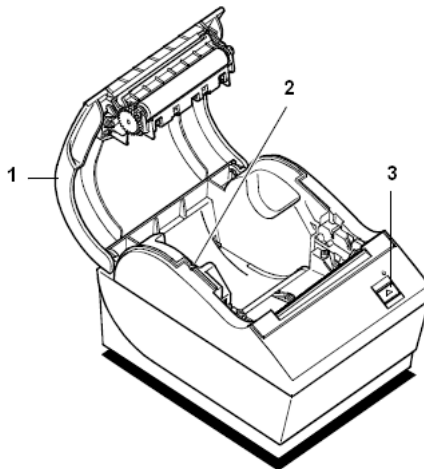
To change any of the preset functions and parameters of the printer, you will need to run a print test. During the test run, the configuration menu is printed on the receipt with instructions for selecting and changing any of the functions or parameters. The test ends with a partial cut of the paper, then begins again. A test printout may use several feet of paper to complete.

To start the test:

1. Open the connector cover on the back of the printer.
2. Set DIP switch 1 to the ON position (down). DIP switch 2 must always be set to the ON position (down).



3. Be sure paper is installed in the printer. If paper is not installed, follow the previous procedure in this chapter to load the paper.
4. Open the rear cover **1** and press the reset button **2**.
5. Press and hold the paper feed button **3** while closing the rear cover.



The printer beeps, prints the current configuration, then prints the first question. The printer pauses and waits for you to choose a main menu selection.

6. Follow the instructions on the scrolling menu and continue through the menu selection until you are prompted to “Save New Parameters?” Select Yes or No.
 - a. If Yes is selected, return DIP switch 1 to the OFF position (up). Then repeat steps 4 and 5 above. The diagnostic printout verifies new settings.
 - b. If No is selected, the printer returns to the menu to set parameters again.
7. When you are finished, press the reset button. The printer resets with the new selections.

The following is a sample printer configuration menu.

***** - Printer Config Menu *****

This config menu allows you to set general printer parameters

Sub-menus are entered and selections are made using the Paper Feed Button :

- short click : Feed Button is quickly depressed then released
- long click : Feed Button is held down more than 1 second then released

CAUTION !!

The settings are predetermined in factory and should generally not be changed.
If you must change the settings do so carefully to avoid changing other functions.

******* MAIN MENU *******

Select a sub-menu :

- EXIT -> 1 click
- Print Current Configuration -> 2 clicks
- Set Communication Interface -> 3 clicks
- Set Diagnostics Modes -> 4 clicks
- Set Emulation/Software Options -> 5 clicks
- Set Hardware Options -> 6 clicks

Enter code, then hold Button DOWN at least 1 second to validate

Maintenance Guidelines

Cleaning the Printer

Clean the outside of the cabinet as needed to remove dust and finger marks. Use any household cleaner made for plastics. Test it first on a small unseen area. Clean the receipt printer paper bucket with a clean, damp cloth.

The cabinet materials and finish are durable and resistant to the following items:

- Cleaning solutions
- Cooking oils
- Lubricants
- Ultraviolet light
- Fuels

Cleaning the Thermal Printhead



CAUTION: Do not clean the inside of the printer with any cleaner. Do not allow cleaning spray to come in contact with the thermal printhead. Damage to the internal electronics or thermal printhead could occur.



The thermal printhead does not normally require cleaning when recommended paper grades are used. If non-recommended paper is used over an extended period, attempting to clean the printhead will have little effect on the print quality.

1. Turn off the receipt printer and POS computer.
 2. Unplug the receipt printer from the POS computer and the cash drawer, if connected.
 3. Wipe the printhead with a cotton swab moistened with rubbing alcohol.
-



CAUTION: Do not use rubbing alcohol to clean any internal parts of the printer other than the printhead. Damage will occur.

If spotty or light printing problems persist after cleaning the thermal printhead, the entire thermal mechanism may need to be replaced.



CAUTION: Using non-recommended paper over an extended period of time can result in printhead failure. Refer to Appendix B for paper specifications.

A

Troubleshooting

Solving Common Problems

The following table lists possible problems, the possible cause of each problem, and the recommended solutions.

Problem	Possible Cause	Solution
Green LED, quick continuous flashing.	Paper out	Install a new paper roll.
	Cover is off.	Close the cover.
	Knife unable to home.	Check the knife to see if it needs to be replaced.
Printer beeps (two-tone - low frequency, high frequency).	Indicates problems.	Run the startup diagnostics to see if this corrects the problem. If this does not work, contact technical support.
Printer beeps and flashes green LED in various combinations.	Printer is turned on, after being turned off, and is ready to operate.	No action required.
	Indicates a serious problems if occurring during normal operation.	Run the startup diagnostics. If this does not work, contact technical support.
Colored stripe is on the receipt.	Paper is low.	Change the paper roll.

Problem	Possible Cause	Solution
Receipt does not come out all the way.	Paper is jammed.	Open the receipt cover, inspect the knife, and clear the jammed paper.
Printer starts to print, but stops before the receipt has been printed.	Paper is jammed.	Open the receipt cover, inspect the knife, and clear the jammed paper.
Receipt is not cut.	Paper is jammed	Open the receipt cover, inspect the knife, and clear the jammed paper.
Print is light or spotty.	Paper roll is loaded incorrectly.	Check that the paper is loaded properly.
	Thermal printhead is dirty.	Use the recommended thermal receipt paper. Refer to Appendix B in this guide for paper specifications and recommendation.
	Variations in paper.	Increase the print density in "Set Hardware Options" of the printer configuration menu to 110% or 120% as needed.
Vertical column of print is missing.	Printhead is defective.	Replace the thermal mechanism.
One side of the receipt is missing.	Printhead is defective.	Replace the thermal mechanism.
Printer does not function when turned on.	The printer is not plugged in.	Check that printer cables are properly connected at both ends. Check that the POS computer is turned on.
	Receipt cover is not fully closed.	Close and latch the receipt cover.

Problem	Possible Cause	Solution
The system does not go into standby.	The printer does not support full Advanced Power Management (APM) features.	Initiate standby again. When the system resumes from standby, the printer will return to its normal operating condition. Or Save your data and restart the computer.
Printer does not work after the system comes out of standby.	Printer does not support full Advanced Power Management (APM) features.	If this is the first time the system goes into standby, initiate standby again to get the printer functioning. When the system resumes from standby, the printer will return to its normal operating condition. Or Save your data and restart the computer.

Using the Worldwide Web

For the online access to technical support information, self-solve tools, online assistance, community forums or IT experts, broad multivendor knowledge base, monitoring and diagnostic tools, go to <http://www.hp.com/support>.

Preparing to Call Technical Support

If you can not solve a problem using the troubleshooting tips in this section, you may need to call technical support. Refer to the *Support Telephone Numbers* guide on the *Point of Sale System Software and Documentation* CD. Have the following information available when you call:

- Receipt printer model number

- Serial number for the receipt printer
- Purchase date on invoice
- Condition under which the problem occurred
- Error messages received
- Hardware configuration
- Hardware and software you are using

Technical Specifications

HP USB Receipt Printer

Printer Specifications

Reliability

Thermal Receipt Mechanism	55 million lines
Receipt Knife	1.5 million cuts

Power Requirements

Power Requirements from Host
(Integrated):

Voltage	24Vdc +/- 10% +5 volts for logic circuit
Amps	2 Amps maximum current draw
Operating Temperature	5° C to 28° C (41° F to 82° F) 28° C to 45° C (82° F to 113° F)
Operating Humidity	10% to 90% 5% to 40%
Storage: Temperature	10° C to 50° C (14° F to 122° F)
Humidity	5% to 90%

Printer Specifications

Transit:	
Temperature	-40° C to 60° C (-40° F to 140° F)
Humidity	5% to 95%
Condensation	Condensation may occur when the printer is moved from cold to warm areas after shipment. The printer's design permits operation after drying out and stabilizing at room temperature.

Dimensions and Weight

Height:	
With covers closed	135 mm (5.34")
With covers open	216 mm (8.53")
Width	144 mm (5.66")
Depth	184 mm (7.24")
Weight	1.3 kg (2.9 lbs)

Printing Specification

Print Speed	38.4 lines per second (standard spacing)
Printhead	Direct thermal, fixed head, 640 dots (576 addressable - 80.0mm) (640 addressable - 82.5 mm)
Paper Feed	130 mm per second (maximum)

Characters

Print Modes

Available print modes:

- Standard
- Compressed
- Double high
- Double wide
- Upside down
- Rotated
- Underlined
- Bold
- Reverse
- Italic
- Scaled

Print Size

Character sizes for the standard and compressed mode:

- Standard
 - 15.6 characters per inch
 - 44 characters per line
 - 13 x 24 dots cell size
- Compressed
 - 20.3 characters per inch
 - 56 characters per line

10 x 24 dots cell size

Thermal Paper Specifications

The printer requires qualified thermal paper with the following dimensions:

Width	Diameter	Length
80 mm \pm .2 mm (3.15 in. \pm .02 in.)	90 mm max. (3.54 in.)	322 ft. nominal

The above figures are based on a core diameter of 22 \pm .5 mm (.87 in.) outside, 11.5 \pm .5 mm (.45 in.) inside.

The paper must not be attached at the core. Use paper with a colored stripe at the end to indicate that the paper is running low.

The following paper grades produced by their respective manufacturers are recommended. There are a number of paper converters qualified to provide this paper, provided the POS rolls are from these recommended grades. Use of other papers may result in excessive printhead contamination, light print, missing print, and/or void the printer warranty.

To order paper rolls, contact your converter of choice.

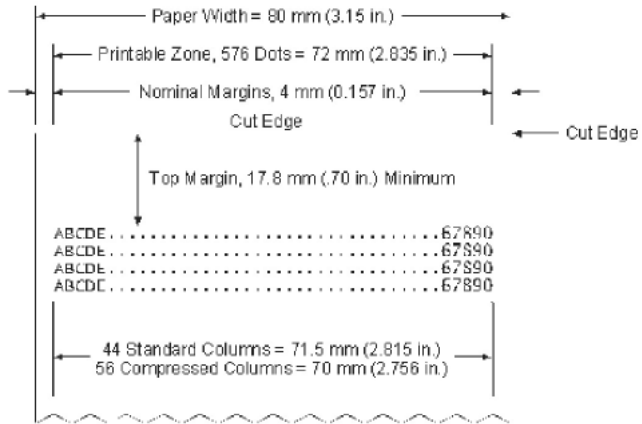
Paper Manufacturer	Paper Identification/Grade
Kanzaki Specialty Papers (USA) Ware, MA	P-300
	P-310
	P-350
	P-354
	TO-260
	TO-282
TO-381L	
Appleton Papers, Inc. (USA) Appleton, WI	Alpha 400-2.3 (T1030)
	Alpha 800-2.3 (T1012A)
	POS Plus 600-2.0
	Resiste 900-3.0 (T2162)
	Alpha 900-3.4 (SUPERIOR)
Jujo Thermal LTD. Kauttua, Finland	AF50KS-E3
	AP62KS-E3
Mitsubishi Int'l Corp. New York, NY	P-5035
	T-8051
	TP-8065
Oji Paper Company Ltd Tokyo, Japan	KF-60
	PD-170R
	PD-160R

Print Zones for 80 mm Paper

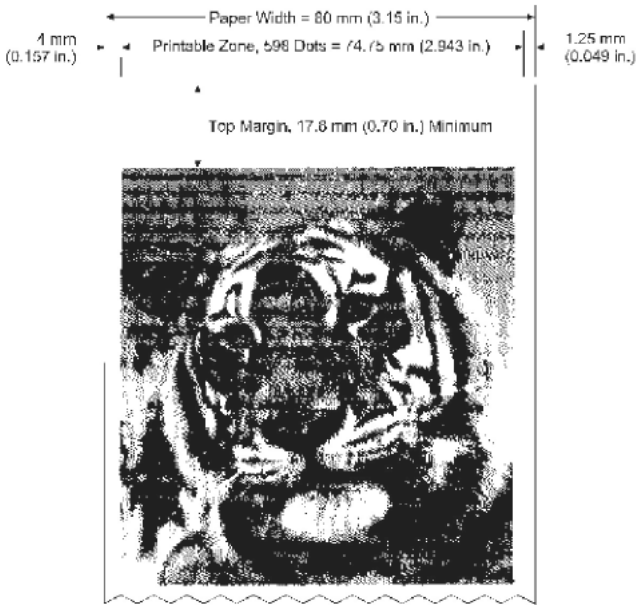
Specifications of print zone for 80 mm paper:

- 576 dots (addressable) @ 8 dots/mm, centered on 80 mm
- Standard Mode minimum margins: 2.5 mm (.098 inches)
- Top margin to manual tear-off: 17.8 mm (0.70 inches)

- Top margin to knife cut: 19.0 mm (0.75 inches)



When printing graphics or logos converted from 6 dot/ mm to 8 dot/ mm, the printable zone is expanded to 598 dots.



Adjusting Print Density

Adjusting the paper density and density of receipt print lines make it possible to adjust the energy level of the printhead to darken the printout. An adjustment should only be made when necessary. The factory setting is 100%.



WARNING: Choose an energy level no higher than necessary to achieve a dark printout. Failure to observe this rule may result in a printer service call or void the printer warranty.

When the printer prints high density print lines (text or graphics), it automatically slows down.

To change the print density:

1. Enter the configuration menu. Refer to chapter 3 for instructions on running the configuraton menu.
2. Select "Set Hardware Options" from the main menu. The "Hardware Options Menu" is printed on the receipt and the question "Set Print Density?" asked.
3. Answer YES (Long click). A warning is printed, followed by:

Print Density

100% 1 Click

110% (+) 2 Clicks

120% (++) 3 Clicks

4. Enter code, then hold the paper feed button DOWN at least 1 second to validate.

Duty Cycle Restrictions (Printing Solid Blocks)

There are restrictions on the duty cycle because of the heat generated by the receipt thermal printhead when printing solid blocks (regardless of the length of the block in relation to the print line). The restrictions are ambient temperature, the percentage of time (measured against one minute) of continuous solid printing, and the amount of coverage.



CAUTION: When the duty cycle approaches the limits shown in the table, the receipt printhead will heat up and shut down. This may damage the printhead.

To avoid this problem, do one or a combination of the following:

1. Reduce the amount of coverage.
2. Reduce the time of continuous solid printing.
3. Reduce the ambient temperature.

Allowable Duty Cycle (Measured Over One Minute of Continuous Printing)

Amount of Solid Coverage	25° C	35° C	50° C
20%	100%	50%	20%
40%	50%	25%	10%
100%	20%	10%	4%

For reference:

- A typical receipt with text (contains some blank spaces) is approximately 12% dot coverage.

- A full line of text characters (every cell on the line has a character in it) is approximately 25% dot coverage.
- Graphics are approximately 40% dot coverage.
- Barcodes are approximately 50% dot coverage.
- A solid black line is 100% dot coverage