

User Manual OD5+ Serie

Valid for all models from SN #2xxxxxxx



Version: 2.2

Datum: 19.06.2024



Version	Date	Description / Changes
2.0	25.10.2010	Document created
2.1	02.05.2023	Media specification adapted and approvals expanded
2.2	19.06.2024	Label gap, Label length max. and opacity Extended. Print length OD5+ 300 corrected

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FCC COMPLIANCE STATEMENT FOR AMERICAN USERS

This equipment has been tested and found to comply with the limits for a CLASS A digital device, pursuant to Part 15 Subpart B of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at own expense.

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 EN 55032:2006/A1:2013 Class A, EN61000-3-2:2006, EN55032:2012/AC:2013 Class A, EN61000-3-2:2014, IEC 61000-4-2:2008 series, 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

IEC 60950-1:2005(2nd Edition)+Am 1:2009 Am 2:2013, GB9254-2008 (Class A) ; GB17625. 1-2012; GB4943.1-2011, EN55032:2012/AC:2013 Class A, EN61000-3-2:2014, EN 61000-3-3:2013 and EN55024:2010, IEC 61000-4-2:2008 series, UL 60950-1, 1st Edition, 2007-10-31, CSA C22.2 No. 60950-1-03, 1st Edition, 2006-07, CFR 47, Part 15 Subpart B

CAUTION :

- Danger of explosion if battery is incorrectly replaced. Replace only with the equivalent type recommended by the manufacturer.
- Dispose of used batteries according to the manufacturer's instructions.
- Only use with designated power supply adapter model.
- Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Safety Instructions

Please read the following instructions seriously.

1. Keep the equipment away from humidity.
2. Before you connect the equipment to the power outlet, please check the voltage of the power source.
3. Make sure the printer is off before plugging the power connector into the power jack.
4. It is recommended that you connect the printer to a surge protector to prevent possible transient overvoltage damage
5. Be careful not to get liquid on the equipment to avoid electrical shock.
6. For safety and warranty reasons, ONLY qualified service personnel should open the equipment.
7. Do not repair or adjust energized equipment under any circumstances.

1. The Label Printer OD5+ Series

1.1 General Information

The OD5+ Series are thermal transfer / thermal direct label printers. With its light plastic cover and its small dimensions it is an ideal and cost efficient solution for different uses. The printer has the following main specifications.

- Thermal direct and Thermal transfer mode
- Printhead resolution from 8 to 12 points per millimeter (203 or 300 dots per inch)
- Serial, Parallel, USB and Ethernet interface
- Storage for label layout, graphics and downloading of fonts (ca. 4 MB)
- Internal label core size of max. 127mm (5")
- Label core size of 25.4 mm, 38.1 mm and 76.2 mm (1", 1.5 and 3")
- Ribbon length up to max. 300 meters (984 ft) and a ribbon diameter of max. 64 mm (2.52") on a ribbon core of 12.7 mm (0.5")
- 16 MB SDRAM makes it possible to print labels with a length of 172,7 cm (68")
- Control panel: 2 x LED (colors: green, orange, red), 1 key
- Label dispenser
- Optional: rotary cutter and external unwinder and rewinder
- 36-month manufacturer warranty

1.2 The Printer Model OD5+



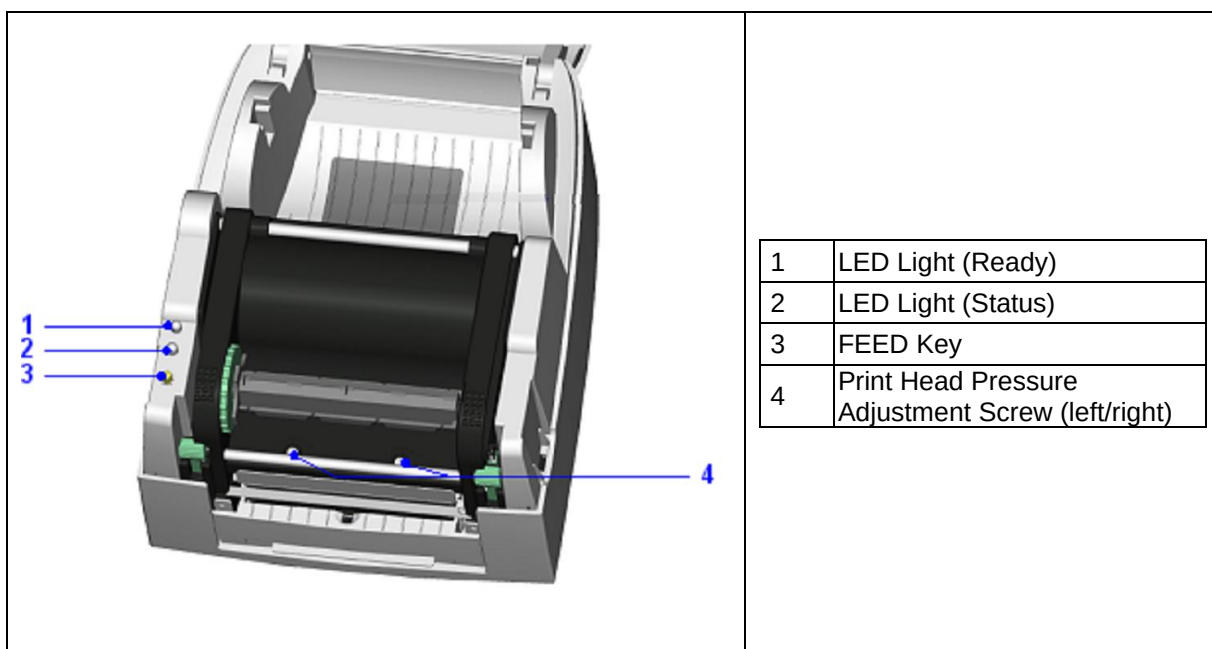
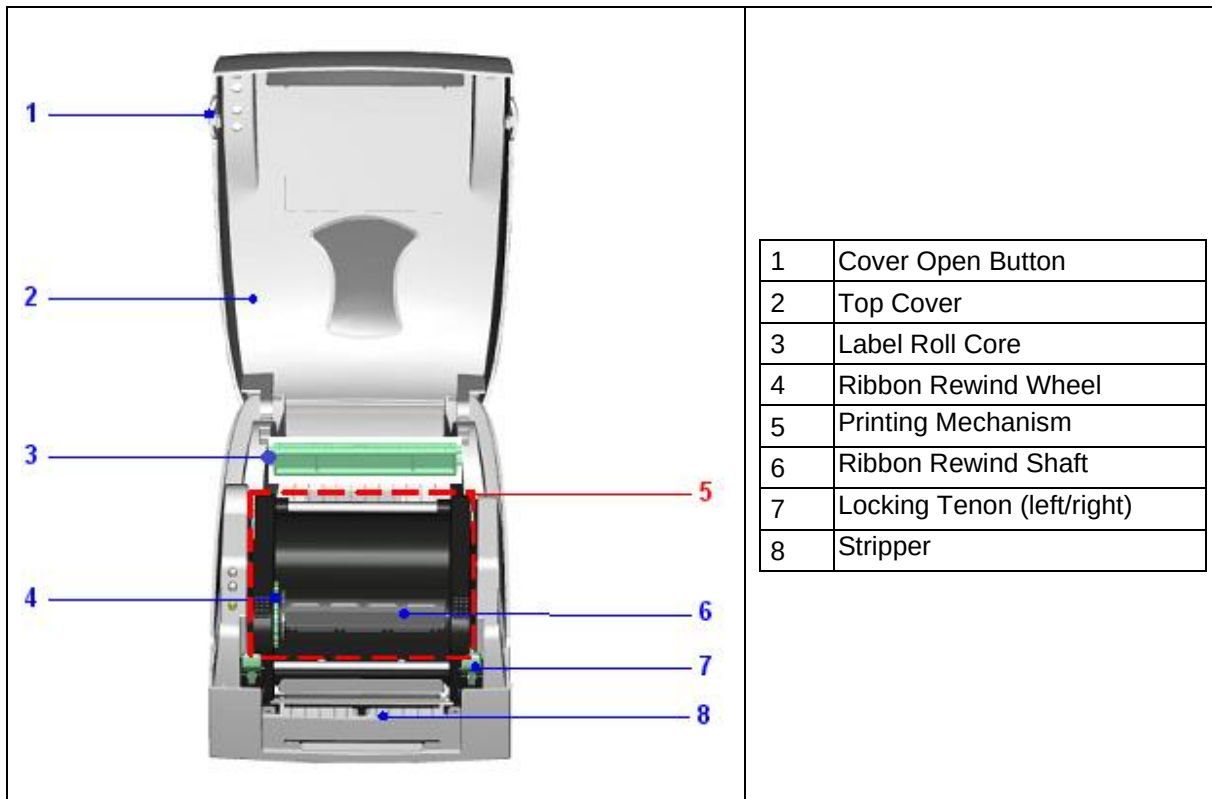
1.3 Printer Accessories

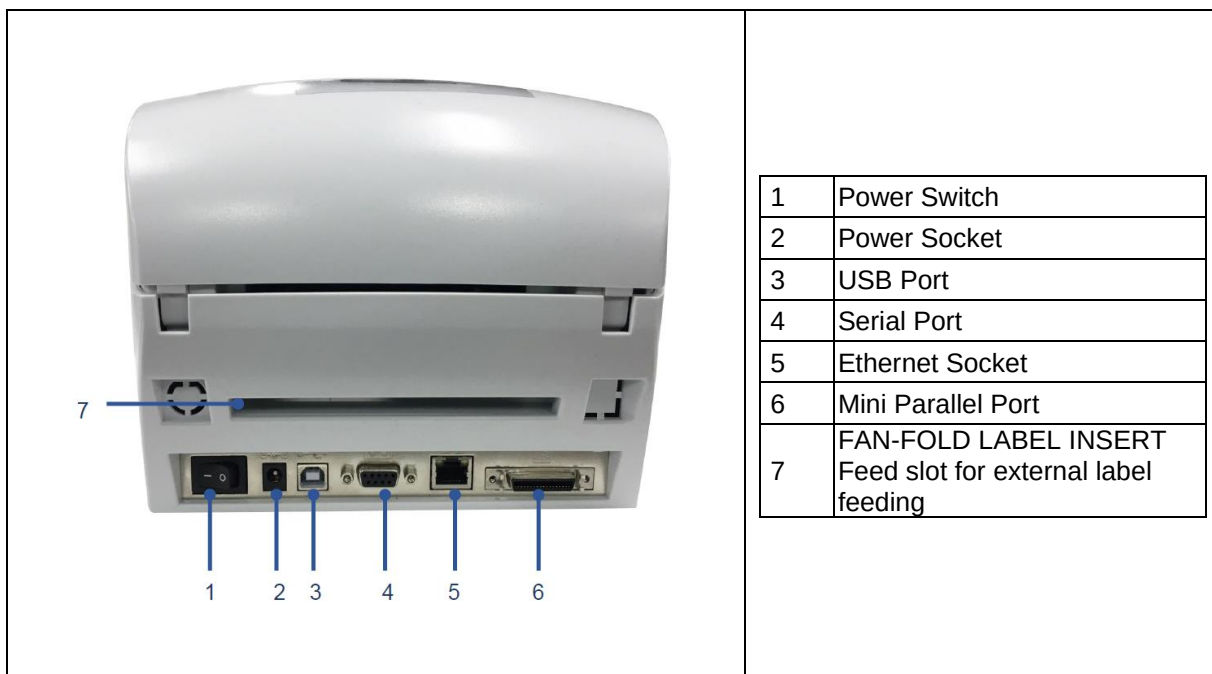
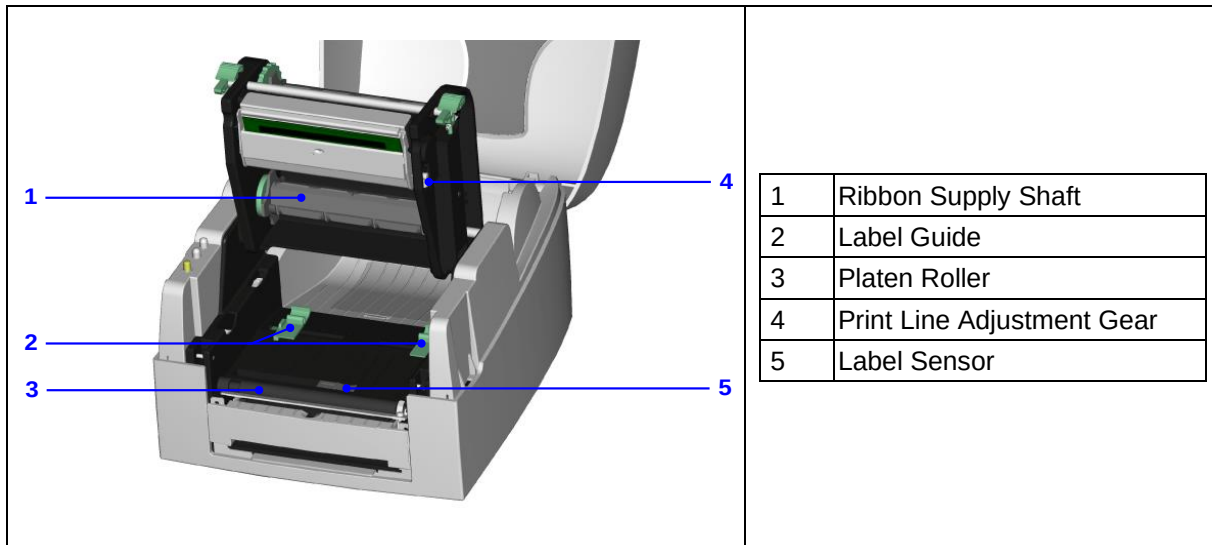
After unpacking, please check the accessories that come with the package, and store appropriately.

Barcode Printer	2 Power Cords (220V EU / CH)	Power Supply
Mini Parallel Cable	USB Cable	Label Roll Holder and 2 x Label Guide
Ribbon Holder (2 pieces)	Empty Ribbon Core	Labels
Ribbon	User Manual, Windows Driver and Tool's https://opal-holding.com/od	Quick Start Guide

* If the printer got damaged, because of using another power supply, the warranty claim can't be made applicable.

1.4 Printer Parts



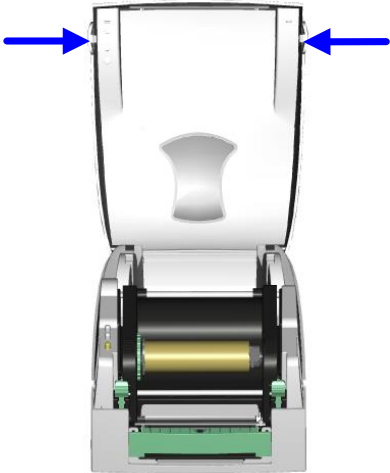
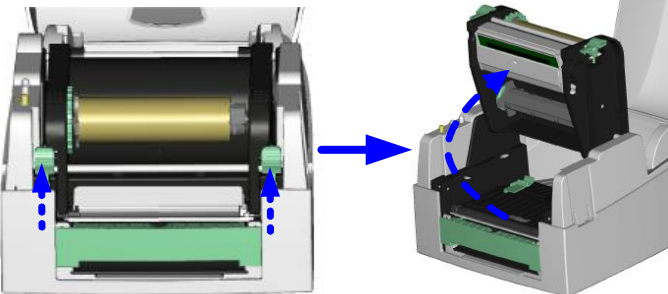
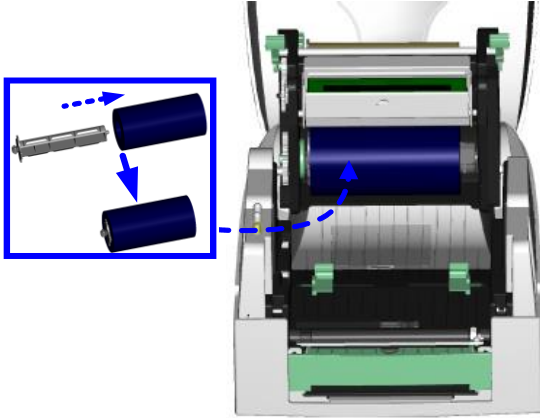


2. Printer Installation

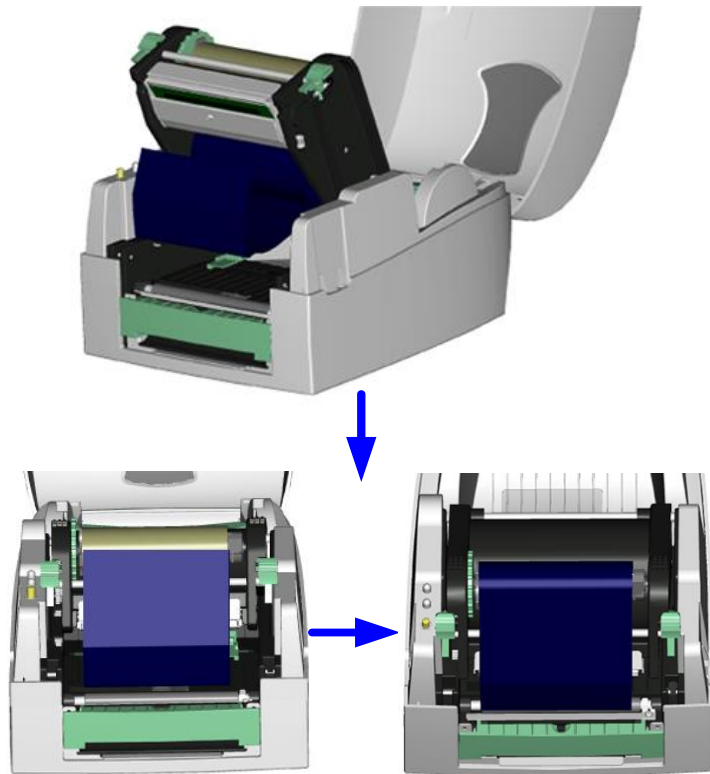
This printer model has the following print modes:

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

2.1 Ribbon Installation

1. Place the printer on a horizontal surface, and open the top cover by pressing the Cover Open Buttons on both sides.	
2. Loosen and then lift the printing mechanism by pressing the locking tenons.	
3. Place a new ribbon roll onto the ribbon supply shaft.	

4. Feed the ribbon from the Ribbon Supply Shaft under the Print Head
5. Wrap the ribbon around the Ribbon Shaft and stick the ribbon onto the Empty Ribbon Roll Core.



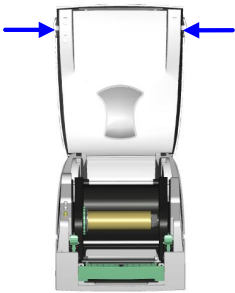
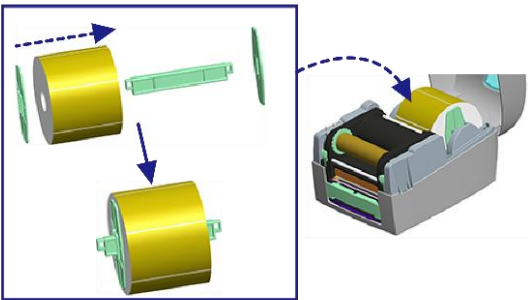
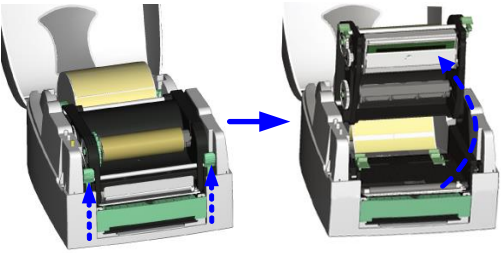
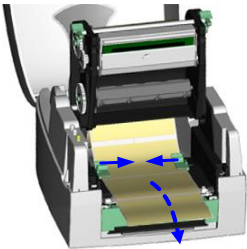
6. Firmly close the printing mechanism.



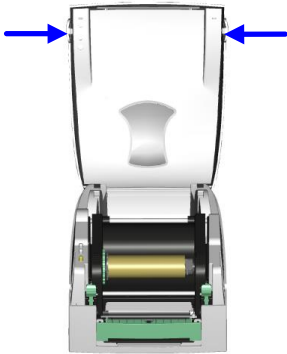
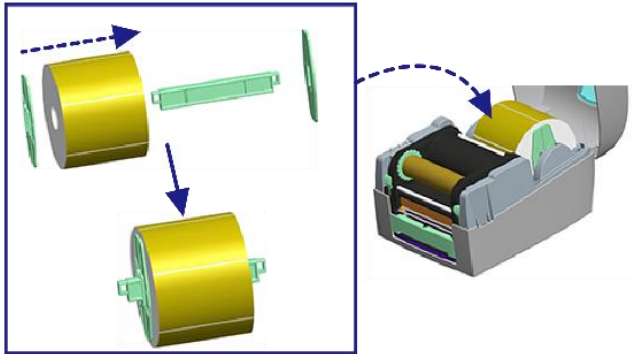
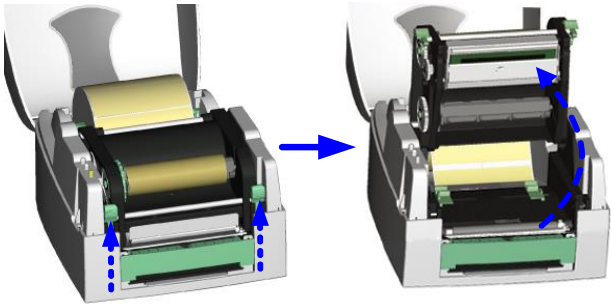
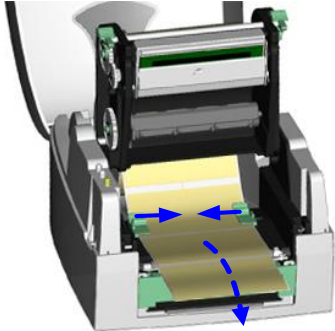
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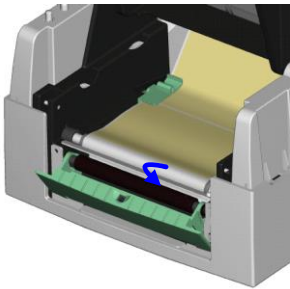
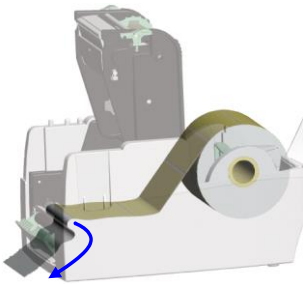
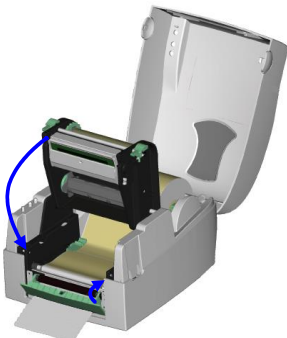
- On www.opal-etiketten.com you will find all informations to label and ribbon types. So you can achieve, with the OD5+ printer, optimum print results.

2.2 Label Installation

1. Open the top cover by pressing the Cover Open Buttons on both sides	
2. Place the label stock on the label supply hub, attach the guide plates to the label stock holder. <i>Correct Placement is shown in chapter 2.4</i>	
3. Loosen and lift the printing 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 printing mechanism from the top to finish label installation.	

2.3 Label Installation with Stripper

1. Open the top cover by pressing the Cover Open Buttons on both sides.	
2. Place the label stock on the label supply hub, attach the guide plates to the label stock holder. <i>Correct Placement is shown in chapter 2.4</i>	
3. Loosen and lift the printing mechanism by pressing the locking tenons.	
4. Feed the label through the Label Guides. 5. Align the Label Guides to the label edge.	

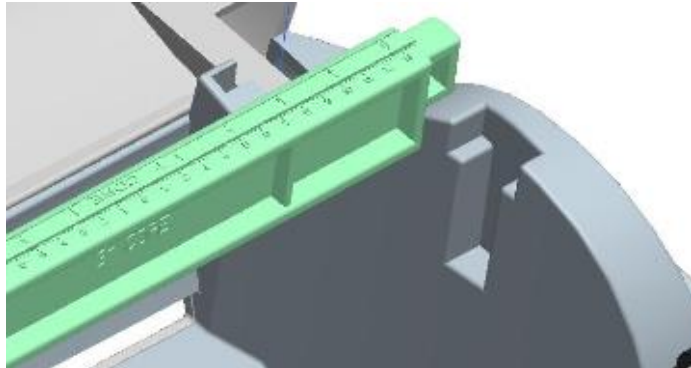
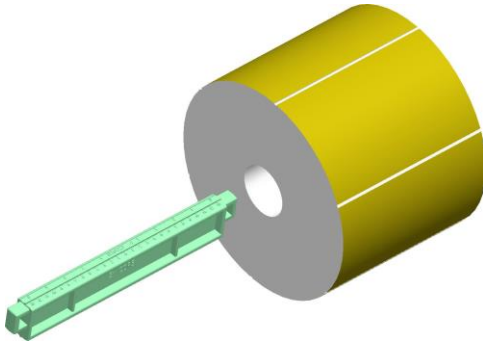
6. Peel off the first label, and feed the liner through the roller and the Tear-off Bar.	
7. Follow the direction as shown in figure to feed the liner across the stripper.	
8. Close the printing mechanism and the stripper.	
9. Press the FEED key to adjust the position of label and complete the installation.	

Notes:

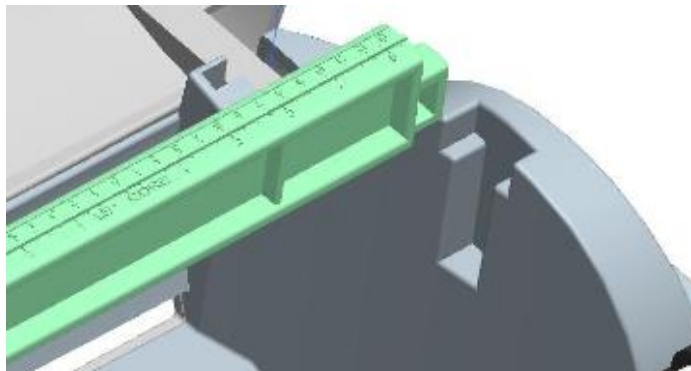
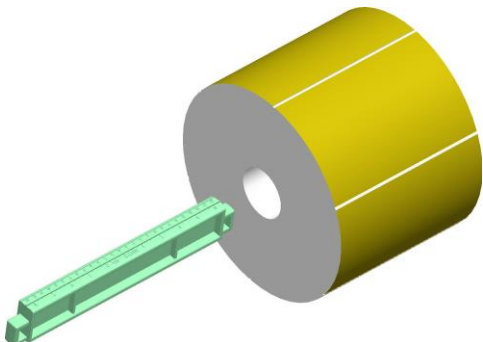
- *Label liner thickness is recommended to be $0.06\text{mm} \pm 10\%$ with basic weight $65\text{g}/\text{m}^2 \pm 6\%$.*
- *The label / paper used for stripper are suggested to be at least 25mm in height.*
- *The max label width for stripper is 110mm.*

2.4 Label Roll Core Installation Instruction

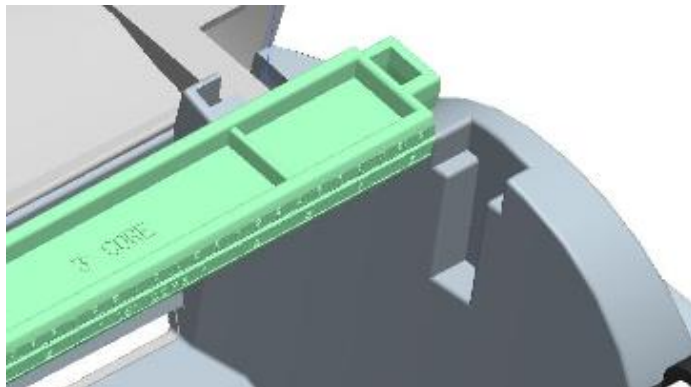
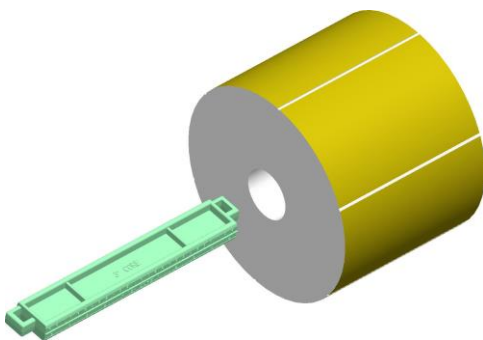
(A) roll core installation for 25,4mm (1") core



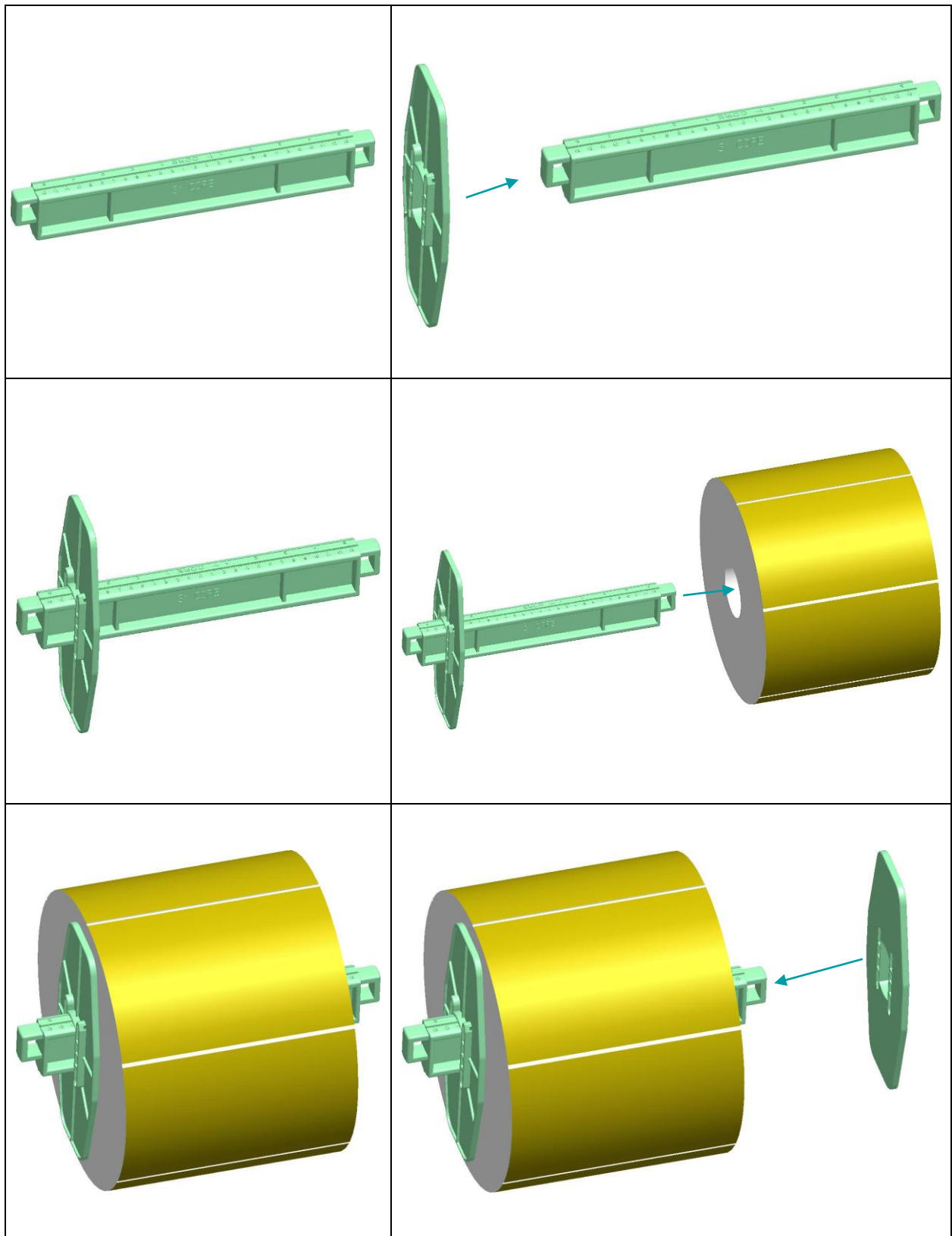
(B) roll core installation for 38,1mm (1.5") core

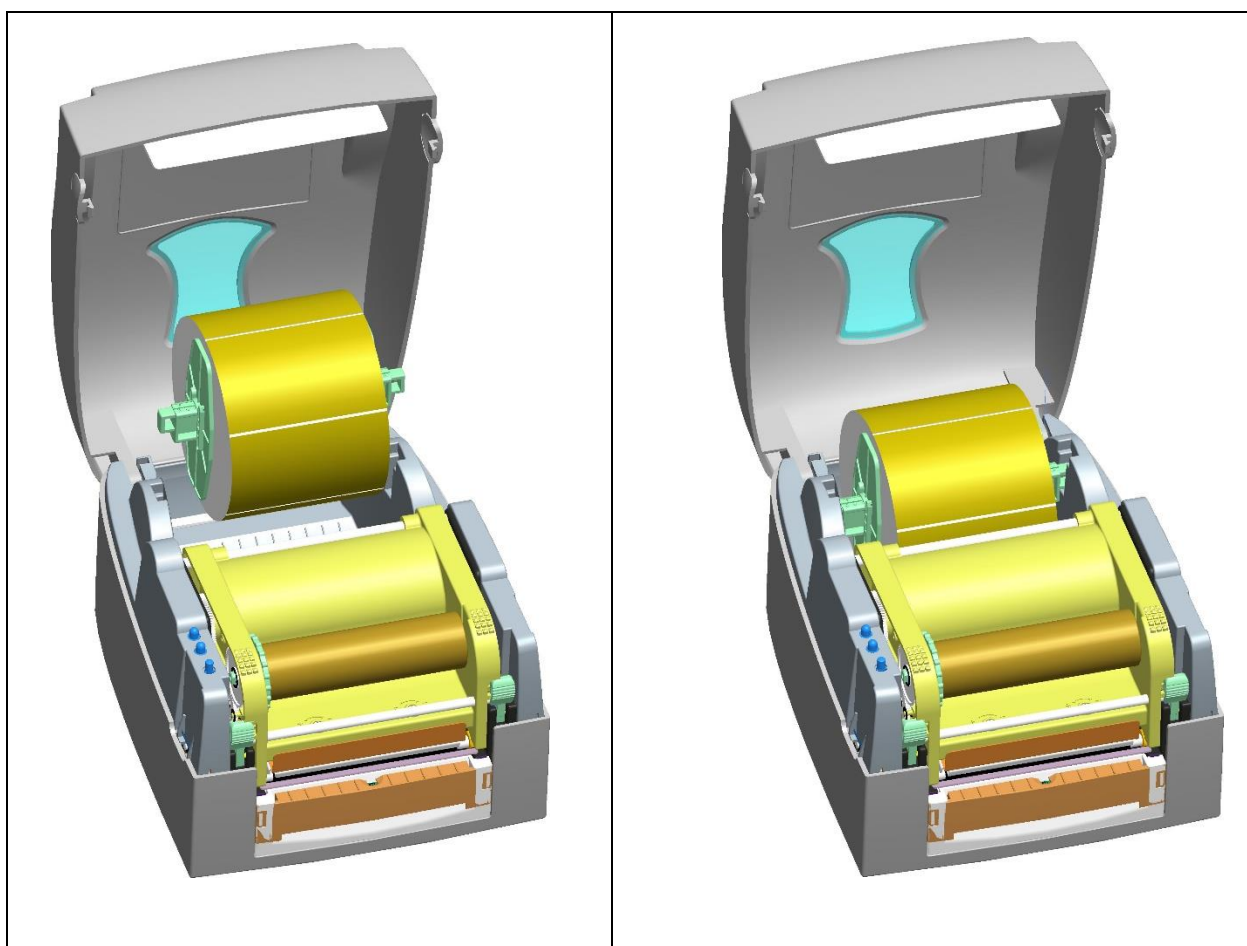
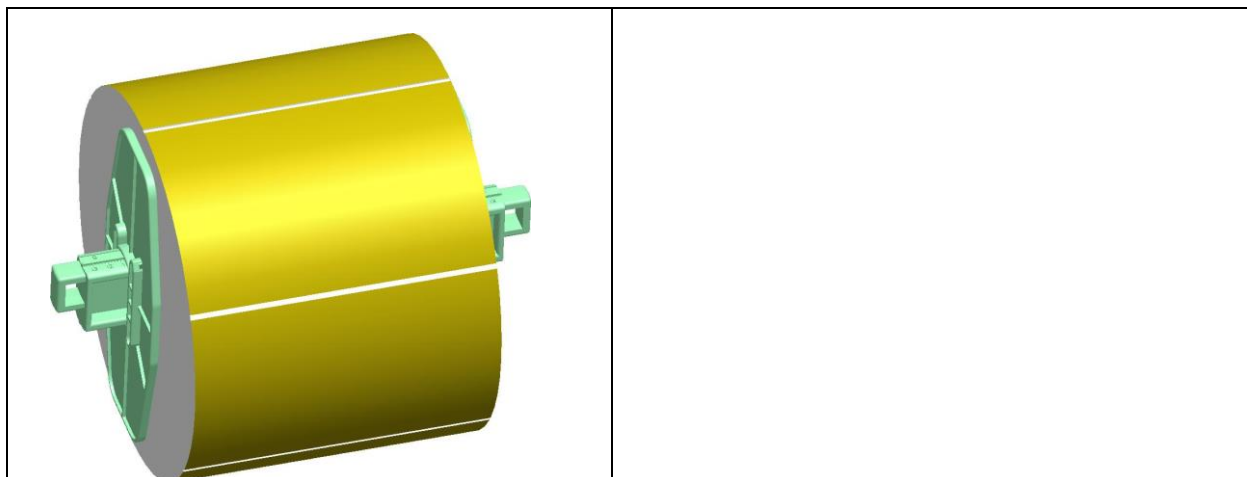


(C) roll core installation for 76,2mm (3") core



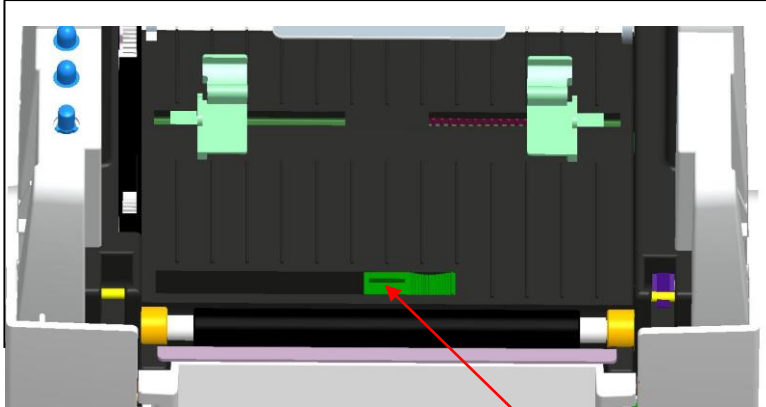
2.5 Instruction Label Guide Plates





2.6 Card / Hang tags Installation

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



Sensor Detection Position



2.7 Feed Key Functions

After tapping the FEED button, printer will feed the label (according to label type) to the specified stop position. When using continuous media, tapping the FEED button will feed the label out to a certain length. When using labels with gaps, tapping the FEED key will feed one label at a time. If the printer shifts the label wrong, start with the autosensing function.

Autosensing function

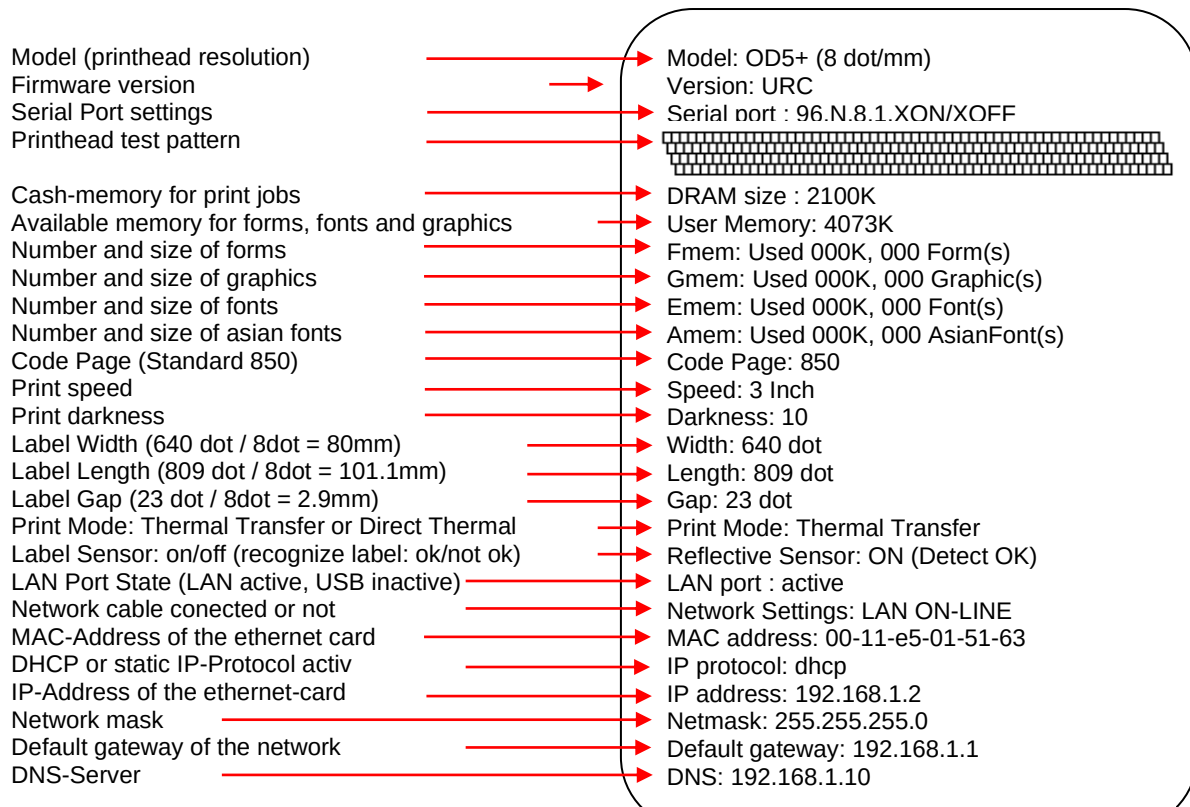
1. Load media in the printer.
2. Press and hold the FEED button while turning the power switch to the "On" position (-).
3. The two status LEDs blink orange. Release the FEED button and the printer automatically adjusts the label gap and black mark sensor.
4. After a short delay, a test label will be printed out and the printer will enter in dump mode.
5. Press the FEED button once again to return to normal operation (out of dump).

Resetting the printer

1. Load media in the printer.
2. Press and hold the FEED button while turning the power switch to the "On" position (-).
3. The two status LEDs blink orange. Release the FEED button and the printer automatically adjusts the label gap and black mark sensor.
4. After a short delay, a test label will be printed out and the printer will enter in dump mode.
5. Press and hold the FEED button for at least 3 seconds after the test label has been printed to reset the printer to the default settings. The status LED will glow red indicating that the printer has been resetted to the default settings and the LED will cycle to green.

2.8 Self Test

The Self-Test page helps the user to figure out whether the printer is operating normally. Below are some general descriptions about the content of the Self-Test page.



2.9 Dump Mode

When the printout result doesn't match to the label format settings, it is recommended to change into the Dump Mode to check whether any mistake exists in data transmission between the printer and the PC. For example, when printer receives 8 commands, yet without processing these commands, only printing out the contents of commands, this will confirm whether the commands were received correctly or not. To enter the Dump Mode, please do as follows:

1. Load media into the printer.
2. Press and hold the FEED button while turning the Power switch to the "On" position (-).
3. Release the Feed button and the printer will perform the Autosensing automatically.
4. After a short delay, a test label will be printed out and the printer will enter in Dump mode.

To cancel (get out of the Dump Mode), press the FEED key, the printer will automatically print out "OUT OF DUMP MODE". This indicates that the printer is back in the standby mode.

Note: As second option to get out of the Dump Mode you can power off the printer.

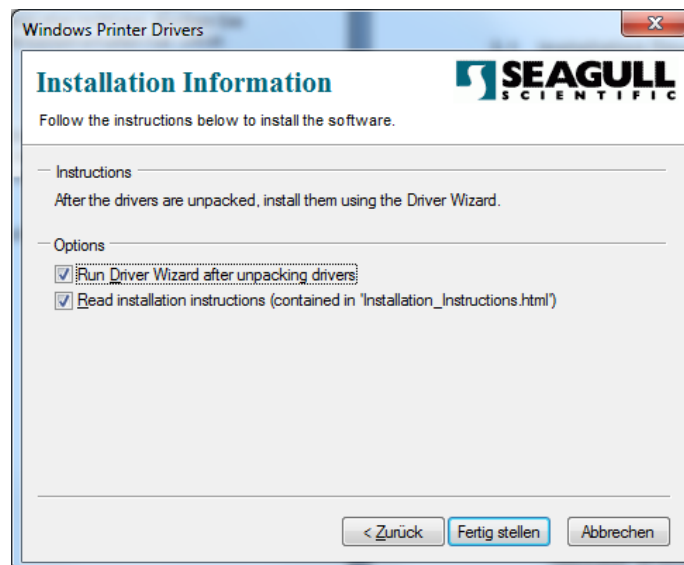
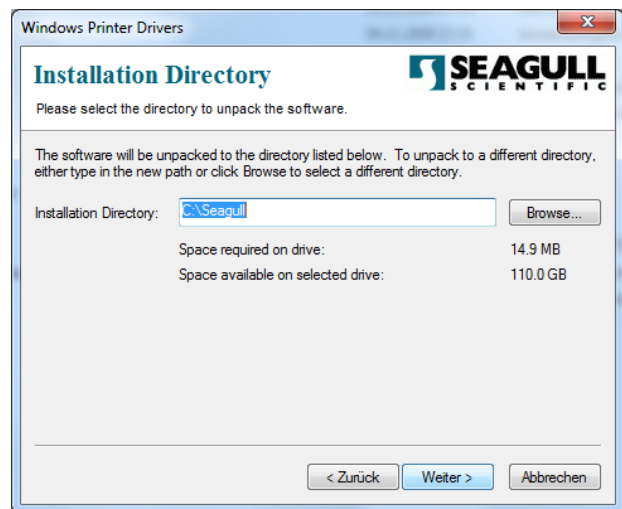
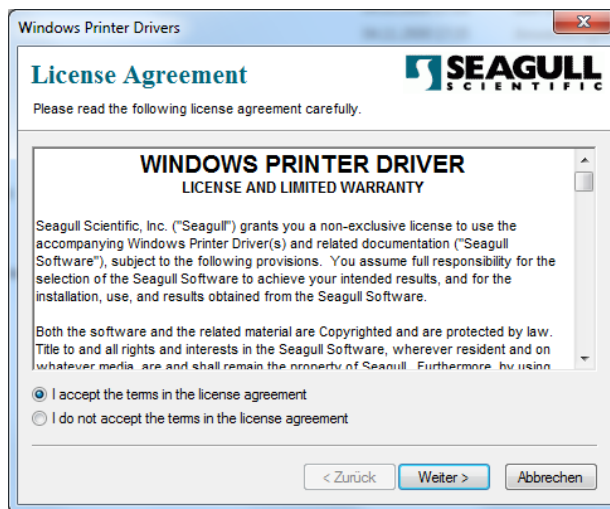
3. PC Connection

Depending on which model you have, you can operate with the OD5 + Series over Ethernet, USB, serial or parallel interface. When installing the printer driver, you must make sure that you select the correct connection typ.

3.1 Installing the printer driver

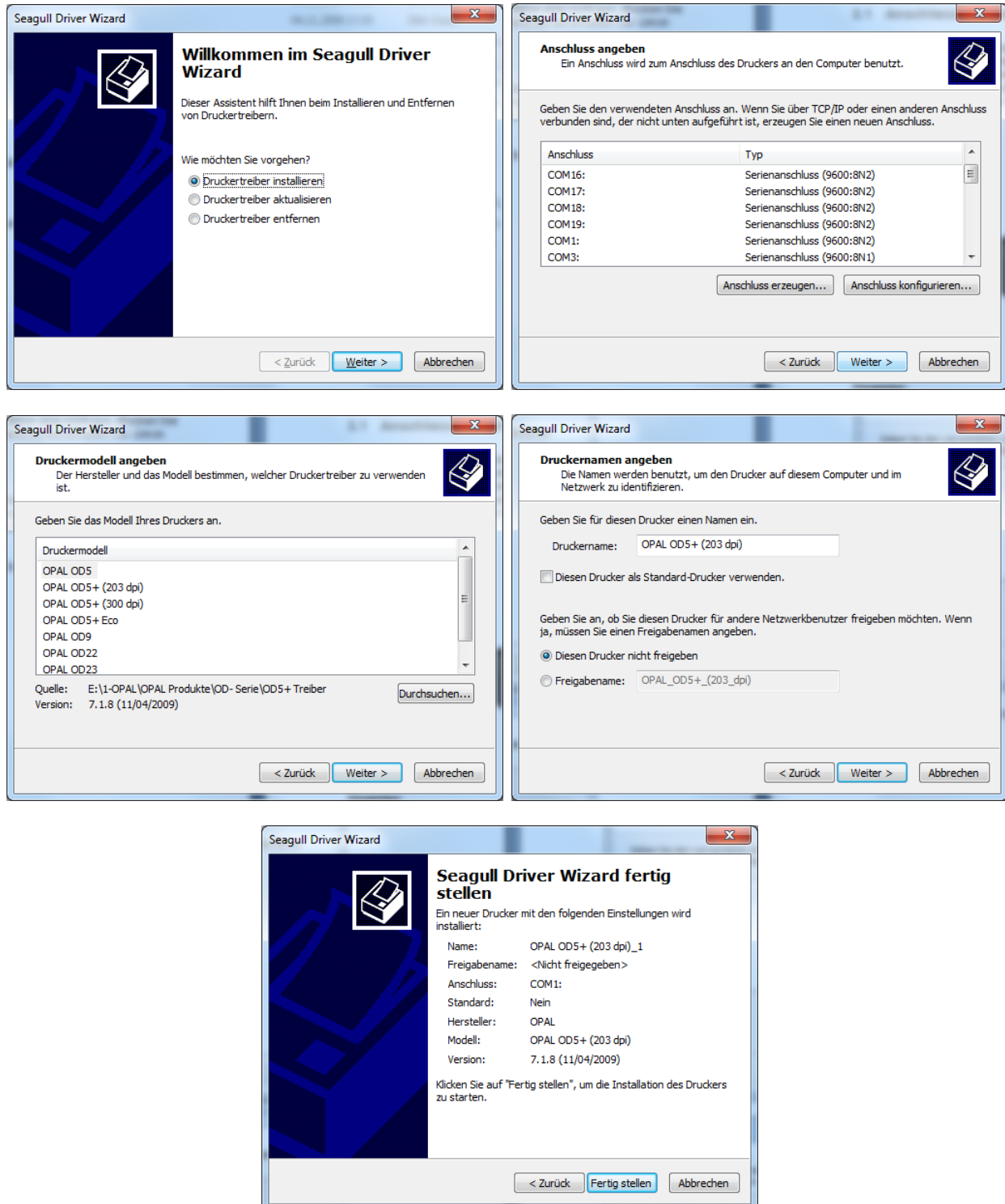
You can download the printer driver also from <http://www.opal-holding.com/od> under OD-Treiber or from the www.seagullscientific.com homepage.

When executing the application OPAL.exe accept the license agreement.
Enter a location to where the files should be stored. Then run the Driver Wizard.



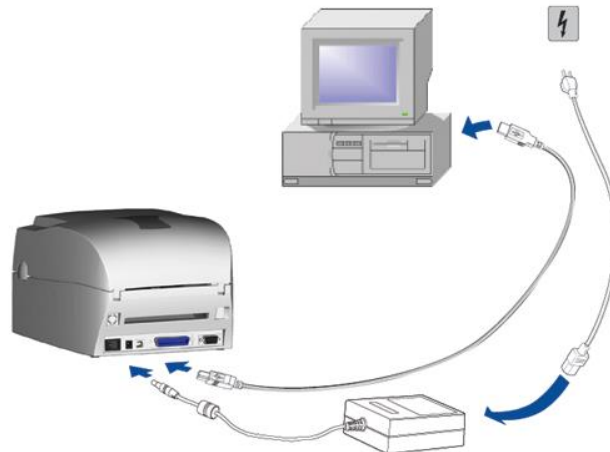
After extracting files and running the driver wizard, the following steps are to do.

1. Select Install Printer Driver
2. Select interface which is printed on
3. Select printer model
4. Set printer name and if required, a network share name
5. Finish the installation



3.2 Direct Connection to PC/Notebook

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 USB/parallel port on the printer and on the PC.
4. Power on the PC and the printer and the printer's LED light will shine.



Notes:

Serial Interface

- If you work with the printer over the serial interface, be sure that no other software, driver or device use the same COM Interface too.
Default Setting of the serial interface are.

Baud Rate: 9600
Parity: none
Data Bits: 8
Stop Bits: 1
Flow Control: XON/XOFF

USB Interface

- If you want to use the USB interface, then please install first the driver on your PC.
- On the OD5+ and OD5+300 printers the USB port is disabled by default and the LAN port is enabled. With the command „^usb [CR]“ you can set the USB port active. „^lan [CR]“ command activates the ethernet port.

3.3 Connection to the network

1. Make sure the printer is turned off
2. Set the electricity supply
3. Connect the network cable to the printer and the network socket on
4. Turn on the printer. The LED lights green.

The printer automatically receives from network (DHCP) an IP address when the printer is turned on.

The following options are available, to find out the IP address from the printer.

- Print a test label as described in chapter 2.6 and 2.7.
- Install the Software "NetworkSetting" and run this tool. This tool can be found on the folder <http://www.opal-holding.com/od under OD5+ Serie ab 200000000 software>.
- If you have connected the printer via a serial connection, you can send the command via Hyper Terminal or Tutty ~S, get "ip". The answer is the IP address of the printer

If no DHCP is available. Network setting from printer on delivery

Static IP address:	192.168.1.2
Subnet Mask:	255.255.255.0
Default Gateway:	192.168.1.254
DNS Server:	192.168.1.20

Over the web interface you can now change the TCP / IP settings.

Login data:

User: **admin**
Password: **admin**

4. Maintenance and Adjustment

4.1 Error Messages

LED Light		Beep	Description	Solution
Ready	Status			
	Red	4 beeps twice	Print head is not firmly closed.	Re-open the print head and make sure it closes tightly.
	Red (Flash)	None	The temperature of the print head is too high.	Wait until the print head temperature drops to the normal temperature range, printer will go back to the standby mode and the LED light will stop flashing.
	Red	3 beeps twice	Ribbon is not installed, and printer shows error message.	Make sure the printer is in the direct thermal mode.
			Ribbon is used up or ribbon supply shaft is not moving.	Replace with new ribbon roll.
	Red	2 beeps twice	Unable to detect paper.	Make sure the movable sensor mark is at the correct position, if the sensor is still unable to detect paper, then go through Auto-Sensing again.
			Paper used up.	Replace with new label roll.
	Red	2 beeps twice	Abnormal paper feed.	Possible causes: card tags or paper felt into the gap behind the platen roller, can't find label gap/black mark, black mark paper out. Please adjust it according to actual usage.
	Red	2 beeps twice	Memory is full; printer will print out "Memory full."	Delete unnecessary data in the memory.

	Red	2 beeps twice	Can't find the file; printer will print out "Filename can't be found."	Use "~X4" command to print out all the files, and then check whether the file exist and the file name is correct.
	Red	2 beeps twice	File name is repeated; printer will print out "Filename is repeated."	Change the file name and download again.

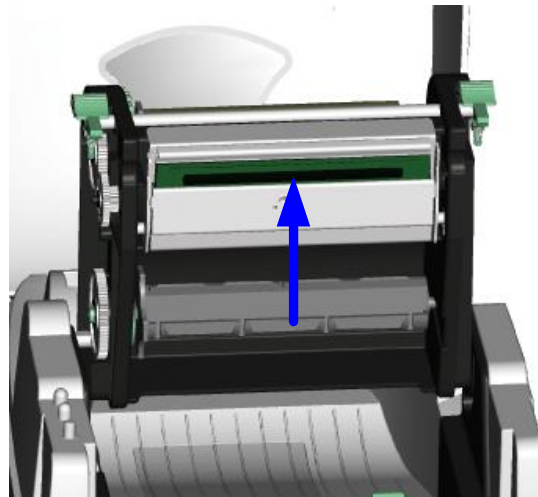
4.2 Thermal Print Head Cleaning

Unclear printouts 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 the top cover.
3. Take out the ribbon.
4. Open the print head by pressing the locking tenons.
5. If there are label pieces or other stain on the print head(see blue arrow), please use a soft cloth with industrial use alcohol to wipe away the stain carefully. Never bring the print head in contact with hard or metallic things.

Note:

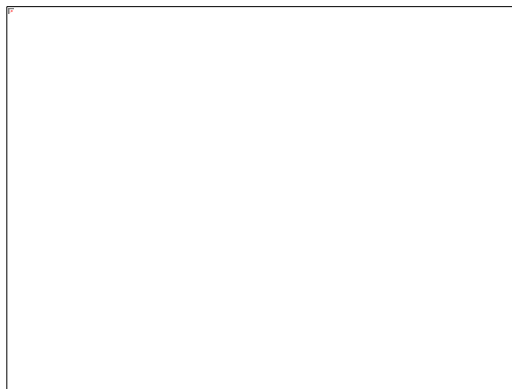
- *Weekly cleaning of the print head is recommended*
- *When cleaning the print head with soft cloth, make sure there are no metal or hard particles attached on it.*
- *(we recommend to use our Cleaning Set: <https://barcode-shop.com/reinigungs-set>)*



4.3 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 the top cover.
2. Take out the ribbon.
3. Turn the print head adjustment screws slightly by screwdriver to increase or decrease print head pressure.



4.4 Troubleshooting

Problem	Recommended Solution
Power on the printer, but the LED does not light up	◆ Check the power connector
LED light turns red (power/status) after print stops	◆ Check for software settings or program command errors ◆ Replace with suitable label or ribbon ◆ Check if label or ribbon is all out ◆ Check if label is jammed/tangled up ◆ Check if printing mechanism is not closed (Thermal Print Head not positioned correctly) ◆ Check if sensor is blocked by paper/label
Printing started, but nothing was printed on the label	◆ Check if label is placed upside down or if label is not suitable for the application ◆ Select the correct printer driver ◆ Select the correct label and print type
When printing, label is jammed/tangled up	◆ 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	◆ Check if label or ribbon is stuck on the Thermal Print Head ◆ Check if application software has errors ◆ Check if start position settings has errors ◆ Check if ribbon has wrinkles ◆ 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 ◆ Check if power supply is correct
When printing, part of the label wasn't printed completely	◆ Check if Thermal Print Head is stained or dusted ◆ Check the media quality
Printout not in desired position	◆ Check if sensor is covered by paper or dust ◆ Check if liner is suitable for use, please contact reseller for more information ◆ Check if label roll edge is aligned with Label Width Guide
When printing, page skipping occurs	◆ Check if error occurs on label height settings ◆ Check if sensor is covered by dust
Unclear printout	◆ Check print darkness settings ◆ Check if Thermal Print Head is covered with glue or stain
When using stripper, abnormal function occurs	◆ Check if stripper sensor is covered with dust ◆ Check if label is installed properly

Note:

- *Your dealer is knowledgeable about OD5+ printers, printing software, and your unique system. Please contact your local dealer for further technical support.*

4.5 Firmware Update

Firmware update can help to fix various possible hidden malfunctions.

Software tool, instructions, FW release notes and the latest firmware can be found on <https://www.opal-holding.com/od>

You can carry out the FW update locally on the computer with the OPAL Download Tool software, or via printer's WEB interface under Maintenance you will find the Firmware update function.

5. Specifications

5.1 General Specifications

Model Name	OD5+	OD5+300
Resolution	203 dpi (8 dots/mm)	300 dpi (12 dots/mm)
Print Method	Thermal transfer / thermal direct	
CPU	32 Bit RISC	
Label Sensor	Adjustable (Sensor snaps into place)	
Sensor Type	Reflective / Transmission	
Label Detection	Types: Label Gap, Black Mark and punched hole Detection: The length of the label and/or by software (driver) defined length of label.	
Max Print Speed	100 mm/s (4 IPS)	
Print Length	Min. 10mm (0.39") Max. 1727mm (68")	Min. 10mm(0.39") Max. 1727 mm (68")
Print Width	108mm (4.10")	105,7mm
Label gap	Label gap, Ticket with punched hole and Black mark Min. 2 mm; Max. 100 mm (0,079" ~ 3,937")	
Media opacity	Label gap: opacity on Liner: >50%; opacity on Label + Liner: <25% Ticket with punched hole: opacity on ticket <30% Black mark: Reflectance difference between black mark and liner: >15% Continuous Paper: opacity on paper <30%	
Label Role-Ø	Max. 127mm (5") with a label core diameter of 25.4 mm and 38 mm (1" and 1.5") max. 110 mm (4.3") with a label core of 76 mm (3")	
Label Core-Ø	25.4 mm and 38.1 mm (1" and 1.5") max. labels roll diameter 127 mm 76 mm (3") max. label diameter 110 mm	
Label Width	25mm to 118mm (1"bis 4.65")	
Label Thickness	0.06~0.3mm (0.0025"~0.012")	
Ribbon	Length: 300 m (981 ft) Max. Outside diameter: 64mm (2.52 ") Types: Transfer Ribbon (wax, wax/resin, resin) In width 30mm to 110mm (1.88" - 4.33") Inner diameter of the core: 12,7mm (0.5")	
Printer Language	E-SIM	
Software	Application: Seagull Bartender Evaluation Certified Windows driver Microsoft Windows Vista und Windows 7, 8, 8.1, 10 Windows Server 2003, 2008, 2008 R2, 2012, 2012 R2 und 2016 32-Bit und 64-Bit (x64)- editions.	
Internal Fonts	5 internal alphanumerical fonts. Those can horizontal 8 and vertical 9 times be changed. All fonts can be set in 4 different directions.	
Graphic Format	Printer changes common graphics to internal format	
Barcodes	1D Barcode: Code 39, RSS-14, Code 128 auto mode A,B oder C. UCC/EAN-128, UPC A/E(add on 2&5), I 2 of 5, UPS I 2 of 5, EAN 8 / 13 (add on 2 & 5), Codabar, Postnet 11 & 13. 2D Barcode: Datamatrix, MaxiCode , QR Code , Micro QR Code und PDF 417	
Interfaces	Serial, Parallel, USB and LAN	
Memory	8MB Flash (4MB for user storage) ; 16MB SDRAM	

LED Status	Two bi-color status-LEDs: Ready, Status Control key: FEED
Power	Auto Switching 100-240VAC, 50-60Hz
Environment	Operation temperature: 5°C to 40°C Storage temperature: -20°C to 50°C
Humidity	Operation: 30-85%, non-condensing Storage: 10-90%, non-condensing
Agency Approvals	CE and UKCA

Model Name	OD5+	OD5+300
Dimension	Length: 285mm (11.2") / Height:171mm (6.8") / Width:226mm (8.9")	
Weight	2.72 kg	

Note:

- Specifications are subject to change without notice. All company and/or product names are trademarks and/or registered trademarks of their respective owners.*

5.2 Interfaces

Parallel Interface

PIN Nr.	FUNCTION	TRANSMITTER
1	/Strobe	PC / Printer
2-9	Data 0-7	PC
10	/Acknowledge	Printer
11	Busy	Printer
12	/Paper end	Printer
13	/Select	Printer
14	/Auto-Linefeed	PC / Printer
15	N/C	
16	Signal ground	
17	Chassis ground	
18	+5V,max 500mA	
19-30	Signal ground	PC
31	/Initialize	PC / Printer
32	/Trouble message	Printer
33	Signal ground	
34-35	N/C	
36	/Select-in	PC / Printer

Serial Interface

Standard Settings: 9600 Baud Rate, no Parity, 8 Data Bits, 1 Stop Bit, XON/XOFF

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

The total current output from parallel port and serial port all together can't exceed 500mA.

USB Interface

Connector type: Type B

PIN NO.	1	2	3	4
Function	VBUS	D -	D +	GN D