OD5

User Manual

Version EV1.140b

EMS AND EMI COMPLIANCE STATEMENT
FOR EUROPEAN USERS

This equipment has been tested and passed with the requirements relating to electromagnetic compatibility based on the standards EN50081-1 (EN55022 CLASS A) and EN61000-4-2/-3/-4/-5/-6/-8/-11 (IEC Teil 2,3,4). The equipment also tested and passed in accordance with the European Standard EN55022 for the both Radiated and Conducted emissions limits.

THE OD5 THERMAL PRINTER
TO WHICH THIS DECLARATION RELATES
IS IN CONFORMITY WITH THE FOLLOWING STANDARDS

EN55022 : 1998,CLSPR 22 , Class A / EN55024 : 1998 IEC 61000-4 Serial / EN61000-3-2 : 2000 / EN 61000-3-3 : 1995 / CRF 47, Part 15/CISPR 22 3rd Edition : 1997,Class A / ANSI C63.4 : 2001 / CNS 13438,CISPR 22(Class A) / IEC60950 3rd Edition (1999) / GB4943 : 2001 / GB9254 : 1998 / GB17625.1 : 2003

CAUTION
Danger of explosion if battery is incorrectly replaced
Replace only with the equivalent type recommended by the manufacture.
Dispose of used batteries according to the manufacturer's instructions.

Specifications are subject to change without notice.

Chapter 1 - Label Printer

1-1. Introduction

The OD5 is a desktop thermal transfer / direct thermal label printer. With plastic outer casing, the OD5 is designed to be a lightweight and an economic printer for large variety of printing requirement. Its features are as follows:

- Direct Thermal and Thermal Transfer Printing Mode
- Print head density of 8 dots per mm (203 dpi)
- Memory for label, graphics, and fonts download (approximately 500KB)
- Optional Real Time Clock for time recording and tracking
- Internal 5" (125mm) label roll capacity and 300M (Max O.D. 64mm) ribbon length (0.5" core size)
- Standard 2MB RAM for Maximum 68" print length
- Standard stripper module for labels
- Optional cutter for ticketing or receipt printing applications
- Free Bundle of label editing software.

1-2. Printer Models

1-3. Printer Accessories

After unpacking, please check the accessories that come with the package, and store them appropriately.

(1) Barcode Printer	(2) Power Cables (220V)	(3) Switching Power Adapter
(4) Parallel Port Cable	(5) Label Roll Core	(6) Ribbon Shaft (2pcs)
(7) Empty Roll Core	(8) Label Roll Sample	(9) Ribbon Roll Sample
(10) Quick Start Guide	(11) Product CD	

** If a different power supply is used with the printer which has caused damages to the printer itself, then this is not covered as part of the product warranty.*

1-4. General Specifications

Model Name	**OD5**
Resolution	203 dpi (8 dot/mm)
Print Mode	Thermal Transfer / Direct Thermal
CPU	16 Bit
Sensor Location	Moveable, center aligned
Sensor Type	Reflective
Sensor Detection	Type: Label gap, black mark, and punch hole sensing. Detection: Label length auto sensing and / or program command setting
Print Speed	2~4 IPS Standard
Print Length	Min. 12mm (0.47"); Max. 1727mm (68")
Print Width	104mm (4.10")
Media	Label Roll OD: Max. 127mm (5") Core Diameter: 0.5",1", 1.5", 3" Width: 25mm (1 ") ~ 118mm (4.65") Thickness: 0.06~0.3mm (0.0025"~0.012")
Ribbon	Length: 300M (981 ft) Max. ribbon roll OD: 64mm (2.52 ") Type: transfer ribbons (wax, wax/resin, resin) in widths of 30mm to 110mm (1.88" to 4.33") Core Inner Diameter: 0.5"
Printer Language	EPL2 ;Firmware Downloadable
Software / Driver	Application: Seagull Bartender Driver: Seagull OPAL OD DLL & Driver: Microsoft Windows 95, 98, Me, NT 4.0, 2000 and XP
Resident Fonts	5 resident alphanumeric fonts (included OCR A & B) those are expandable 8 times horizontally and vertically. All fonts in 4 directions rotation. 6,7,10,12,24,pts
Image Handling	PCX,
Barcode	Code 39, Code 93, Code 128 (subset A, B, C), UCC/EAN-128 K-Mart, UCC/EAN-128, UPC A / E (add on 2 & 5), I 2 of 5, I 2 of 5 with Shipping Bearer Bars, EAN 8 / 13 (add on 2 & 5), Codabar, Postnet, EAN 128, DUN 14, MaxiCode, PDF417 & Datamatrix code
Interface	Serial , Parallel, USB
Interface Transmission	Baud rate 4800 ~ 38400, XON/XOFF, DSR/DTR
Memory	DRAM: 2MB, FLASH: 1MB
LED Display	LED * 2, Bi-Color Function Key * 1,FEED
Power	Auto Switching 100/240VAC, 50/60 Hz
Environment	Operation: 40℉ to 104℉ (5℃ to 40℃) Storage: -40℉ to 122℉ (-20℃ to 50℃)
Humidity	Operation: 30-85%, non-condensing. Free air. Storage: 10-90%, non-condensing. Free air.
Cert. Approval	CE
Printer Dimension	Length: 285mm (11.2") Height: 171mm (6.8") Width: 226mm (8.9") Weight: 2.72Kg
Options	Rotary Cutter Module 1MB Flash Expansion Card + RTC (Real Time Clock) 2 MB Flash Expansion Card + RTC (Real Time Clock) Internal Ethernet Adapter Card

Specifications are subject to change without notice.

1-5. Communication Interface

Parallel Interface

Interface cable : Parallel cable compatible with IBM PC
Pin out : See below

PIN NO.	FUNCTION	TRANSMITTER
1	/Strobe	host / printer
2-9	Data 0-7	host
10	/Acknowledge	printer
11	Busy	printer
12	/Paper empty	printer
13	/Select	printer
14	/Auto-Linefeed	host / printer
15	N/C	
16	Signal Gnd	
17	Chasis Gnd	
18	+5V,max 500mA	
19-30	Signal Gnd	host
31	/Initialize	host / printer
32	/Error	printer
33	Signal Ground	
34-35	N/C	
36	/Select-in	host / printer

Serial Interface

Serial Default Setting : 9600 baud rate, no parity, 8 data bits, 1 stop bit, XON/XOFF protocol and RTS/CTS

RS232 HOUSING (9-pin to 9-pin)

DB9 SOCKET		DB9 PLUG
---	1 ——— 1	+5V,max 500mA
RXD	2 ——— 2	TXD
TXD	3 ——— 3	RXD
DTR	4 ——— 4	DSR
GND	5 ——— 5	GND
DSR	6 ——— 6	DTR
RTS	7 ——— 7	N/C
CTS	8 ——— 8	RTS
RI	9 ——— 9	N/C
PC		PRINTER

NOTE: The total voltage output from parallel port and serial port altogether can not exceed 500mA.

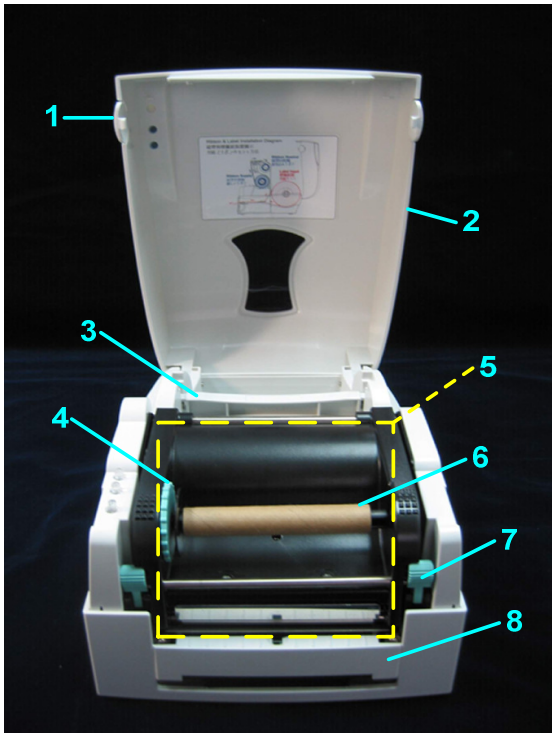
USB Interface

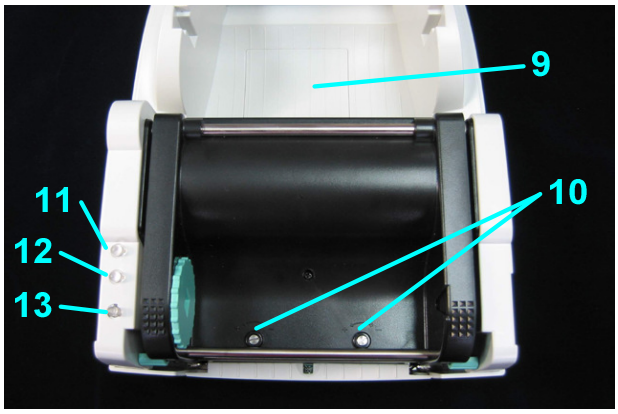
Connector Type : Type B

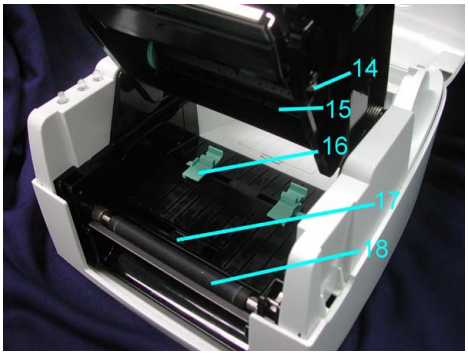
PIN NO.	1	2	3	4
FUNCTION	USBVCC	D-	D+	GND

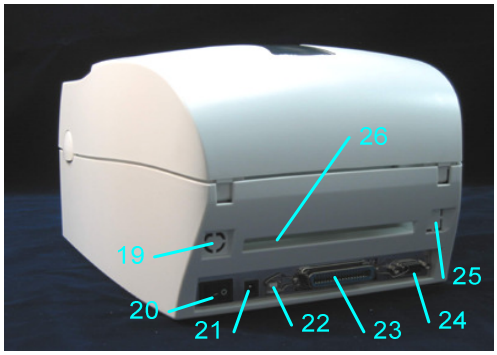
1-6. Printer Parts

Please use the following diagrams to identify each printer part.









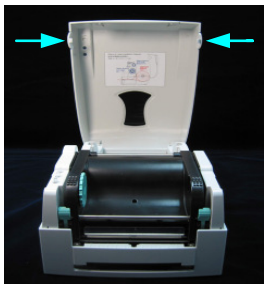
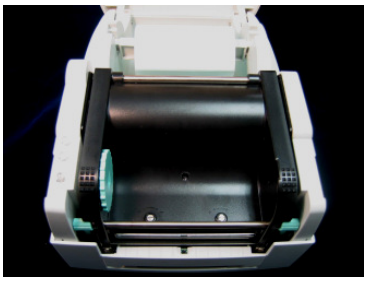
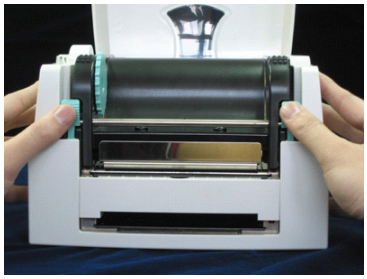
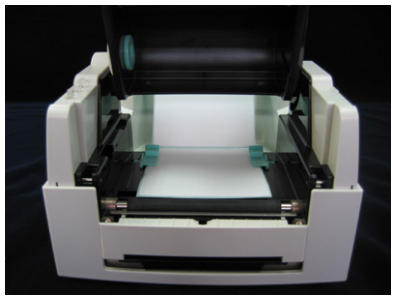
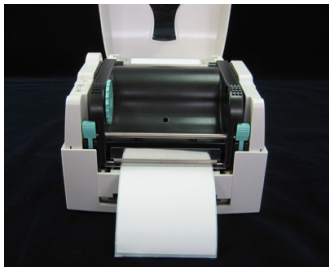
1	Cover Open Button	11	LED Light (Ready)	21	Power Socket
2	Top Cover	12	LED Light (Status)	22	USB Port
3	Label Roll Core	13	FEED Key	23	Parallel Port
4	Ribbon Rewind Wheel	14	Print Line Adj. Gear	24	Serial Port
5	Print Mechanism	15	Ribbon Supply Shaft	25	Ethernet Socket (Option)
6	Ribbon Rewind Shaft + Empty Ribbon Take Up Core	16	Label Guide	26	Fan-Fold Label Insert
7	Locking Tenon (left/right)	17	Label Sensor		
8	Stripper Module	18	Platen Roller		
9	Memory Card Cover	19	PS2 Socket		
10	Print Head Pressure Adj. Screw (left/right)	20	Power Switch		

Chapter 2 - Printer Installation

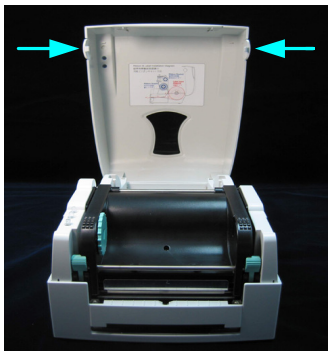
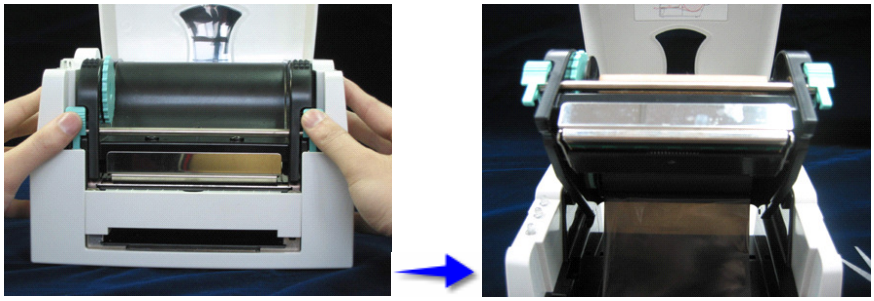
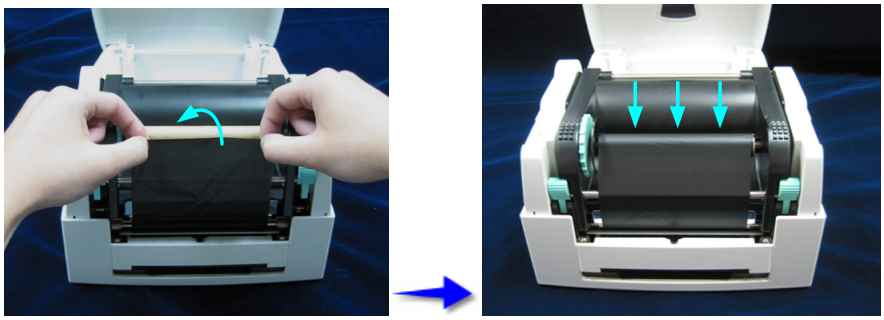
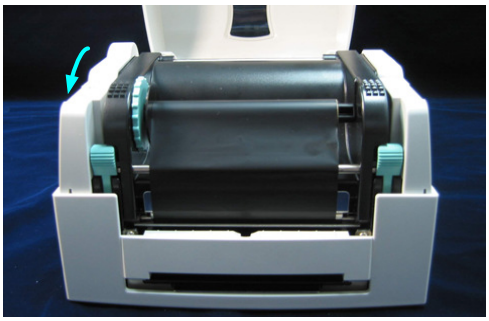
This printer model has the following print modes:

Thermal Transfer (TT):	When printing, ribbon must be installed to transfer the print contents onto the media.
Direct Thermal (DT):	When printing, no ribbon is necessary; it only requires direct thermal media.

2-1. Label Installation

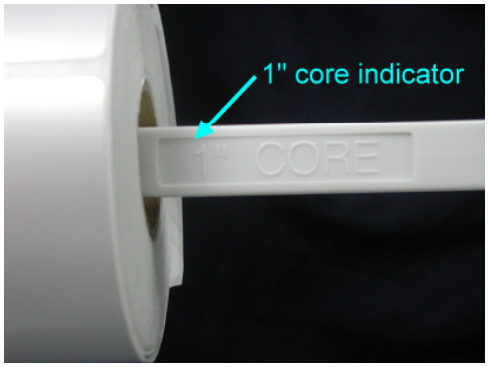
1. Open the top cover by pressing the Cover Open Buttons on both sides.	
2. Place the label roll onto the Label Roll Core.	
3. Loosen and lift the upper print mechanism by pressing the locking tenons.	
4. Feed the label through the two Label Guides to the Tear-off Bar. 5. Align the label guides to the label edge.	
6. Close the upper print mechanism from the top to finish label installation.	

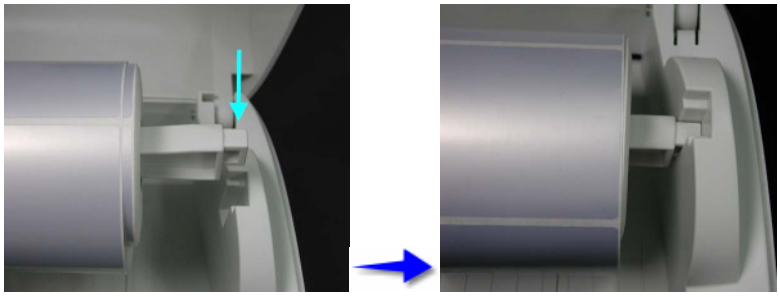
2-2. Ribbon Installation

1. Open the top cover by pressing the Cover Open Buttons on both sides.	
2. Loosen and then lift the upper print mechanism by pressing the locking tenons. 3. Take out the ribbon supply shaft and rewind shaft. 4. Place the new ribbon roll onto the ribbon supply shaft.	
5. Feed the ribbon from the Ribbon Supply Shaft under the Print Head. 6. Wrap the ribbon around the Ribbon Shaft and stick the ribbon onto the Empty Ribbon Roll Core.	
7. Firmly close the upper print mechanism.	

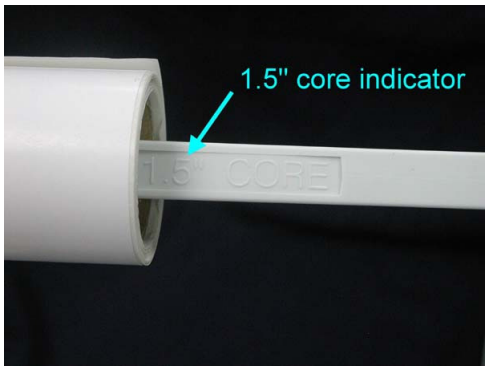
2-3. Label Roll Core Installation Instruction

(A) 1” roll core installation instruction

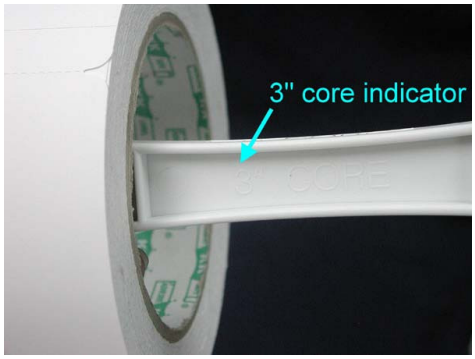


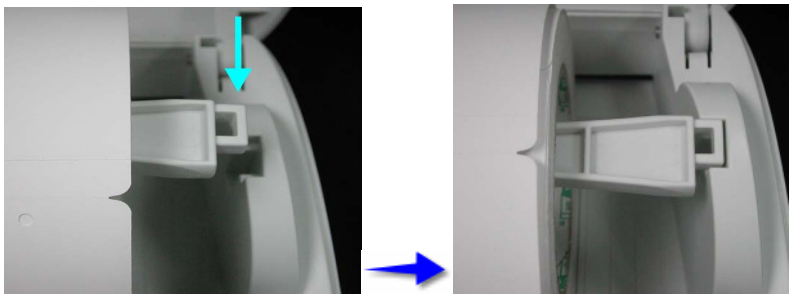


(B) 1.5” roll core installation instruction



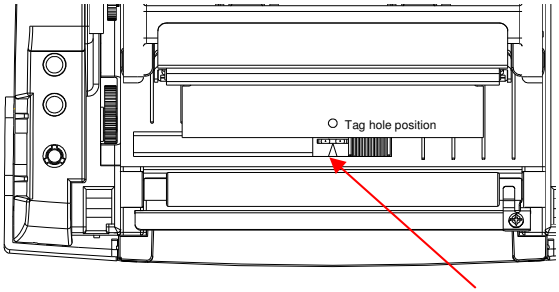
(C) 3” roll core installation instruction



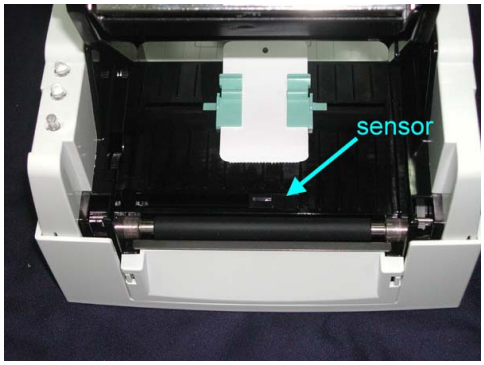


2-4. Card / Hang tags Installation

When installing cord tags, the tag hole must align with the sensor arrow (as indicated in Photo 1), then use the Label Guide to secure the tags.



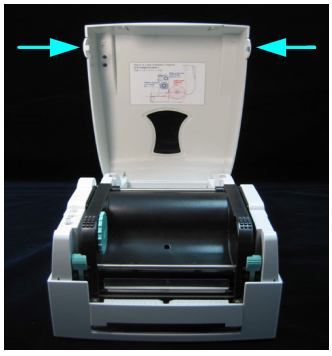
Sensor Detection Position



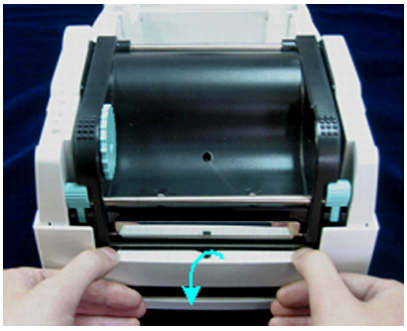
(Photo 1)

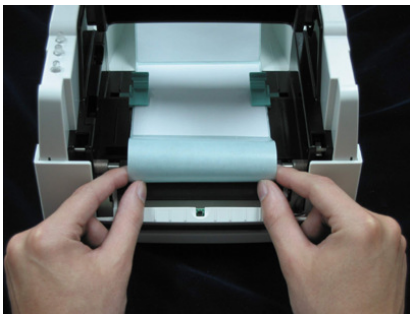
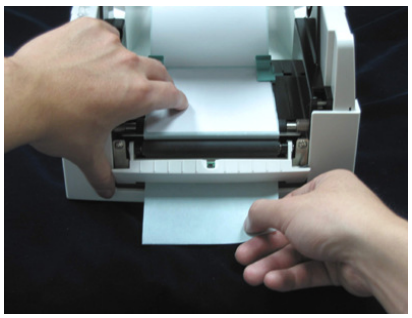
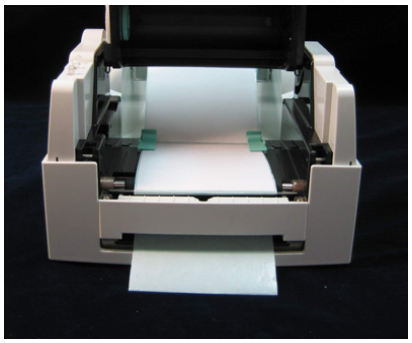
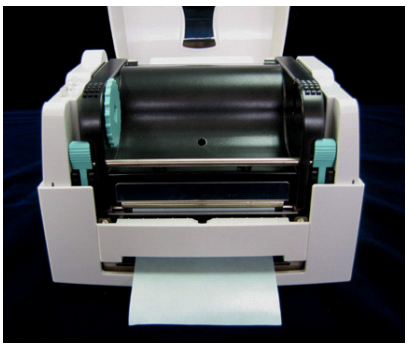
2-5. Stripper Installation

1. Open the top cover by pressing the Cover Open Buttons on both sides.

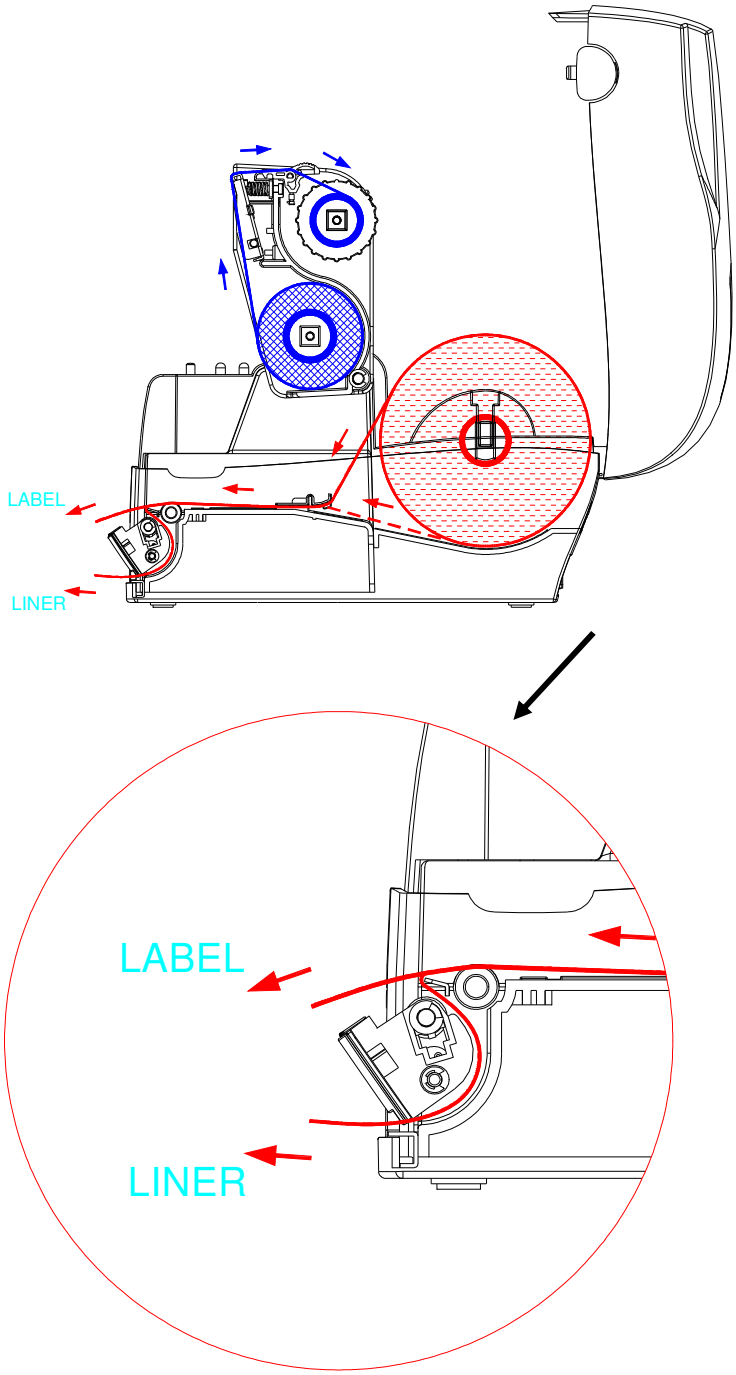


2. Flip to open the stripper module.



3. Peel off the first label, and feed the liner through the roller and the peel off bracket.	
4. Pull to level the label.	
5. Flip to close the stripper module.	
6. Close the print mechanism, and then press the FEED key.	

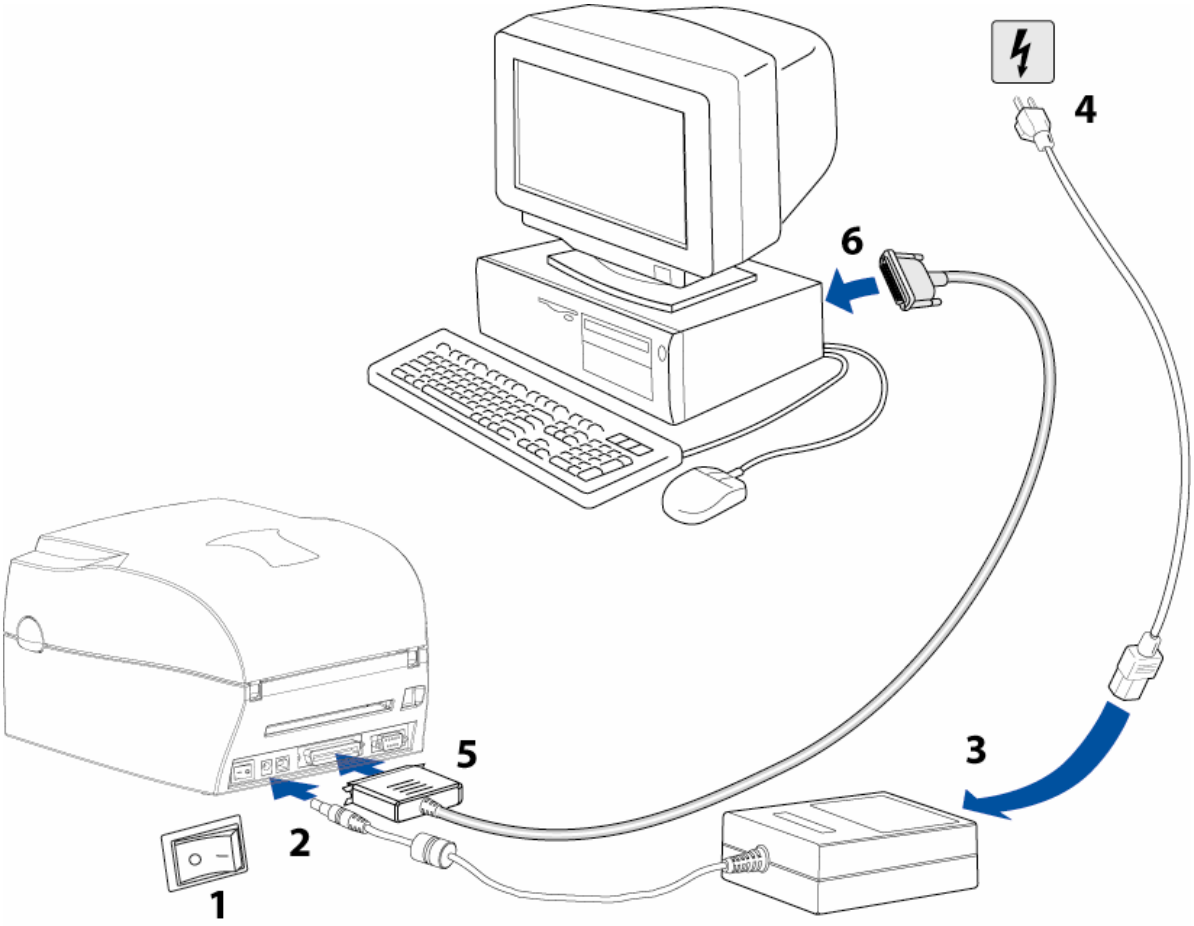
2-6. Stripper Installation Diagram



2-9. PC Connection

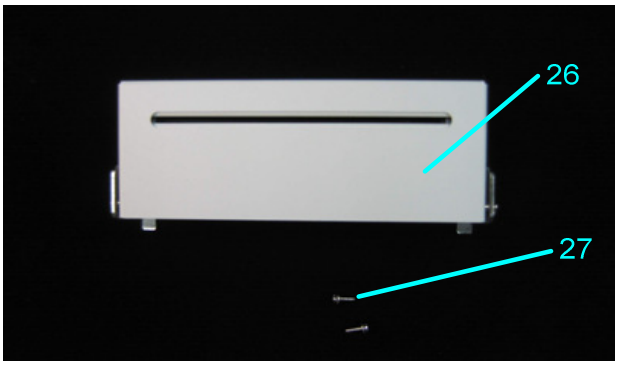
1. Please make sure the printer is powered off.
2. Take the power cable, plug the cable switch to the power socket, and then connect the other end of the cable to the printer power socket.
3. Connect the cable to the parallel port on the printer and on the PC.
4. Power on the printer. The LED light (Ready) should turn green when power is on.

Remark: If you wish to connect with an USB interface, please install the USB driver first.



Chapter 3 - Options Installation

3-1. Cutter Parts



27	Cutter Module
28	Screw (TAP 3*8) x 2pcs

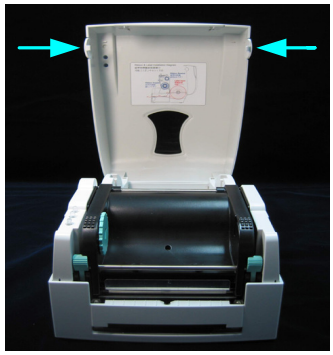
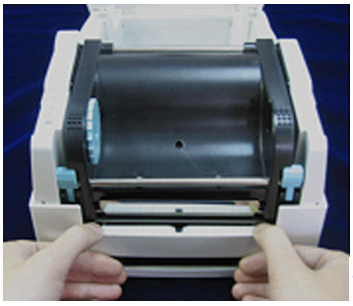
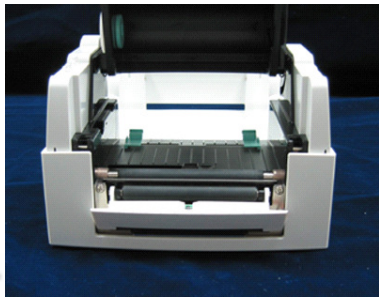
(Note 1) Please power off the printer before installing the cutter module.

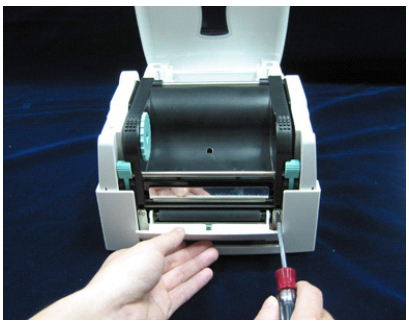
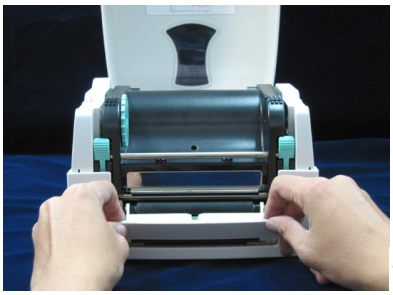
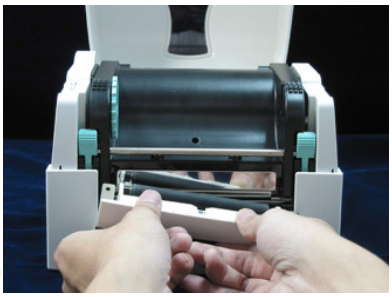
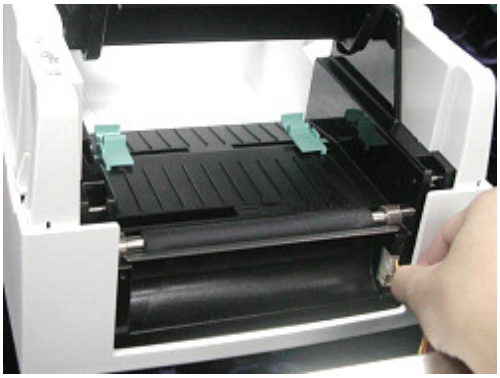
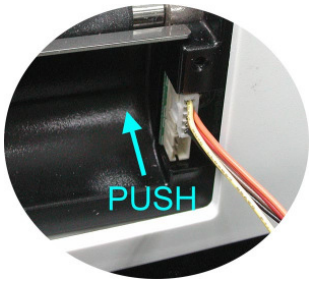
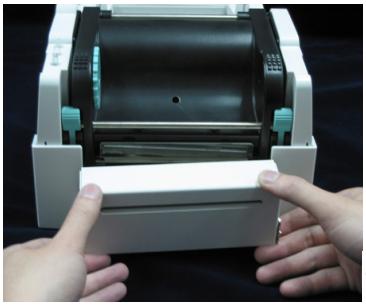
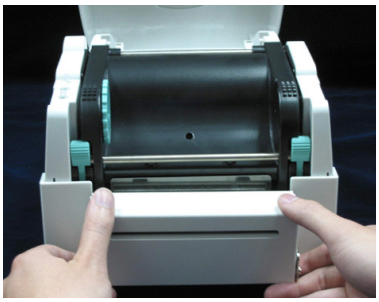
(Note 2) Do not cut self-adhesive labels! The traces of adhesive will pollute the rotary knife and impair safe operation! The service life of the cutter is 500,000 cuts with 160g/m^2 paper weight and 250,000 cuts with 200g/m^2 paper weight

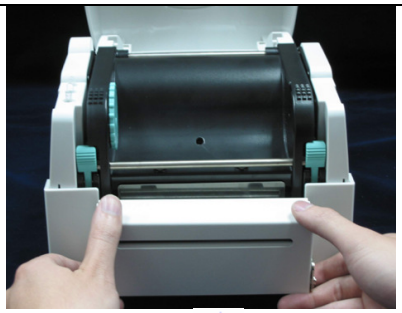
(Note 3) Max.paper cutting width: 116mm

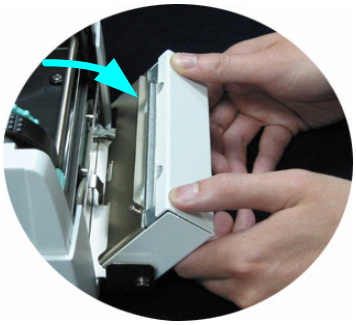
[Suggestion]: When installing the cutter module, set the stop Position to 29 in your driver. The E value is 29.

3-2. Cutter Installation

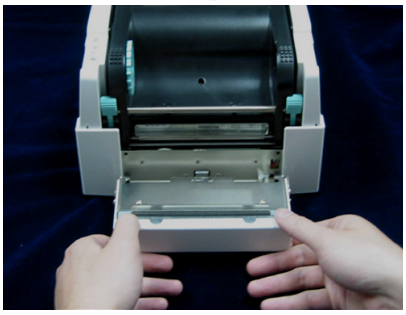
1. Open the top cover by pressing the Cover Open Buttons on both sides.	
2. Flip to open the stripper module.	 

3. Hold the stripper module and loose the screws.	
4. Lift/take off the stripper module.	 
5. Open the mechanism by pressing the Locking Tenon, plug in the cable connector of the cutter module (26) onto the switchboard socket. *Note: There are 2 sockets on the converting boards (one is for stripper installation, another is for cutter installation), before plug the connector into socket, please check the pin first.*	 
6. Clip in the right side of the cutter module (26) first, and then secure the left side.	 
7. Flip the cutter module (26) down to open the cutter. *Note: Please refer to photo (A).*	

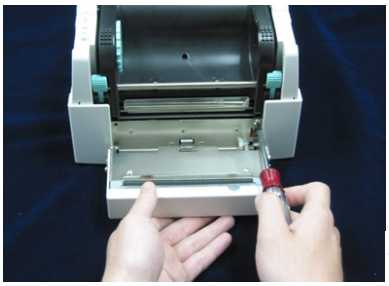


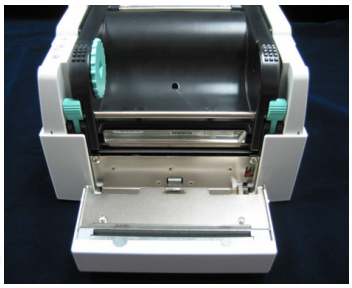


(A)

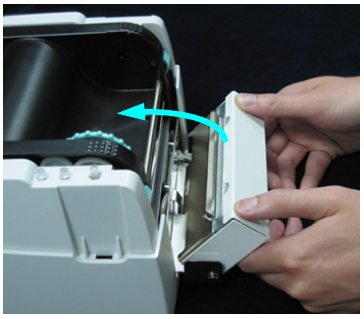


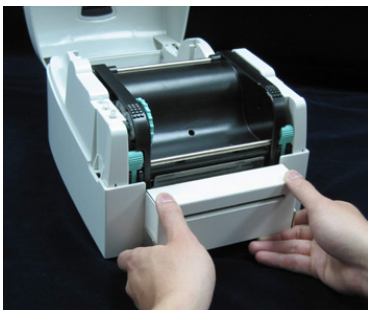
8. Hold the cutter module and lock it with the two side screws (27).



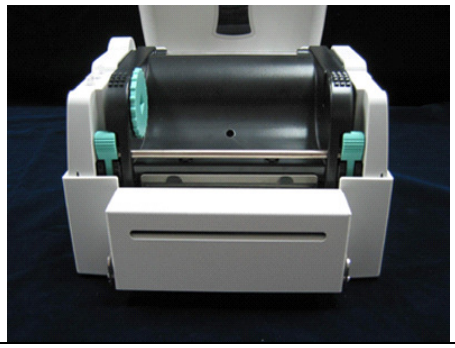


9. After the screws are locked, flip close the cutter module.

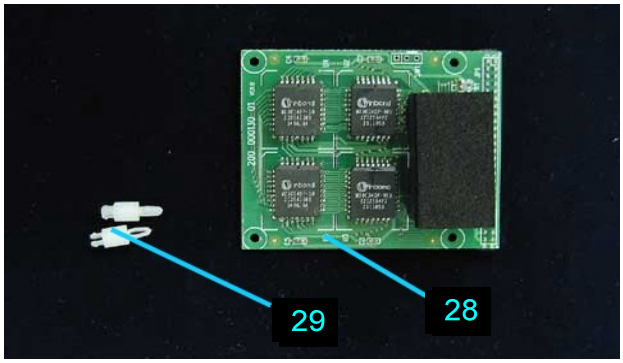




10. Close the mechanism to complete the cutter module installation.



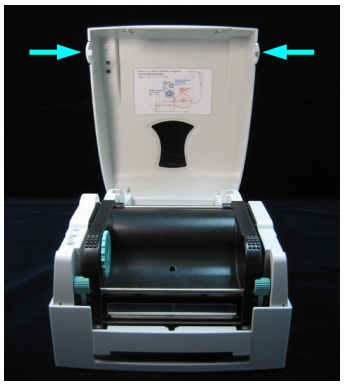
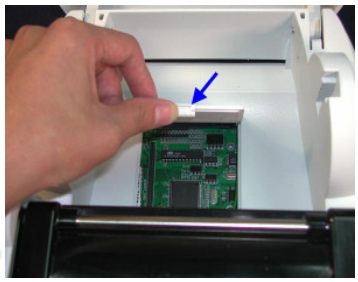
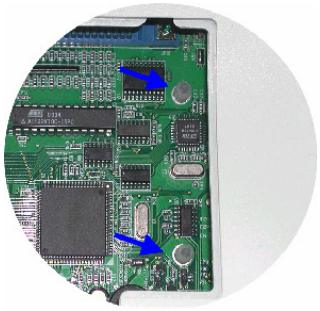
3-3. Extended Memory Parts

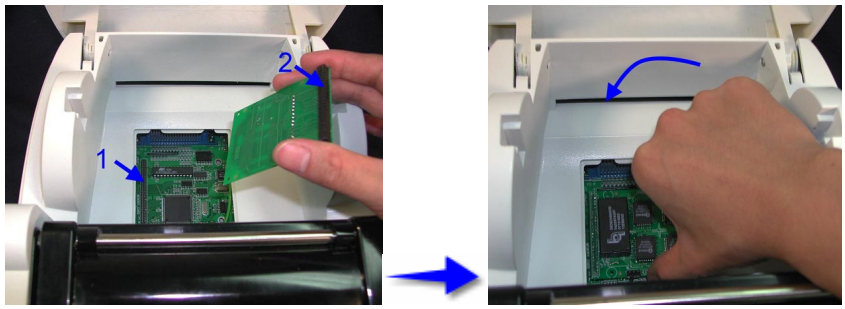
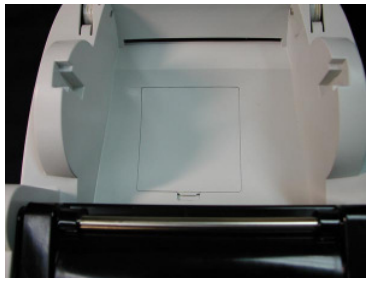


28	Extended Memory Card
29	PCB Pillar x 2pcs

[NOTE]: Please power off the printer before installing the extended memory.

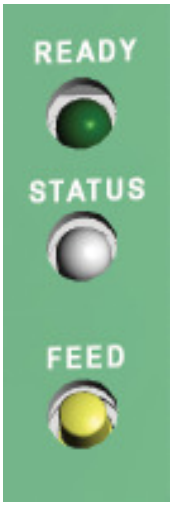
3-4. Extended Memory Installation

1. Open the top cover by pressing the Cover Open Buttons on both sides.	
2. Take off the media roll spindle. Open and remove the plastic cover on the inner base.	 
3. Secure the PCB pillar onto the main board.	 

4. Check the pins where the memory is to be connected to, then plug the memory card onto the main board. *Note: Please make sure the aperture on the connector and the pins match, otherwise when too much force is applied onto the memory card, there's a possibility that the pins may get damaged.*	
5. Close the plastic memory cover.	

4. Control Panel

4-1. LED Status



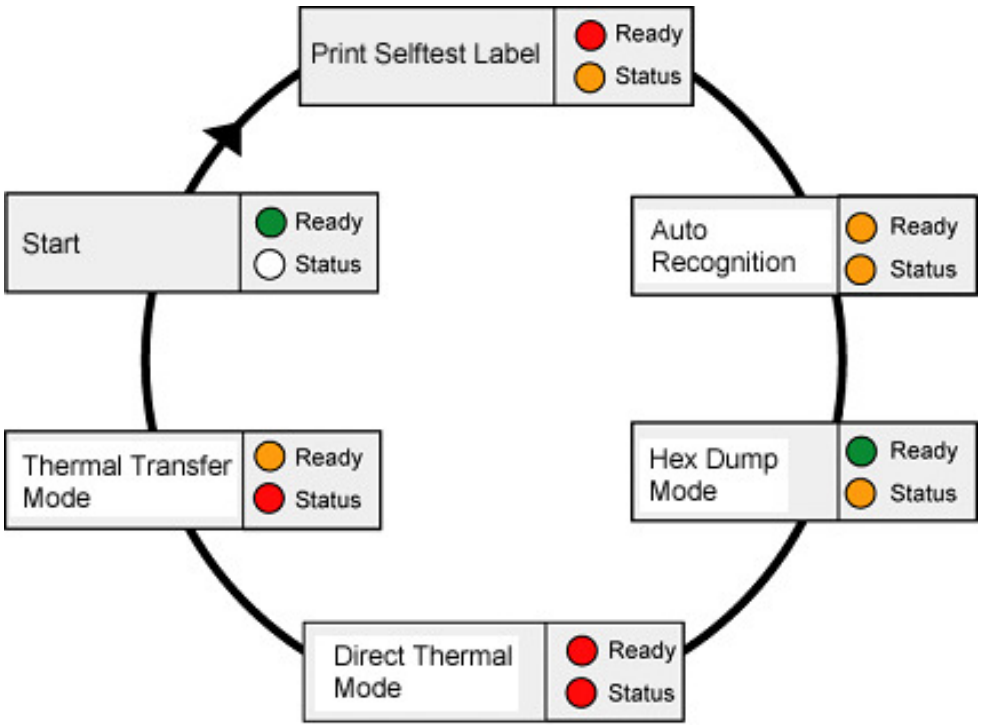
	LED colour	Beep	Status	Description
READY	Green	1	Normal Status	Ready for operation
STATUS				
READY	Red (flashing)	3	Selftest	Printer prints Selftest Label, point 4.3.2
STATUS	Orange			
READY	Orange (flashing)	1	Auto Sensing Mode	Printer is in selfrecognition Mode, point 4.3.4
STATUS	Orange			
READY	Green (flashing)	1	Dump Mode	Printer is in Dump-Mode, point 4.3.3
STATUS	Orange			
READY	Red (flashing)	1	Direct Thermal (DT) Mode	Printer is in Direct Thermal Mode (TD), Punkt 4.3.5
STATUS	Red			
READY	Orange (flashing)	1	Thermal Transfer (TT) Mode	Printer is in Thermal Transfer Mode (TT), Punkt 4.3.5
STATUS	Red			
READY				Printer downloads Firmware
STATUS	Red (flashing)			

4-3. Operation

With the OD5 all important functions can be activated or alternatively completed with a certain key combination. For this you have to switch off the printer. Afterwards you keep the FEED key pressed and switch the printer on. The LED' s will now start to flash. If you release the FEED key, the function is activated, which is indicated with the LED' s. In order to select another function, you have to start this procedure again right from the beginning. You can find the postition of the FEED under point 1.6 (position 13).

The individual functions will be explained individually in the following.

The functions of the FEED keys at a glance:



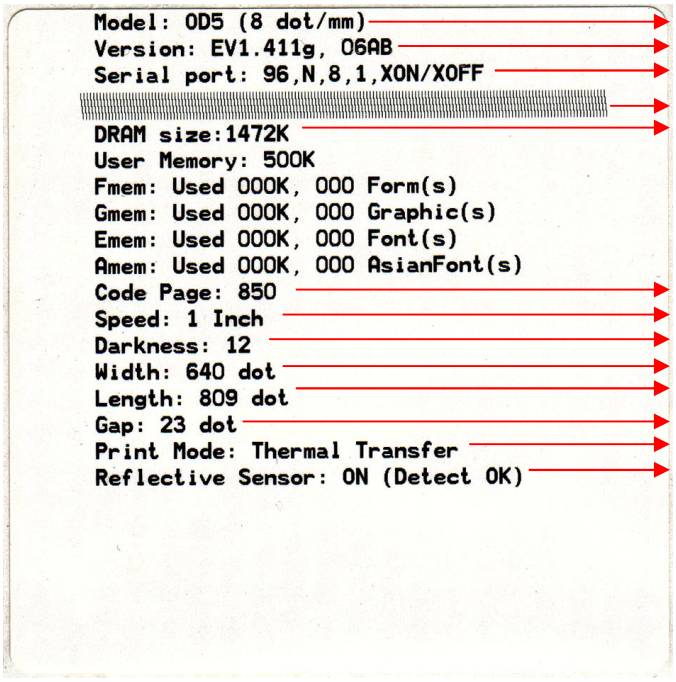
4-3-1. FEED key

If the FEED key is pressed, the printer transports the printer material to the next print position. During printing of continuous material, pressing the FEED key leads to the fact that the pressure material up to a certain length is ejected. However, if label material is printed, an individual label is ejected when pressing the FEED key. If the label length is not correct, please perform the automatic recognition of the label length (see 4-5).

4-3-2. Selftest Label

The self check function makes it easier for the user to find out if the the printer works correctly. In this mode the printer prints out a self check side with each press on the FEED key. In order to stop the self check during the procedure, please switch off the printer.

In order to start the self check mode, please proceed as follows:
1. Switch off the printer.
2. Switch on the printer with pressed FEED key. As soon as you hear three audio signals, the READY LED flashes red and the STATUS LED shines orange, the printer changes into the self check mode.
3. Release the FEED key now. If the printer functions correctly, it'll print out the following document after approximately one second:



Model, version (printhead, resolution)
Firmware version, Checksum of the firmware (06AB)
Serial settings: 9600, no, 8 Bit, 1 Stopbit, XON/XOFF

Printhead test
Cash-memory for print jobs
Available memory for fonts, graphics and sizes

Font (Standard 850)
Printing speed

Label Width (640dot / 8dot = 80mm)
Label Length (809dot / 8dot = 101,1mm)

Label Gap (23dot / 8dot = 2,9mm)
Print Mode: Thermal Transfer or Direct Thermal
Label Sensor: on/off (recognize Label: ok/not ok)

The document printed out with the self check informs about the internal settings of the printer.

4-3-3. Hexdump Mode

If label settings and the printed result do not match, please check whether any disturbances arose during the data communication between printers and PC with the assistance of the Hexdump mode.

If the printer receives for example eight instructions, but doesn't perform these instructions, please print out the instructions only. That's how you can assess whether the printer recieved the instructions correctly.

In order to change to the Hexdump mode, please proceed as follows:

1. Switch off the printer. Press the FEED key and keep it pressed.

2. Switch on the printer with pressed FEED key. As soon as you hear three audio signals, the READY LED flashes green and the STATUS LED shines orange, the printer changes into the Hexdump mode. Release the FEED key now.

3. The printer will now print „DUMP MODE BEGIN" automatically. This means that the printer is in the Hexdump mode.

4. Send the incorrectly performed print job to the printer again. The data will now be printed out in the Hexdump mode.

5. Examine the print out whether the data were transferred correctly.

6. Press the FEED key in order to leave the Hexdump mode. As a confirmation, the printer will print „OUT OF DUMP MODE automatically ". The printer will now be in the standard mode again.

comment: Alternatively the Hexdump mode can be terminated by switching off the printer.

4-3-4. Automatic identification of the label length

When using paper with control marks (Black Mark) or label gaps (GAP) the printer is able to recognize the label length automatically with the assistance of the function „automatic identification", and adjusts itself automatically to the length. So the printer can specify the label length without previous defaults.

1. Please check whether the sensor is in the correct position.
2. Switch off the printer. Press the FEED key and keep it pressed.
3. Switch on the printer with pressed FEED key. As soon as you hear three audio signals, the READY LED shines orange and start to flash and the STATUS LED shines orange too. The printer changes into the Identification Mode. Release the FEED key now. The printer will now recognize the label length automatically and adjust itself to this length.

4-3-5. Switching from Direct Thermal to Thermal Transfer Mode

1. Switch off the printer. Press the FEED key and keep it pressed.
2. Switch on the printer with pressed FEED key. As soon as you hear three audio signals, the READY LED flashes red and the STATUS LED shines red. The printer changes into the Direct Thermal Mode (DT). Release the FEED key now. The printer prints automatically the message „Now is DT mode" on the label. This means that the printer is in the Direct Thermal Mode.
3. Switch on the printer with pressed FEED key. As soon as you hear three audio signals, the READY LED flashes orange and the STATUS LED shines red. The printer changes into the Thermal Transfer Mode (TTR). Release the FEED key now. The printer prints automatically the message „Now is TTR mode" on the label. This means that the printer is in the Thermal Transfer Mode.

4-3-6. Printer Initialization (first steps)

If you use the printer for the first time you should proceed after the following operational sequence:

1.) Unpack your printer and check the completeness of the scope of delivery.
(Users guide: Point 1.3)

2.) Insert your ribbon optionally.
(Users guide: Point 2.1)

3.) Insert your label material.
(Users guide: Point 2.2)

4.) Position the label sensor in such a way that your labels will be identified.
(Users guide: Pointt 2.4)

5.) Connect the printer with your computer.
(Users guide: Point 2.9)

6.) Now you should perform the automatic identification.
(Users guide: Point 4.1)

7.) Check the settings that you find on the printed self check label
(Users guide: Point 4.2)

8.) Install the printer driver (when using USB the USB driver has to be installed first).
(Users guide: OD5 Ethernet Installation guide, USB driver Installation guide)

9.) Set the printer settings of the printer driver suiting to your label.

4-3-7. Error Messages

LED Message	LED Display		Audio Signal	Description	Solution
	Ready	Status			
Print head is opened		Red	2 x 4 Audio Signals	The printer mechanism is not closed correctly.	Open the printer mechanism and close it again.
Entering the Cooling Process		Red	-	High temperature at the print head.	Falls the temperature the printer changes automatically again into the readiness mode.
Out of ribbon or check ribbon sensor		Red	2 x 3 Audio Signals	The ribbon is not inserted. The printer announces an error.	Guarantee that the printer is in the Direct Thermal Mode.
				The ribbon is used up and/or the ribbon role owners does not move.	Insert a new ribbon.
Out of media or check media gap sensor		Red	2 x 2 Audio Signals	Paper cannot be identified.	Guarantee that the label sensor is in the right position. If the sensor does not recognize the paper, accomplish the automatic recognition mode again.
				Paper is used up.	Insert a new label role.
Check paper setting		Red	2 x 2 Audio Signals	Unnormal paper feed	Possible reasons: Trailer or paper is into the gap behind the paper feed, the sensor can not recognize the control marks or paper is missing.
Command is not recognized		Red	2 x 2 Audio Signals	Wrong instruction; the printer prints “Command is not recognized.”	Syntax error: The printer command language contains errors.
Memory is full		Red	2 x 2 Audio Signals	The memory is full; the printer prints “Memory full.”	Delete redundant data or install a memory expansion.
Filename can not be found		Red	2 x 2 Audio Signals	The file can not be found; the printer printst “Filename can not be found.”	Use the instruction “~X4” to print all files. Examine then whether the files exist and whether the names are correct.
Filename is repeated		Red	2 x 2 Audio Signals	The file name is repeated ; the printer prints “Filename is repeated.”	Change the file name and reload the file again.

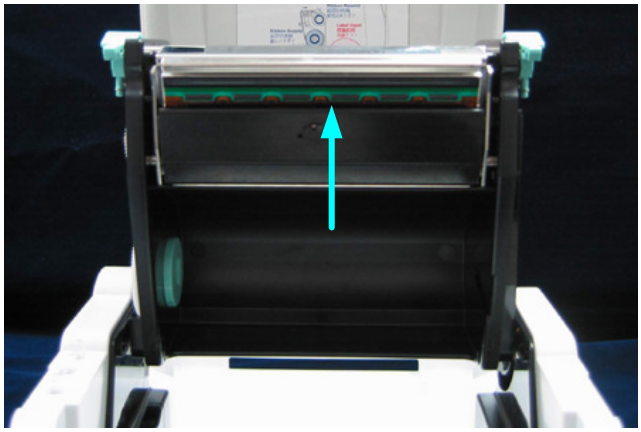
Chapter 5 - Maintenance and Adjustment

5-1. Thermal Print Head Cleaning

Unclear printouts (some parts unable to print) may be caused by dusty print head, ribbon stain, or label liner glue, therefore when printing, it's necessary to keep the top cover closed. Also, check and prevent paper/label from being stained or dusty to ensure print quality and to prolong the print head life. Print head cleaning instructions are as follows:

1. Power-off the printer.
2. Open top cover.
3. Take out the ribbon.
4. Open the print head by pressing the locking tenons.
5. If on the print head (see yellow arrow) there's label pieces or other stain, please use a soft cloth with industrial use alcohol to wipe away the stain.

Note:
1. *Weekly cleaning on the print head is recommended.*
2. *Please clean the print head with the cleaning card that comes with the printer.*

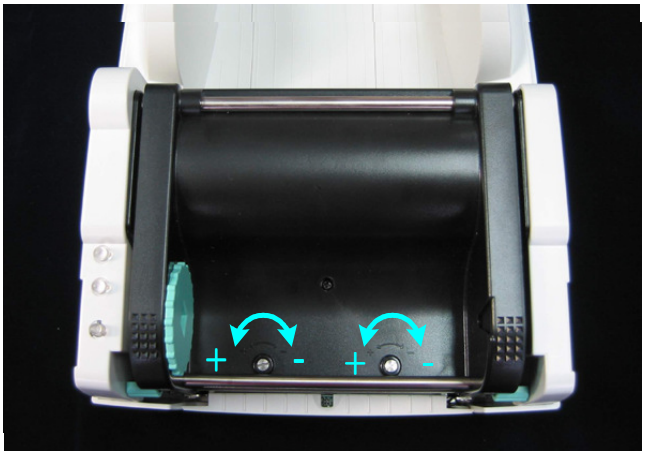


Recommend: Usage of a cleanningset as follows

5-2. Thermal Print Head Balance Adjustment

When printing with different label materials or using different ribbon types, unbalanced print quality may occur due to the media material differences, thus it's necessary to adjust the Thermal Print Head pressure.

1. Open top cover.
2. Take out the ribbon.
3. Turning the print head adjustment screws slightly by Philips screwdriver to increase or decrease print head pressure.

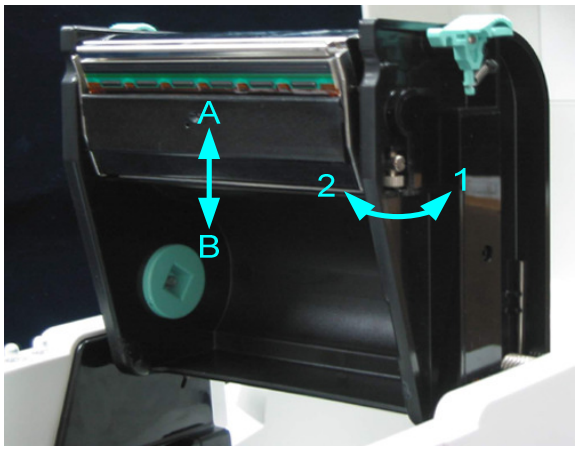


5-3. Print Line Adjustment

Use print head adjusting gear to adjust the contacting surface between print head and label. To get better printing balance and quality.

1. When turning print head adjusting gear counter-clockwise (as arrow 1 shows), print head would move in a direction where arrow A is.

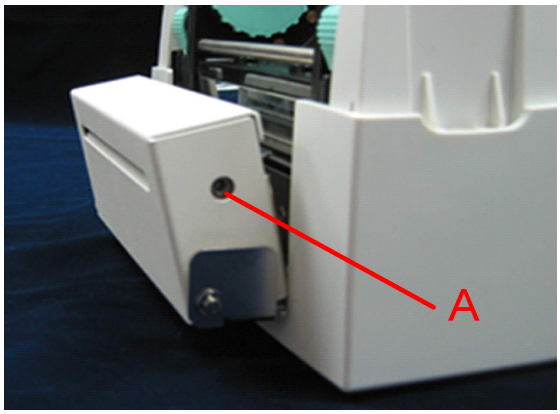
2. When turning print head adjusting gear clockwise (as arrow 2 shows), print head would move in a direction where arrow B is.



5-4. Adjust the cutter

1. A cutter-adjusting hole is present on both sides (where A is pointing to).
2. The cutter will not function properly if there is a paper jam. Turn the power off and use a #M3 hexagon wrench inserted into hole “A” and open the cutter from right to left.
3. Power on the printer after clearing the paper jam, the cutter will return to the correct position automatically.

Note: The label / paper used for cutting is suggested to be at least 30mm in height.



5-5. Troubleshooting

Problem	Recommended Solution
Power on the printer, but the LED does not light up	u Check the power connector
LED light turns red (power/status) after printing stops	u Check for software setting or program command errors u Replace with suitable label or ribbon u Check if label or ribbon is all out u Check if label is jammed/tangled up u Check if mechanism is closed (Thermal Print Head not positioned correctly) u Check if sensor is blocked by paper/label u Check for abnormal cutter function or of no actions (if cutter is installed)
Printing started, but nothing was printed on the label	u Check if label is placed upside down or if label is not suitable for the application u Select the correct printer driver u Select the correct label and print type
When printing, label is jammed/tangled up	u Clean the label jam, and if label is stuck on Thermal Print Head, please remove it by using soft cloth with alcohol.
When printing, only part of the contents were printed	u Check if label or ribbon is stuck on the Thermal Print Head u Check if application software has errors u Check if start position setting has errors u Check if ribbon has wrinkles u Check if ribbon supply shaft is creating friction with the platen roller. If the platen roller needs to be replaced, please contact your reseller for more information u Check if power supply is correct
When printing, part of the label wasn't printed completely	u Check if Thermal Print Head is stained or dusted u Use internal command "~T" to check Thermal Print Head can print completely u Check the media quality
Printout not in desired position	u Check if sensor is covered by paper or dust u Check if liner is suitable for use, please contact reseller for more information u Check if label roll edge is aligned with Label Width Guide
When printing, page skipping occurs	u Check if error occurs on label height setting u Check is sensor is covered by dust
Unclear printout	u Check print darkness setting u Check if Thermal Print Head is covered with glue or stain
When using cutter, label wasn't cut straight	u Check if label is set up straight
When using cutter, label wasn't cut successfully	u Check whether label thickness exceeds 0.2mm
When using cutter, label couldn't feed or abnormal cutting occurs	u Check if cutter is installed properly u Check if Paper Feed Rods are sticky
When using stripper, abnormal function occurs	u Check if stripper sensor is covered with dust u Check if label is installed properly

Note: If further problems shall occur, please contact your distributor for more information.