



User Guide

HP Value Thermal Receipt Printer

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About This Guide

This guide provides information on setting up and using the HP BTP-S81 Thermal Receipt Printer.






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-  **WARNING!** Indicates a hazardous situation that, if not avoided, **could** result in death or serious injury.
 -  **CAUTION:** Indicates a hazardous situation that, if not avoided, **could** result in minor or moderate injury.
 -  **IMPORTANT:** Indicates information considered important but not hazard-related (for example, messages related to property damage). An Important alert warns the user that failure to follow a procedure exactly as described could result in loss of data or in damage to hardware or software. Also contains essential information to explain a concept or to complete a task.
 -  **NOTE:** Contains additional information to emphasize or supplement important points of the main text.
 -  **TIP:** Provides helpful hints for completing a task.
-

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1 Product features




The BTP-S81 Thermal Receipt Printer is designed for high-end thermal receipt printing, which is widely used. The printer can be connected to other devices via serial, parallel, USB, Bluetooth, and Ethernet cables, as well as connecting via WLAN. It provides drivers for operating systems such as Windows® 2000 / XP / Server 2003 / Vista / Server200 / Win7 / Win8 / Win8.1 / Win10 / Server 2012, POSReady2009 / POSReady7, Linux, Mac, and UPOS middleware.

 **NOTE:** Drivers for Windows and Linux systems support the 64-bit editions of those operating systems.

The printer's features include the following:

- Low noise, high printing speed
- Supports continuous paper and marked paper
- Supports multiple print modes, including paper saving, water mark, upside-down, and two-color printing.
- Compact size
- Can output paper from the front or the top according to users' different demands
- Rich interfaces: USB (fixed on board), expandable serial / parallel / Ethernet / Bluetooth / WIFI / serial + Ethernet interface

 **NOTE:** This user guide describes features that are common to most models. Some features may not be available on your computer. To access the latest user guide for your product, go to <http://www.hp.com/support>, and follow the instructions to find your product. Then select **User Guides**.

Identifying user controls



User controls		Description
1	Receipt cover	
2	Cutter	
3	Platen roller	
4	Paper end sensor	Detect the paper roll status.
	Paper mark sensor (not shown)	
	Paper mark sensor cover (not shown)	
5	Paper guide	Adjust the position of paper guide in the cabinet to adapt to different paper widths between 58 mm and 80 mm. When the paper guide is removed, the printer can adapt to 82.5 mm paper width.
6	Micro switch	
7	Cutter cover	
8	Middle cover	
9	Cover open lever	
10	Paper cabinet	
11	Paper near end sensor	Detects the presence or absence of paper when continuous paper is used. When marked paper is used, the sensor detects the paper marks.
12	Feed button	<ul style="list-style-type: none"> Feed paper: Printer will feed paper when the feed button is pressed down. To feed paper continuously, hold down the button until the desired paper length has ejected from the printer. Print configuration sample: Press down the feed button while turning on the power. The printer will print out a configuration sample, which includes print width, print speed, and other specifications. Enter button configuration mode: Press down the feed button while turning on the power to print out a configuration sample. The printer will enter a pause status in which the error light will flash after cutting the paper. Continue to press the feed button at this time, and the printer will enter button configuration mode. Clear cutter error: Press the button for a short time when a cutter error occurs. The printer will try to clear the cutter error automatically.
13	Error light	<p>Off: The printer is functioning normally.</p> <p>Fast Flashing: The paper will run out soon and the user should replace the paper roll in time. Printer will work normally until paper supply is exhausted.</p>
14	Power light	On: Printer power is on.

User controls		Description
		Off: Printer power is off.
15	Power button	Press the button to connect power. To disconnect the power, press the button until the power light turns off.
	Rear cover (not shown)	
16	USB port	
17	Power connector	
18	Communication interface	
19	Cash drawer interface	

Visual and auditory status indicators

The printer is equipped with an error light and a beep warning alarm. Refer to [Error light and beep codes on page 20](#) for more information. The beep warning alarm is disabled by default. Refer to [Configuring the printer on page 14](#) for more information.



NOTE:

2 Setting up the printer

Choosing a location for the printer

The printer requires minimum counter space and may be set on or near the POS computer.

Do not place the printer in any dusty environment or anywhere that spillage of drinks or other liquids can occur. Place the printer on a level surface, and make sure there is enough room to open the receipt cover to change the paper and to access the rear of the printer.

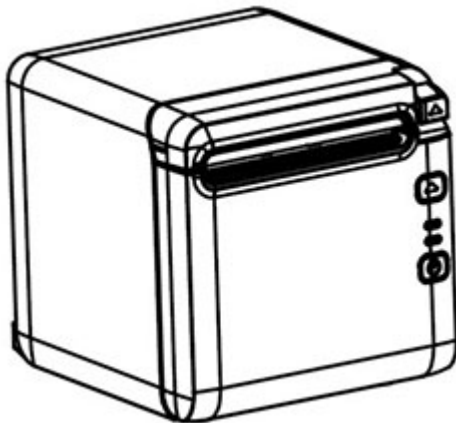
Be sure to leave adequate space at the rear of the printer for connecting and accessing the cables.

Printer installation

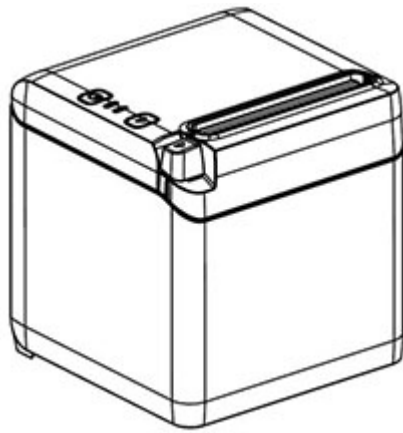
To ensure successful operation of the printer, observe these guidelines when placing the printer:

- The BTP-S81 printer supports printing receipts from either the top or front of the printer. When the printer is placed horizontally on the table, the incline installation angle should not exceed 5°. Otherwise, the paper near end sensor will not work normally.

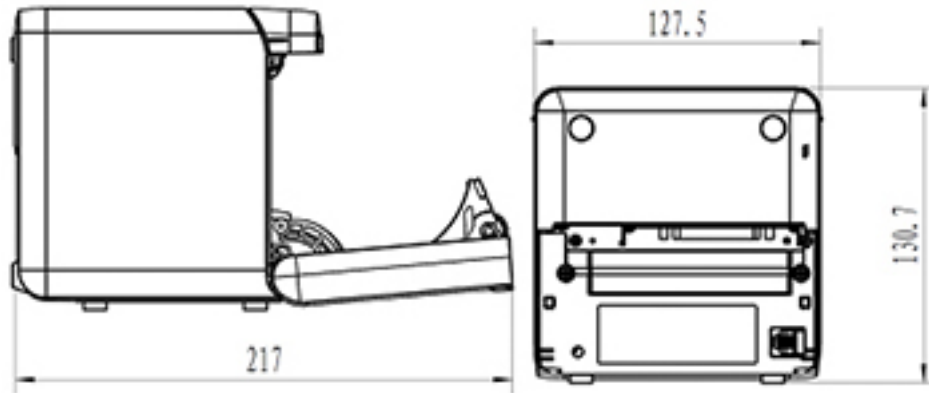
Front output installation:



Top output installation:



- Do not place the printer near a water source.
- Do not place the printer where it can be exposed to vibration or impact.
- Ensure that the printer power source is properly grounded.
- Maintain proper space between the printer and any vertical surfaces.



Installing new receipt paper

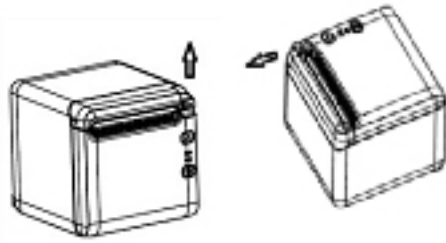
If the error light flashes, change the paper as soon as is convenient to avoid running out of paper part-way through a transaction.

If the status/error light flashes rapidly, the paper has run out. Change the paper immediately or data may be lost. The printer can accept and store only a limited amount of data without paper. Memory overload can occur in the buffer, leading to a total loss of data.

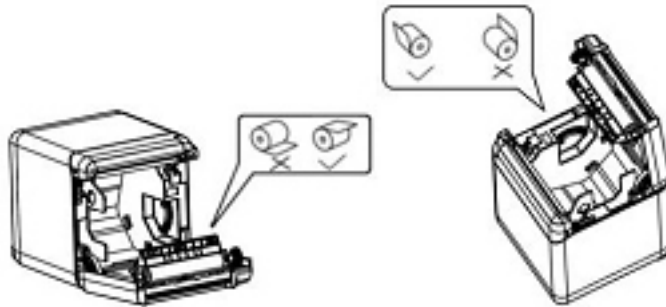
To install new receipt paper:

1. Turn off the printer.

2. Push the lever in the direction shown below to open the receipt cover.



3. Place the new roll of paper in the printer, ensuring that the direction of the roll's winding is in the correct orientation for the printer's position.



4. Install the paper guide at the correct position for the type of thermal paper being used.

Thermal paper width	Paper guide installation position
57.5 mm	57.5
80 mm	80
82.5 mm	Remove guide

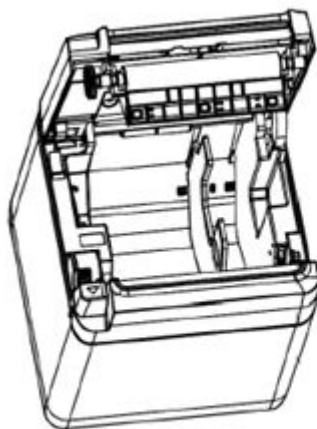
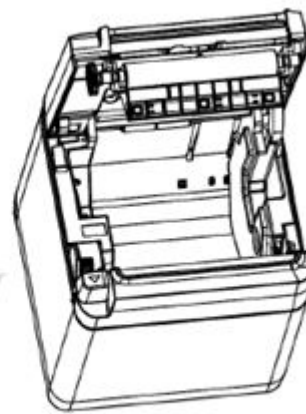


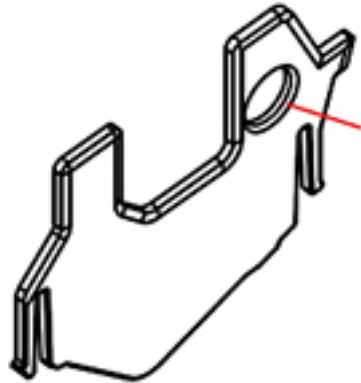
Fig.4.4-4 Position of 57.5



Fig. 4.4-5 Position of 80





5. When removing or disassembling the paper guide, remove the end with the operation hole first. Reverse this procedure when installing the paper guides. The operation hole location is shown in the figure below.



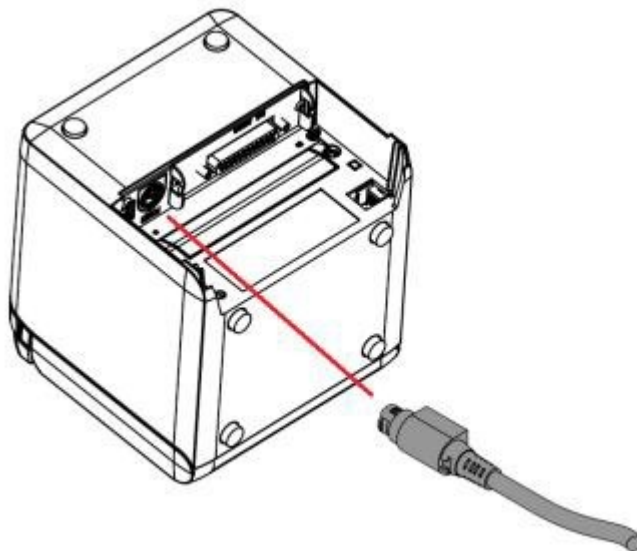
6. Press the paper feed button to advance the paper if necessary.
7. Close the receipt cover.

Connecting the cables

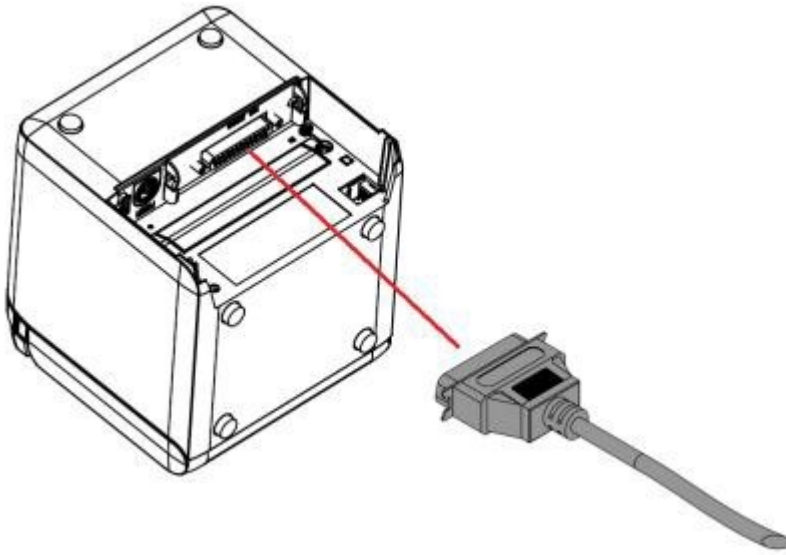
 **NOTE:** Place the printer on a level surface and position it in a location that allows access to cables and provides ample room to open the receipt cover. Locate the printer away from traffic areas to limit its chance of being bumped or damaged.

 **IMPORTANT:** Connect cables to the printer before turning on power to the printer and connected devices. Connected devices should always be turned off before connecting the cables.

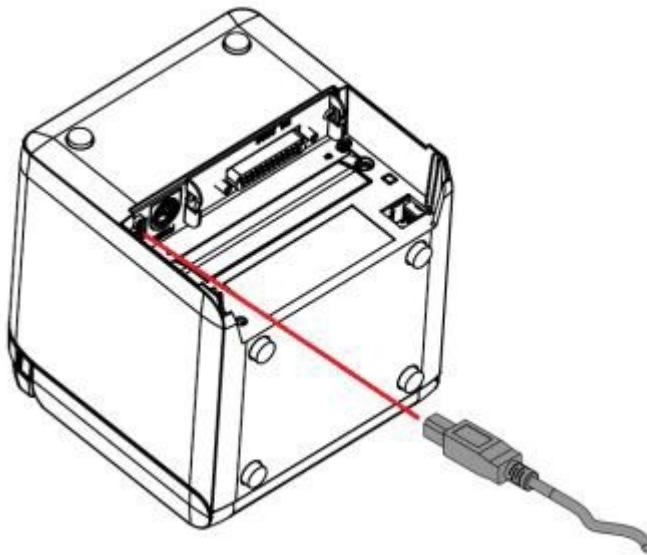
1. Turn off the printer and any connected devices.
2. Connect the power cord to the power connector.



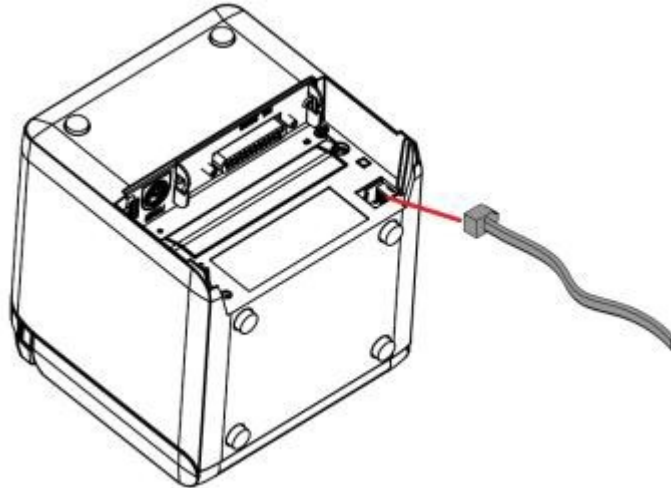
3. Connect the interface cable to the printer, and secure the connection with a screw or spring as needed.



4. Connect the USB cable to the USB port on the printer.



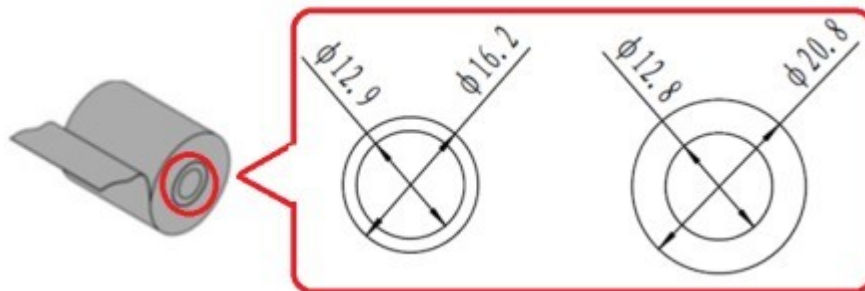
5. Connect the cash drawer cable to the printer.



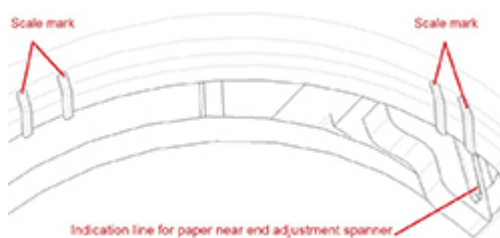
 **NOTE:** The cash drawer port can be used to connect cash drawers only, and cannot be used with other devices.

Paper near-end position adjustment

The printer's paper near-end position sensor can be adjusted to support the two configurations of the printer: top-side printing, and front-side printing. Both configurations each have two adjustment settings which depend on the outer diameter of the core shaft of the paper roll being used for printing.



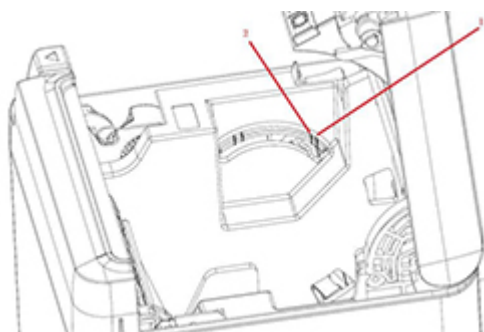
The near-end position is adjusted depending on the orientation of the printer.



Top-side printing

The paper near-end adjustment will be at either position 1 or position 2 for printers configured to print receipts from the top of the printer.

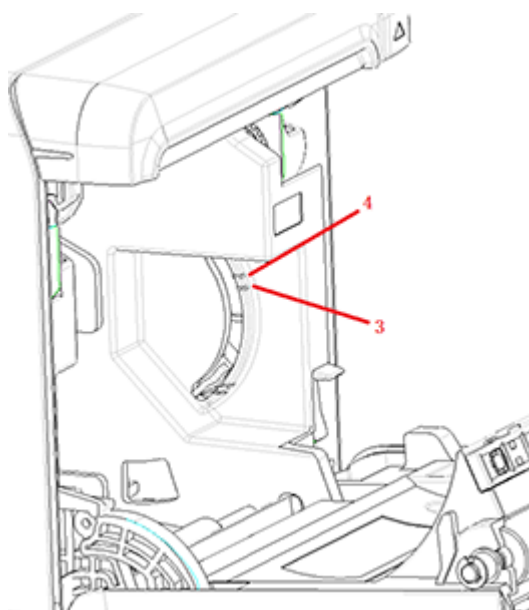
- For paper roll core shafts with an outer diameter of 16.2 mm, adjust the printer to position 1.
- For paper roll core shafts with an outer diameter of 20.8 mm, adjust the printer to position 2.



Front-side printing

The paper near-end adjustment will be at either position 3 or position 4 for printers configured to print receipts from the front of the printer.

- For paper roll core shafts with an outer diameter of 20.8 mm, adjust the printer to position 3.
- For paper roll core shafts with an outer diameter of 16.2 mm, adjust the printer to position 4.



Testing the printer

This procedure test prints a complete list of printer settings on a diagnostic form and partially cuts the paper. Instructions at the end of the test printout describe how to enter the configuration menu. The configuration menu allows you to change the current settings of the printer.

This printout is useful to a service representative when there is a problem. If the test printout has missing or faded text, refer to [Troubleshooting on page 20](#).

Power-on and self-test procedure

1. Connect the printer to the appropriate power source, and then ensure that printer is turned off.
2. Press the feed button while simultaneously turning on printer power, and then release the feed button. The printer will print out configuration information as well as two prompts for further printing tests:
 - Press and release feed key to print characters. The printer will print a character test sample. The self-test is now complete.
 - Press and hold feed key to configure the printer. The printer will enter configuration mode. Refer to [Configuring the printer on page 14](#) for more information.



NOTE: After switching to configuration mode, the printer will enter a pause state and the error light will flash.



NOTE: When changing any of the printer settings, be extremely careful not to inadvertently change other settings that might affect the performance of the printer.

Using hexadecimal dumping mode

Enter hexadecimal dumping mode by following these steps:

1. Open the receipt cover, and then turn on the printer while pressing the feed button. Release the button after the error light flashes and the printer beeps.
2. Send command “GS → (A”.
3. The printer will print a hexadecimal dumping sample.

```
Hexadecimal Dump
To terminate hexadecimal dump,
press FEED button three times.

1B 21 00 1B 26 02 40 40 1B 69      . ! . . & . @ @ . i
1B 25 01 1B 63 34 00 1B 30 31      . % . . c 4 . . 0 1
41 42 43 44 45 46 47 48 49 4A      A B C D E F G H I J

*** completed ***
```

4. Exit hexadecimal dumping mode by powering off and restarting the printer, and then pressing the feed button three times.

Important additional information about hexadecimal dumping mode:

- If the hexadecimal data has no corresponding ASCII characters, the print sample will show “.”.
- Under hexadecimal dumping mode, only commands DLE EOT, DLE ENQ, or DLE DC4 are valid.
- The data of the last character line can be printed by pressing down the feed button.

Printer configurations

Printers are shipped with preset functions and parameters, but you can change these settings manually. The instructions for accessing the menu appear on the bottom of the test printout receipt.



NOTE: When changing any of the printer settings, be extremely careful not to inadvertently change other settings that might affect the performance of the printer.

The following functions and parameters can be changed in the scrolling configuration menu:

- Print self test
- Configuration
 - Exit without save
 - Exit with save
 - Communication
 - USB interface
 - Win driver mode
 - API mode
 - Serial interface
 - Baud rates
 - Parity
 - Data bits
 - Stop bit(s)
 - Handshaking
 - Data receive error
 - RX buff size
 - Mechanism and hardware
 - Mark sensor
 - Cutter
 - Cut mode
 - Auto cut settings
 - Buzzer
 - Print settings
 - Darkness
 - Paper roll width

- Left margin
 - Right margin
 - CR command
 - Code page
 - Save paper level
- Paper sensor settings
 - Paper low alarm
 - Stop print when paper low
 - Paper near end sensor
- Set default configuration
- FONTA/FONTB settings
- Beep settings
- Test page settings
- Sensor Test Mode
- Print NV Bitmap
- Cutter Test
- Print Statistics
- E05 Configuration (select products only)

Configuring the printer



NOTE: When changing any of the printer settings, be extremely careful not to inadvertently change other settings that might affect the performance of the printer.



NOTE: For a full map of the main menu, and to see details on each setting, see [Main menu button configuration on page 31](#) for more information.

1. Open the receipt cover. If no paper is in the printer, follow the instructions for loading paper.
2. Turn the printer so the back is facing you.
3. Ensure the printer is turned off, then hold down the paper feed button and turn the printer power on. When printing starts, release the button.

4. To print a self-test print, press and release the paper feed button. To enter the configuration menu, press and hold the paper feed button.

Press and Release
FEED to continue
SELF-TEST printing

Press and Hold
FEED to configure
the printer

MAIN MENU

Select a submenu:

Exit	-> 1
Print Self Test	-> 2
Configuration	-> 3
Sensor Test	-> 4
Print NV Bitmap	-> 5
Cutter Test	-> 6
Print Statistics	-> 7

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

5. Follow the printed instructions on the scrolling menu by pressing the paper feed button.

- To indicate a number selection, press the paper feed button the desired number of times with a short press.
- Indicate **Yes** with a long press of the paper feed button (more than one second).
- Indicate **No** with a short press of the paper feed button (less than one second).

6. Continue through your menu selections until you are prompted, **Save New Parameters?**.

If you want to save, select **Yes**. Then press the reset button. The printer resets with the new selections. You can verify the setting by pressing the paper feed button to print out a diagnostics form or by holding the paper feed button and opening and closing the receipt cover.

– or –

If you want to continue configuring the printer, select **No**. The printer returns to the configuration menu where you can set parameters again.

3 Operating the printer

Avoiding printer problems

Preventing print head overheating

Overheating of the thermal print head is one of the most common causes of printer problems. To avoid overheating, do one or more of the following:

1. Reduce the amount of solid coverage when printing receipts.
2. Reduce the time of continuous printing, known as the "duty cycle." The duty cycle is the percentage of time that the printer can be actively printing during any sixty-second period of time. The duty cycle will vary for your printer depending on the temperature of the room where you have set it up and the amount of print coverage.
3. Reduce the temperature of the room where you put the printer. Keep in mind that the temperature may also be affected if the printer is exposed to direct sunlight or near a space heater, heat lamp, or other heat source.



IMPORTANT: If the print head reaches 65°C (149°F), the printer will stop printing until it cools off. This may damage the print head.

Avoiding harsh environments

The printer is a durable piece of equipment and can withstand a range of physical environments. However, the printer's internal mechanical components are vulnerable to dust and airborne chemicals, particularly in places like home improvement stores, garden shops, and warehouses. In these kinds of environments you will need to make sure that your printer is cleaned regularly so that it keeps working properly. HP recommends regular periodic inspection and general cleaning of the print head, sensors, carriage shaft, and both printer mechanisms.

Paper



IMPORTANT: Use of paper that is not approved for the printer can damage the printer and void all warranties. See [Paper specifications on page 29](#) for more information.

Cleaning the printer

Recommendations for cleaning the printer:


- Before starting routine maintenance, ensure that the printer power is turned off.
- Do not use organic solvents like gasoline or acetone.
- When cleaning sensors, do not turn on the printer power until the pure alcohol or other cleaning solution has completely evaporated.
- It is recommended that the maintenance cycle should not be longer than one month.

Cleaning the printer cabinet

Clean the outside cabinet as needed, using any household cleaner made for plastics. You may want to test a small unseen area first. Wipe the paper compartment with a clean, damp cloth. The cabinet materials and finish are durable and can tolerate cleaning solutions, lubricants, fuels, cooking oils, and ultraviolet light.

Cleaning the print head and platen roller

 **CAUTION:** Don't touch the print head, as this can cause burns.

 **IMPORTANT:** Do not attempt to clean the inside of the printer with any spray cleaner. Do not try to clean the print head (except as recommended) or allow any spray to come in contact with it. This may damage the internal electronics or print head. If the print head appears dirty, wipe it with isopropyl (rubbing) alcohol on a cotton swab or alcohol pen. Do not use the rubbing alcohol to clean any other parts of the printer because it may cause damage.

IMPORTANT: The print head does not normally require cleaning when recommended paper grades are used. If other paper is used over an extended period, attempting to clean the print head will have little effect on the print quality and could cause jamming and other damage to the printer, voiding the warranty.

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

Follow these steps to clean the print head and the platen roller:

1. Turn off the printer and open the receipt cover.
2. If the printing has just finished, wait for the print head to cool down completely.
3. Wipe off the dust and stains on the surface of print head and platen roller with an alcohol-based cleaning solution using a cotton cloth.

 **IMPORTANT:** The cotton cloth should not be soaking wet.

4. After the alcohol is completely evaporated, close the receipt cover.

Cleaning the mark sensor

When the printer cannot identify the mark effectively, the mark sensor should be cleaned. The cleaning steps are as follows:

1. Turn off the printer.
2. Press the cover open lever to open the receipt cover.
3. Remove the sensor cover.

4. Wipe off the dust and stains on the surface of the sensor with an alcohol-based cleaning solution using a cotton cloth.



IMPORTANT: The cotton cloth should not be soaking wet.

5. Replace the sensor cover after the cleaning solution is completely evaporated, and then close the receipt cover.

Cleaning out paper dust

HP recommends that you remove paper dust from your printer approximately every six months, using canned air or some other kind of fan to blow the dust out of the printer.

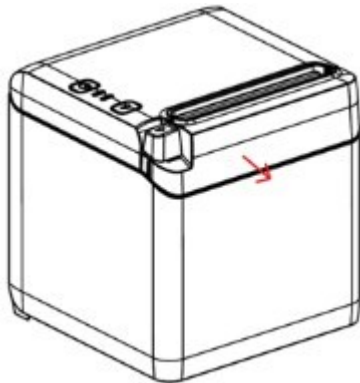
Clearing paper jams

To clear a receipt paper jam:

1. Turn off the printer power and then press the cover open lever to open the receipt cover.
2. Clear the jammed receipt paper, and then close the receipt cover.
3. Turn on the printer power, and then the cutter will reset automatically.

If the cutter fails to reset automatically after clearing the jammed paper, disassemble the cutter.

1. Turn off the printer power and then remove the cutter cover.



2. Press the cover open lever to open the receipt cover.
3. Clear the jammed paper from the printer.
4. Reinstall the cutter cover and close the receipt cover.
5. Turn on the printer power, and then the cutter will reset automatically.

A Troubleshooting

Because of the design of the printer, it requires virtually no periodic servicing. However, if problems do occur, they can usually be diagnosed readily by checking the light status indicators below, and then referring to appropriate sections in this appendix.

The information on the following pages describes common conditions that you could encounter and easily fix yourself. A few may require that you contact a regional HP authorized service provider for HP Point of Sale System products. You should be able to correct many of the conditions locally without calling for service. However, if a condition persists, contact your regional HP authorized service provider.

Error light and beep codes

When the printer is experiencing an error condition, the error light will flash and a beep or series of beeps may sound. The beep warning alarm is disabled by default. Refer to [Configuring the printer on page 14](#) for more information.

Light code	Beep code	Error description
Six flashes	Six beeps	Print head is overheating. CAUTION: The temperature of the print head is detected by a thermal resistor. If the print head is overheating, the protective circuit will shut off the power automatically and force the printer to stop printing. The temperature of the print head when printing is stopped is 65°C.
Five flashes	Five beeps	Printer voltage is abnormal. <ul style="list-style-type: none">Check that the power cable is fully connected and the AC adapter is plugged into the correct type of electrical outlet.
Four flashes	Four beeps	Cutter error. <ul style="list-style-type: none">See Cutter errors on page 23.
Three flashes	Three beeps	Print head lift-up. <ul style="list-style-type: none">Close the receipt cover of the printer completely.
Two flashes	Two beeps	Paper end. <ul style="list-style-type: none">Replace the paper roll.
Slow flash	No beep	Paper near end. <ul style="list-style-type: none">Replace the paper roll.
Slow flash	No beep	Cannot find mark, or mark calibration error. <ul style="list-style-type: none">Ensure that the parameters for the marked paper are correct. See Parameters of marked paper on page 29.

Typical remedy procedure

If an unexpected condition has occurred, take the following general steps:

1. Cycle the power of the printer and note its behavior.
2. Check the error light and compare the indications to the table above.
3. Test the printer by performing a sample test print. See [Testing the printer on page 11](#). This can provide additional information regarding the error that is occurring.
4. Refer to the troubleshooting tables on the following pages.

Solving common problems

The following tables list possible problems, the possible cause of each problem, and the recommended solutions.

Beep codes

Beep code	Possible cause	Solution
Printer beeps in a single, double, or triple pattern at first power on. The error light flashes in the same pattern, and the printer won't power up.	The printer has problems with its electronics.	Contact a regional HP authorized service provider for HP Point of Sale System products.
Printer beeps during normal operation.	The printer may be programmed to beep during normal operation by the software application used on the POS computer.	Consult your application software manual.

Printer will not print

Error indicator	Possible cause	Solution
Error light is flashing.	<ul style="list-style-type: none"> • Receipt paper is out. • Receipt cover is open. • Cutter is jammed. • Power supply is out of range. • Print head temperature is out of range. 	Verify that the receipt paper is properly loaded and the covers are closed. Refer to the status indicators table at the beginning of this appendix. If the problem continues, contact your regional HP authorized service provider for HP Point of Sale System products.
Power light is off.	Power supply may be defective.	If the power supply is plugged in but power does not come on, you need to order a new power supply. Contact a service representative.
Printer has power but doesn't print properly.	Cable may not be connected properly.	Check all cable connections. Verify that the host computer and power supply are both on (the power supply is turned on by plugging it into a live outlet). Look for the green power light to show that the printer has power.
	Solutions to other causes do not solve the problem.	Contact your regional HP authorized service provider for HP Point of Sale System products.

Error light flashing

Possible cause	Solution
Receipt paper has run out.	Replace the paper immediately. Do not try to complete a transaction without paper, or you may lose data.
Receipt cover is open.	Close the receipt cover. The printer will not operate with the cover open.
The cutter is jammed.	Open the receipt cover and check the cutter. Do not force the cover if it will not open. Clean any jammed paper you can see. Tear off any excess paper against the tear-off blade.
The carriage is jammed.	Open the receipt cover and clear paper from the path.
Receipt paper is low.	The printer has 5 to 10 meters (15 to 30 feet) of paper left. Change the paper soon to avoid running out of paper part-way through the transaction. Refer to Installing new receipt paper on page 5 .
Thermal print head temperature is out of range.	The print head may overheat when printing in a room where the temperature is above the recommended operating temperature or when printing high-density graphics continuously, regardless of the room temperature. In either case, the printer will shut off. If the temperature of the print head is too hot, adjust the room temperature or move the printer to a cooler location. If the print head is overheating because of printing high density graphics continuously, reduce the demand on the printer.
DC supply voltage is out of range.	If paper is not low and no conditions indicate that the thermal print head is too hot, the power supply voltage is out of range. Contact your regional HP authorized service provider for HP Point of Sale System products.

Print quality issues

Quality issue	Possible cause	Solution
Colored stripe on receipt.	Paper is low.	Change the paper.
Receipt does not come out all the way.	Paper is jammed.	Open the receipt cover, inspect the cutter, and clear any jammed paper.
Printer starts to print, but stops.	Paper is jammed while the receipt is being printed.	Open the receipt cover, inspect the cutter, and clear any jammed paper.
Print is light or spotty.	Paper roll is loaded incorrectly.	Confirm that the paper is loaded properly.
	Thermal print head is dirty.	Use recommended thermal receipt paper. Clean the thermal print head with an alcohol pen prior to going back to an approved paper. Do not spray the thermal print head with household cleaner; this may damage the print head and the electronics. The thermal print head does not normally require cleaning if the recommended paper grades are used. If you have used non-recommended paper for an extended period of time, cleaning the print head with an alcohol pen will not help.

Quality issue	Possible cause	Solution
	Print head is defective.	Contact a regional HP authorized service provider for HP Point of Sale System products.
Vertical column of print is missing, one side of receipt is missing, or top or bottom half of characters are missing.	Print head is defective.	Contact a regional HP authorized service provider for HP Point of Sale System products.
	Print head setting is incorrect.	Check diagnostics setting.

Cutter errors

Error	Possible cause	Solution
Receipt is not cut.	Paper is jammed.	Open the receipt cover, inspect the cutter, and clear any jammed paper.
All other problems.	Unknown cause.	Contact a regional HP authorized service provider for HP Point of Sale System products.

Other conditions

The following problems all need to be corrected by a regional HP authorized service provider for HP Point of Sale System products.

- Printer will not cycle or stop when required.
- Printer prints illegible characters.
- Paper will not feed.
- Cutter will not cycle or cut.
- Platen will not open or close.
- Printer will not communicate with the POS computer.

Contacting support

To resolve a hardware or software problem, go to <http://www.hp.com/support>. Use this site to get more information about your product, including links to discussion forums and instructions on troubleshooting. You can also find information on how to contact HP and open a support case.

Preparing to call technical support

If you cannot solve a problem, you may need to call technical support. Have the following information available when you call:

- Printer model number and serial number
- If the product is connected to an HP POS computer, provide the serial number of the POS computer
- Purchase date on invoice


- The spare part number located on the product
- Condition under which the problem occurred
- Error messages received
- Hardware configuration
- Name and version of the hardware and software you are using

B Safety instructions

This chapter contains important information for the safe use of the thermal receipt printer. The instructions should be followed at all times to reduce risk of injury or damage. Before installing and using the printer, please read the following items carefully.

Print head

- The print head is an ESD-sensitive, thermal element and operates at a high temperature. Do not touch the print head or peripheral equipment during or immediately after operation.
- Set the print weight to the lowest grade that produces acceptable print quality. This will extend the life of the print head.


 **CAUTION:** Do not allow the printer to start printing when no receipt paper is installed. Otherwise the print head and platen roller will be seriously damaged.

Location

- Install the printer on a flat and stable surface.
- Reserve adequate space around the printer so that convenient operation and maintenance can be performed.
- Keep the printer away from water sources and avoid direct exposure to sunlight, strong artificial light, and heat.
- Do not use or store the printer in a place exposed to high temperature, moisture, or serious pollution.
- Do not place the printer in a location exposed to vibration or impact.
- Do not place the printer in a location where condensation can accumulate on the printer. If condensation does accumulate, do not turn on the power until the condensation has completely evaporated.

Power

- Connect the AC adapter to an appropriate AC outlet. Avoid sharing a single AC outlet with large power motors and other devices that may cause fluctuation in voltage.
- Disconnect the AC adapter when the printer will not be used for a long time.
- Do not allow water or conductive materials such as metal to enter the printer. If this happens, unplug the printer from the power source immediately.

 **WARNING!** If water or conductive materials have entered the printer, do not turn the power off at the printer, as this could lead to an electrical shock.

- To avoid damage to the printer, turn the power off before connecting or disconnecting cables or interfaces.

Other instructions

- Do not touch the printer's cutter.
- To ensure print quality and normal operation for the life of the printer, use recommended or good quality paper.
- The printer should only be disassembled or repaired by a technician who is certified by the manufacturer.
- Keep this manual safe and at hand for ready reference.

C Technical specifications

Thermal receipt printer

Description		Specification
Printing	Print method	Direct thermal line printing
	Resolution	203 × 203 DPI
		203 × 180 DPI
	Paper width	57.5/80/82.5 mm
	Print width	Max 80 mm
	Print speed	Max 250 mm/s
	Flash LOGO	Max 1 MB
	Command buffer area	64 KB, 4 KB, or 45 bytes
Interface	USB	USB 2.0
	Serial interface	RS 232C
	Parallel interface	IEEE 1284
	Cash drawer	Can be set to control one or two cash drawers
Memory		Flash: 8 MB
		RAM: 2 MB
Printer status detection		Paper end sensor / watermark sensor
		Paper near end sensor
		Cover position sensor
		Paper presence sensor
		Print head temperature sensor
		Printer voltage detection
Cut mode		Full cut
		Partial cut
Barcode	1D	UPC-A, UPC-E, CODE 39, CODE 93, CODE 128, EAN8, EAN13, ITF, CODABAR
	2D	PDF417, QR, Maxicode
Fonts		Font A: 12 × 24
		Font b: 9 × 17
		Kanji font A: 24 × 24
Character set		95 Alphanumeric

Description		Specification
		14 types of international characters
		128 × 68 code page
		Optional: Traditional Chinese, Simplified Chinese, (GB2312/18030), Japanese, Korean, English, HK
		User-defined font (95) & code page
Character enlargement		All characters can be enlarged one to six times horizontally and vertically.
Character rotation		Rotation printing in four directions (0°, 90°, 180°, 270°)
Command		ESC/POS compatible
Paper	Paper type	Thermal continuous paper
		Thermal marked paper
	Paper roll OD	Max: 83 mm
	Paper thickness	0.06 mm–0.10 mm thermal paper
Power supply	Input	100–240 VAC, 50–60 Hz
	Output	24 V ± 5% DC, average current 2 A
	External or not	External power adapter
Human-machine interface	Power switch	Support
	Button	Support
	LED	Support, including power light and error light
	Buzzer	Support, 24 V buzzer
Reliability	Lifetime of print head	≥150 Km (standard test sample with 12.5% duty ratio)
	Lifetime of cutter	2,000,000 cuts (standard test condition)
	MCBF	70,000,000 lines
	MTBF	360,000 hours (main control board)
Operational temperature and humidity		5°C~45°C, 20%~90%RH(40°C)
Storage temperature and humidity		-40°C~60°C, 10%~90%RH(40°C)
Overall dimensions		127 mm (L)*127 mm (W)*134 mm(H)
Functions	Saving paper	Support
	Button configuration	Support (configure the printer without the computer)
	Right-up-side printing	Support
	Water mark printing	Support
	Gray scale printing	Support

Paper cutter specifications

Specification	Description	Notes
Cutting method	Sliding blade	
Cutting time	500 ms	The time of one cut
Cutting interval	3 s	20 cuts/minute (Max.)
Applicable paper types	0.06 mm–0.10 mm thermal paper	
Operation voltage	24 VDC	
Maximum operation current	1.2 A	Operation voltage 24 VDC
Cutter lifetime	2,000,000 cuts	Standard test condition

Paper specifications

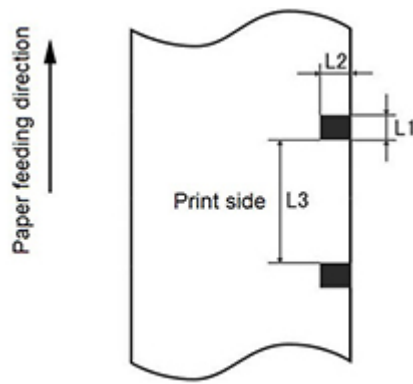
Specification	Description
Paper type	Thermal paper
Paper supply mode	Paper roll
Paper width	57.5/80/82.5 mm
Paper thickness	0.06 mm–0.10 mm
Thermal layer	Outward
Paper roll	Paper roll OD Max ϕ 83 mm, core ID Min. ϕ 12.8 mm

Recommended paper suppliers

Paper model	Manufacturer
600-3.1	APPLETON Papers Inc
KLS_46_e	KANZAN Spezialpapiere GmbH
FD210	OJI Paper CO., LTD.

Parameters of marked paper

The printer can support marked paper printing and set the cutting and initial printing position accurately. The marked paper should not only meet the specifications of thermal paper roll for the printer, it should also meet the following requirements.



Specification	Description
L1 mark height	$3\text{ mm} \leq L1 \leq 13\text{ mm}$
L2 mark height	$L2 \geq 8\text{ mm}$
L3 distance between marks	$30\text{ mm} \leq L3 < 450\text{ mm}$
Thermal side mark sensor position	Reserved for the left/middle/right positions
Non-thermal side mark sensor position	The middle/left/right position is selectable
Reflectivity	The reflectivity of the black mark must be no more than 15% while the reflectivity of the paper itself should exceed 85%. There should be no image between the two marks.

When using marked paper, it is important to be aware of the following guidelines:

- Please use the recommended paper or its equivalents. Using paper of lower or different quality might adversely affect the print quality and shorten the lifetime of the print head.
- Do not stick paper onto the core shaft.
- If the paper is contaminated by chemicals or oils, it may discolor or lose heat sensitivity at the polluted spot, which will affect the quality of printing.
- To avoid lower print quality, do not rub the paper surface with hard objects.
- When the environment temperature goes up to 70°C, paper will discolor. Do not use or store paper under high temperature, high humidity, or strong light conditions.
- The mark is measured during printing and paper feeding. If the mark height value detected by the sensor is bigger than the default value, the printer's alarm will sound, indicating the end of the paper roll. The default height value is 13 mm.

D Main menu button configuration

The main menu contains the configuration options for the printer. Use the paper feed button to indicate the desired selection. Indicate a number selection by pressing the paper feed button with a short press the desired number of times.

Main menu option	Description	Option number
Exit	Exits the main menu.	1
Print self-test	Prints a self-test receipt.	2
Configuration	Enters the printer configuration menu.	3
Sensor test mode	Enters sensor test mode. The error LED will change to indicate the state of the sensor. See Error light flashing on page 22 for more information. To exit sensor test mode, hold the paper feed button down for at least one second.	4
Print NV bitmap	Prints a copy of the NV bitmap.	5
Cutter test	Performs a cutter test.	6
Print statistics	Prints statistics of the printer's use, including number cuts, on time hours, and other information.	7
E05 Configuration (select products only)	Enters E05 configuration mode menu.	8

Configuration menu

Menu option	Option number
Exit without saving	1
Exit with saving	2
Communication	3
Mechanism and hardware settings	4
Print settings	5
Paper sensor settings	6
Set default configuration	7
Font A/Font B settings	8
Beep settings	9
Test page settings	10

Communication menu

Menu option	Option number
Back to last menu	1
USB interface	2
Serial interface	3
RX Buff size	4

USB interface menu

Menu option	Option number
Back to last menu	1
Win driver mode	2
API mode	3

Serial interface menu

Menu option	Option number
Back to last menu	1
Baud rates	2
Parity	3
Data bits	4
Stop bit(s)	5
Handshaking	6
Data receive error	7

Baud rates menu

Menu option	Option number
Back to last menu	1
9600 bps	2
19200 bps	3
38400 bps	4
57600 bps	5
4800 bps	6
2400 bps	7

Menu option	Option number
1200 bps	8
115200 bps	9

Parity menu

Menu option	Option number
Back to last menu	1
None	2
Odd	3
Even	4

Data bits menu

Menu option	Option number
Back to last menu	1
7 bits	2
8 bits	3

Stop bit(s) menu

Menu option	Option number
Back to last menu	1
1 bit	
2 bits	

Handshaking menu

Menu option	Option number
Back to last menu	1
DTR/DSR	2
XON/XOFF	3

Data receive error menu

Menu option	Option number
Back to last menu	1

Menu option	Option number
Ignored	2
Print '?'	3

RX Buff size menu

Menu option	Option number
Back to last menu	1
4k Bytes	2
45 Bytes	3
64 KBytes	4

Mechanism and hardware settings menu

Menu option	Option number
Back to last menu	1
Paper mark sensor	2
Cutter	3

Paper mark sensor menu

Menu option	Option number
Back to last menu	1
Enable	2
Disable	3

Cutter menu

Menu option	Option number
Back to last menu	1
Cut mode	2
Autocut settings	3
Buzzer	4

Cut mode menu

Menu option	Option number
Back to last menu	1
Enable	2
Disable	3
Full cut mode	4
Partial cut mode	5
Default cut mode	6

Autocut settings menu

Menu option	Option number
Back to last menu	1
Cut paper when receipt cover is closed	2
Do not cut paper when receipt cover is closed	3
Cut paper when power on	4
Do not cut paper when power on	5
Disable	6

Buzzer menu

Menu option	Option number
Back to last menu	1
Enable	2
Disable	3

Print settings menu

Menu option	Option number
Back to last menu	1
Darkness	2
Paper roll width	3
Left margin	4
Right margin	5
CR command	6

Menu option	Option number
Codepage	7
Save paper level	8

Darkness menu

Menu option	Option number
Back to last menu	1
Low	2
Normal	3
High	4
Extra high	5

Paper roll width menu

Menu option	Option number
Back to last menu	1
57.5 mm	2
80 mm	3
82.5 mm	4

Left margin menu

Menu option	Option number
Back to last menu	1
0 mm	2
1 mm	3
3 mm	4
5 mm	5
7 mm	6
9 mm	7

Right margin menu

Menu option	Option number
Back to last menu	1

Menu option	Option number
0 mm	2
1 mm	3
3 mm	4
5 mm	5
7 mm	6
9 mm	7

CR command menu

Menu option	Option number
Back to last menu	1
Enable	2
Disable	3

Codepage menu

Menu option	Option number
Back to last menu	1
Print all codepages	2
Select a codepage	3

Save paper level menu

Menu option	Option number
Back to last menu	1
Disable	2
25%	3
50%	4
75%	5
100%	6

Paper sensor settings menu

Menu option	Option number
Back to last menu	1

Menu option	Option number
Paper low alarm	2
Stop printing when paper is low	3
Paper near end sensor	4

Paper low alarm menu

Menu option	Option number
Back to last menu	1
Enable	2
Disable	3

Stop printing when paper low menu

Menu option	Option number
Back to last menu	1
Enable	2
Disable	3

Paper near end sensor menu

Menu option	Option number
Back to last menu	1
Enable	2
Disable	3

Set default configuration menu

Menu option	Option number
Back to last menu	1
Set printer to default configuration	2

Font A/Font B settings menu

Menu option	Option number
Back to last menu	1

Menu option	Option number
Select FONTA	2
Select FONTB	3
Select UD FONTA	4
Select UD FONTB	5

Beep settings menu

Menu option	Option number
Back to last menu	1
Enable external buzzer	2
Enable internal buzzer	3
All beeps disabled	4

Beep mode menu

Menu option	Option number
Back to last menu	1
Mode 1	2
Mode 2	3
Mode 3	4
Mode 4	5
Mode 5	6

Test page settings menu

Menu option	Option number
Back to last menu	1
Enable	
Disable	

E05 configuration menu

Menu option	Option number
Reset JK-E04 config	1
Print settings	2