polaroid

POLAROID FIRST

Roll to Roll Printer

USER MANUAL

Thank you very much for purchasing POLAROID FIRST series products.

- In order to ensure the correct and safe use of this product based on a comprehensive understanding of its performance, please read this manual and keep it properly.
- It is prohibited to copy this manual illegally in whole or in part, otherwise the company will investigate its legal responsibility according to law.
- The contents of this manual and the parameters of this product are subject to change without notice.
- We have tried our best to edit this operation manual and test this product. If you find any misprints or errors, please let us know and we will be grateful.

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November 8, 2022

Version 1.0

Chapter I Safety Guidance

Before using the POLAROID FIRST series printer, please read the following instructions and follow the warnings and instructions marked on the printer.

1.1 Important safety guidance

- Be careful not to spill liquid into the printer.
- Do not put any objects on the printer platform, and be careful not to spill liquid into the printer.
- Connect all equipment to an appropriate grounding socket to avoid switching between the socket used and the equipment switching between the on and off of high-power systems such as air conditioners in the same circuit.
- Avoid sockets controlled by wall switches or self-timers
- Keep your computer system away from potential sources of electromagnetic interference, such as fans.
- Do not use damaged or worn power cord.
- If an additional power cord is used, remember that the total amperage of the equipment plugged into the additional power cord should not exceed the rated amperage of the power supply. In addition, remember that the total amperage of all equipment plugged into the wall should not exceed the rated amperage of the wall socket.
- Do not attempt to repair the printer yourself.
- In case of the following situations, please ask experienced maintenance personnel to maintain after cutting off the power supply.

    - If the power cord or plug is damaged
    - If liquid splashes into the printer
    - If the printer falls down or the case is damaged
    - If the printer does not operate normally or there is a significant change in performance

1.2 Precautions when using the printer

- Do not move the print head by hand, or the printer may be damaged.
- Always use the power switch to turn off the printer. However, when this key is pressed, the power will be cut off. Do not unplug the printer plug or data cable before the power is cut off.
- Before handling the printer, ensure that the print head is in its original position and fixed.

1.3 Precautions for using ink bottle

- Please keep the ink bottle out of the reach of children. Do not let children drink ink or touch the ink bottle.
- If the ink sticks to your skin, wash it with soap and water. If the ink splashes into the eyes, please wash it with water immediately.
- Do not shake the ink bucket, which may cause ink leakage.
- After using the ink bucket for a period of time (generally three months), take it down immediately for thorough cleaning and air drying. When replacing a new ink bucket, pay attention to cleaning to ensure printing quality.

1.4 Printer installation requirements

- **Site preparation**

It is the responsibility of the customer to comply with all installation requirements and to perform them during machine operation. If this is not done, the machine may not operate properly.

- **Work area**

The working area refers to the area close to the POLAROID FIRST series machine (hereinafter referred to as the equipment). It must be emphasized that the user should ensure the safety of the operators in this area. The working area is 6m long, 4m wide and 3m high.

- **Environmental requirements**

The equipment shall be kept away from radio frequency sources. The floor shall be easy to clean without generating dust and static electricity. In order to help operators and customers judge the accuracy of color, neutral gray decoration and pure white light (fluorescent lamp) should be used as far as possible. The equipment shall be installed in a clean, dust-free environment where the temperature and relative humidity are controlled within the following range: altitude: below 1000 meters above sea level; operating temperature: 18-28 ℃; relative humidity: 40% - 60%.

- **Load bearing requirements**

POLAROID FIRST printer 200KG (140KG net weight without package) color fixing machine 300KG (260KG net weight without package).
The equipment shall be installed at the place of relative plane and the anchor shall be screwed down for support.

- **Space reservation requirements**

The front of the equipment refers to the input side of the machine. It is required to reserve 1.0m in front of the equipment. Keep 1.0m on the back and 1.0m on the left and right sides respectively. In addition, the space reserved area also includes a height of 3 meters above the ground. In addition, space should be left in front of and behind the machine for loading and unloading pictures and consumables.

- **Fire prevention**

In order to prevent the danger caused by the accumulation of volatile gas, sufficient ventilation must be provided to ensure that the air vent of the work area is low enough to replace the air for 6 to 8 times every hour, so that the volatile gas cannot accumulate near the floor.
The electrical equipment installed near the working area must comply with GB/T standards and the provisions of the national electrical regulations on Class I and Class II sites, and shall be installed by professional electrical contractors with corresponding qualifications. The regulations on hazardous waste treatment shall comply with the special storage and treatment requirements of relevant departments.

- **improve air circulation**

In order to prevent the danger caused by the accumulation of volatile gas, sufficient ventilation must be provided to ensure that the air in the working area is changed about 6 to 8 times every hour.
The vent shall be low enough to prevent volatile gases from accumulating near the floor.
The electrical equipment installed near the working area must comply with GB/T standards and the provisions of the national electrical regulations on Class I and Class II sites, and shall be installed by professional electrical contractors with corresponding qualifications. The regulations on hazardous waste treatment shall comply with the special storage and treatment requirements of relevant departments.

- **Electrical requirements** (UPS and power regulator are highly recommended)

X3E-602/604 uses single-phase power supply, and the printer must be well grounded. (The ground wire+neutral line voltage shall not be greater than 0.3V, and the grounding resistance shall be less than 3 Ω.)
The range of power supply voltage is 220V (± 10%), AC 50Hz or 60Hz. The access power supply and the power supply must match, and the wire diameter of the access wire must meet the rated current requirements:

Power supply	AC 220V	AC 110V
single-phase	15A/phase	15A/phase

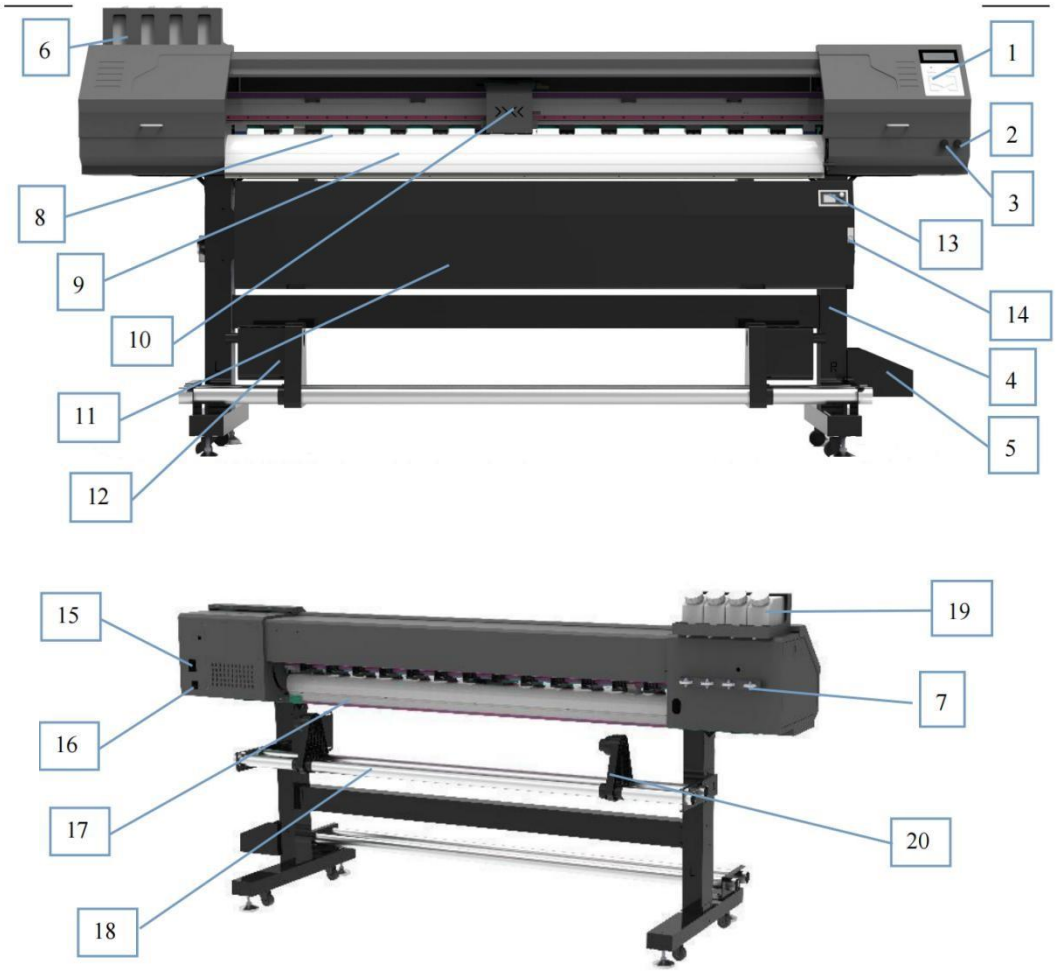
The maximum power consumption of the printer is less than 2 kW, and the average power consumption is 1.5 kW. The UPS can use 3KV15A, which can be connected to computers and printers.

The maximum power consumption of the fixation machine is less than 5 kW, and the average power consumption is 3.5 kW. The current rating is required to be 30A.
The main wire connected to the printer and fixation machine shall not be less than 50A, and the distance from the main power socket to the electrical access end of the equipment shall not be more than 2m.

- **Grounding requirements**

Installation and requirements of ground wire: install the ground wire on the public grounding iron plate in the equipment. Then use a multimeter to switch to the AC 220 V~measuring range. One meter pin is connected to the ground wire, and the other is connected to the zero line of the AC input terminal. The measured value is less than 2.

Chapter II Structure Diagram



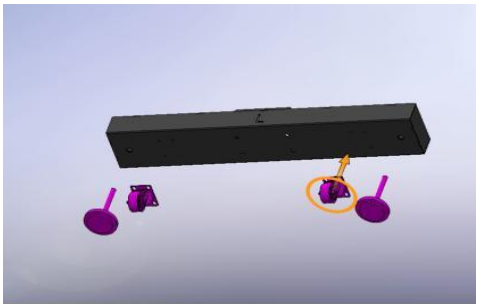
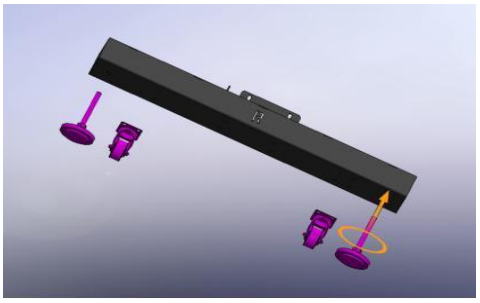
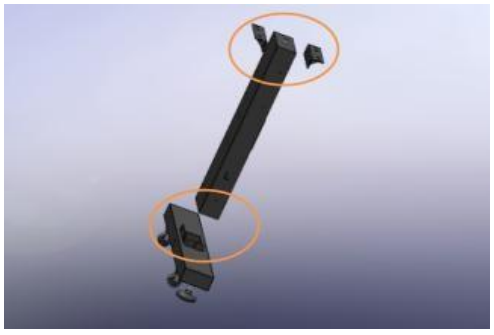
1.control panel	2.Suction knob	3.Temperature control knob	4.Foot bracket
5.waste ink bottle	6. Ink bucket fastener	7.Butterfly filter	8.printing platform
9.Front guide board	10.carriage	11.Infrared heater	12.take-up
13.Infrared control panel	14.Infrared switch	15.Machine switch	16.Power interface
17.Rear guide board	18.steel pipe	19.Large ink bucket	20.feeding

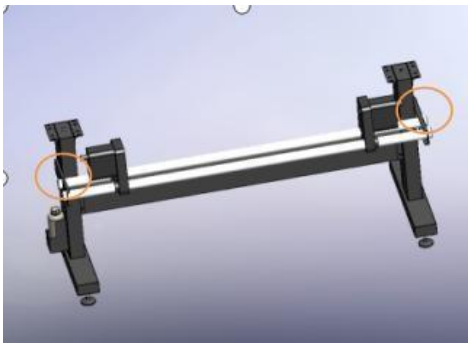
Chapter III Basic Parameters of Printer

Model		**POLAROID FIRST**
Head information		I3200-E1
Head quantity		1
Printing efficiency（2H/4H/6pass）		1H 20 square/H
Carriage height		2mm
Ink	color	CMYK
	Type	Oiliness
	Ink supply	Siphon continuous ink supply system
Feeding	Coiled material	Roll to roll manual feeding
Printing width	Maximum width of material	1600mm*50 M
drying system		Front and rear heating+intelligent infrared air-drying integrated assembly
Material type		Car sticker/PP
head cleaning system		Automatic lifting cleaning structure
Workflow		Print from printer management software after RIP/print while RIP
Interface		Network cable
RIP software		MainTop /pp
Operation system		Windows 7/Windows 10 64bit
Computer configuration	CPU	Core™i5 CPU @ 3.5GHZ or higher
	Memory	8GB or higher
	Hard disk	300 GB or higher (solid state drive is recommended)
work environment	humidity	40-60%RH
	temperature	temperature 20-30℃(68-86℉) Optimum temperature 24-28℃(75-82℉)
power		2000W
size	Overall dimensions：	Printer package size：L2900*W750*H850 Printer net size：L2630W7650*H1250
weight		printer 200KG
Note: POLAROID reserves the right of final interpretation and is subject to change without notice.		

Chapter IV Hardware Installation and Software Introduction

4.1 Foot bracket and body assembly instructions

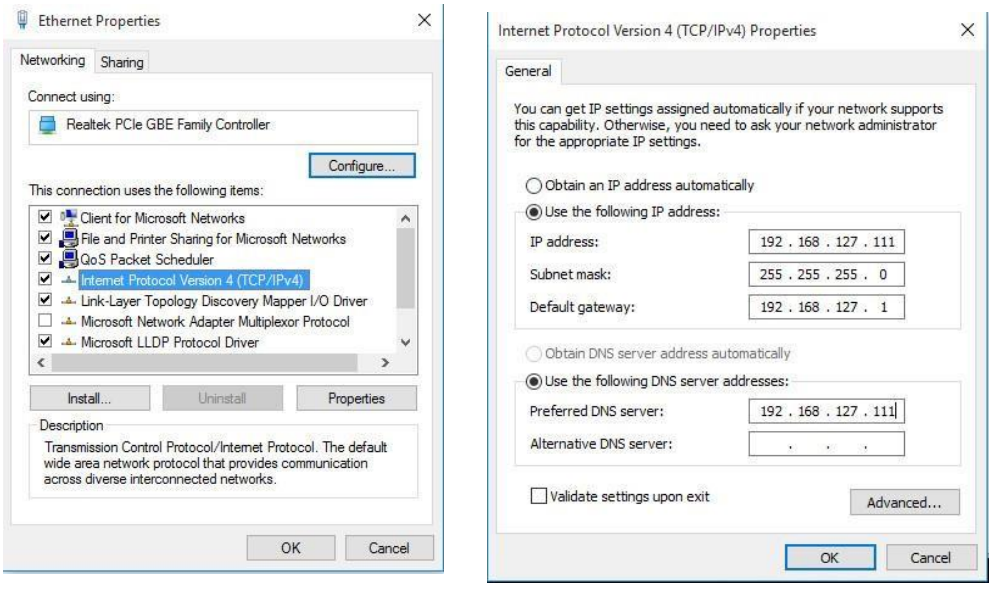
1. Installation of universal wheel and foot cup on the left base: use M6 * 16 round head hexagonal socket combination screw to fix the universal wheel and tighten the foot cup.	
2. Installation of right base universal wheel and foot cup: use M6 * 16 round head hexagonal socket combination screw to fix the universal wheel and tighten the foot cup.	
3. Installation of left vertical support and vertical support fixing plate: use M6 * 20 hexagonal socket combination screws to fix the vertical support and rigid support fixing plate.	
4. Installation of right vertical support and vertical support fixing plate: use M6 * 20 Fix the vertical support and rigid support fixed plate with the hexagonal socket combination screw.	

5. Installation of foot bracket beam: both ends of the beam are fixed with M6 * 20 hexagonal socket combination screws.	
6. Installation of the left and right side plates of the feeding and the paper dispenser: use M6 * 20 hex socket combination screws to fix the side plates and thread them into the steel pipe and the feeding.	
7. Machine head installation: use M6 * 20 hexagonal socket combination screws to fix the machine head and the rigid support.	 
8. Installation of waste ink bottle and ink bucket: fix the ink bucket with M6 * 20 socket head cap screws. The ink bucket and ink bucket bracket are fixed with the screws provided on the accessories.	 

4.2 Precautions before installation of head

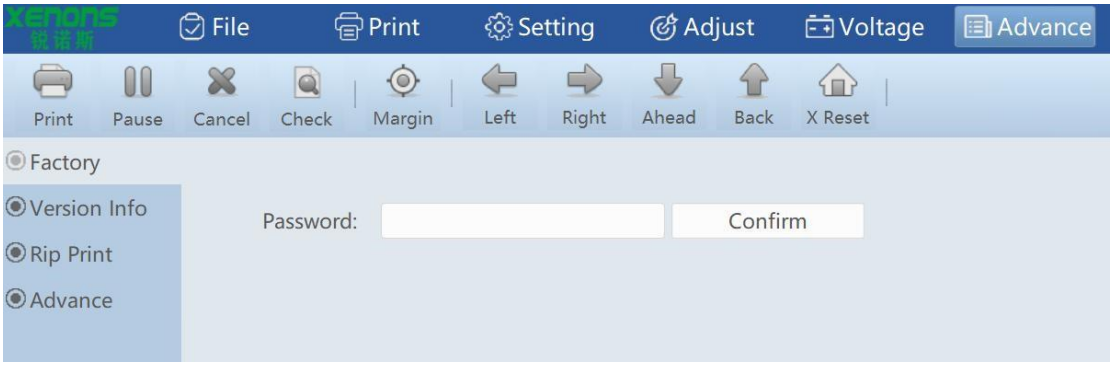
1. Check the machine: Check the appearance and accessories of the machine to see if they are complete. Remove the fixed sheet metal parts of the carriage and see if the carriage can be pushed from left to right normally without abnormal noise.

2. Software installation: install the printing software on the computer and set the local network IP, as shown in the following figure:

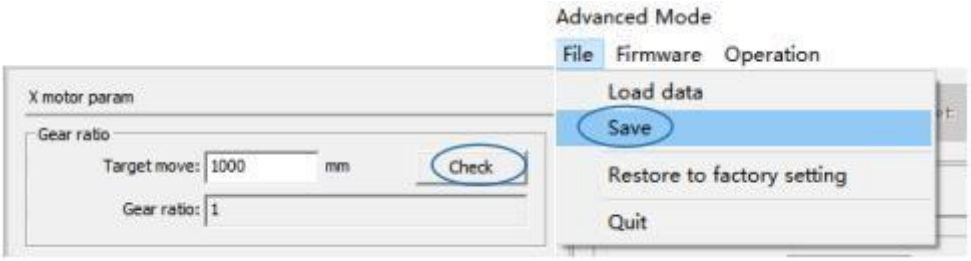


3. Online: connect the power supply to the machine, connect the network cable, open the machine control software on the computer, and turn on the machine. Observe the reset action of the machine. The specific reset action of the trolley on the platform is as follows: Start up and wait for about 10 seconds → the cleaning mechanism descends → the carriage moves about 15cm to the left → the carriage moves to the right and returns to the original point → the carriage moves to the left again (rebound distance) → the cleaning mechanism rises → the software is online.

4. Enter the factory engineer mode: in the box behind Software Advanced and Factory Settings, enter 222222, press Ctrl+F12, and click OK to enter.



5. 1orizontal gear ratio calibration: X motor interface, gear ratio setting, calibration behind the point. After the automatic calibration of the machine is completed, click the save option under the file in the upper left corner to save.



4.3 head installation

1. Parts required for installing the head

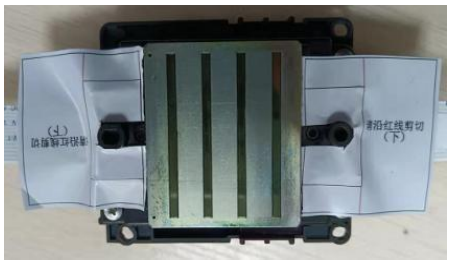
No.	Name	Quantity	Unit	note
1	i3200 damper	8	pcs	
2	Head data cable（14p/55cm）	8	pcs	
3	Head sticker	4	pcs	
4	M3*8 Socket head cap screw	6	pcs	
5	M2.5 L key	1	pcs	Accessory bag
6	i3200 head	2	pcs	Self provided
7	Cross screwdriver	1	pcs	Self provided
8	scissors	1	pcs	Self provided

Remarks: The materials required for installing the head are all in the carriage sealing pocket, except for the head. Common tools are provided by the user.

2. Installation steps of head

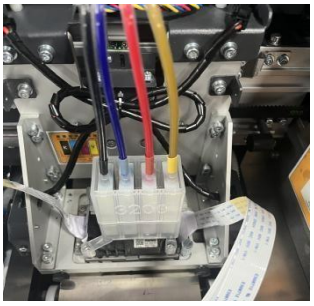
1) Installation of the flat line of the head: insert the 14P flat line into the head according to the mark, pay attention to the mark of the flat line, and insert it on the upper and lower interfaces of the nozzle accordingly to prevent the flat line from being inserted reversely, as shown in Figure 1 below.

2) Attach stickers to the connection between the head and the data cable: use scissors to cut the stickers according to the red line identification, and use the cut stickers to protect the lower and upper parts of the slot of the flat line of the head to prevent the splashed ink from entering the slot, causing the nozzle to be short circuited and burned, as shown in Figure 2 and Figure 3 below.

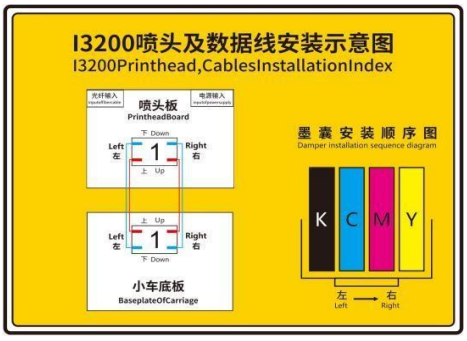


3) Put the installed nozzle into the designated position in the trolley, use M3 * 8 socket head cap screws to pass through the ink bag fastener, and fix the nozzle on the trolley bottom plate.

4) Install the ink cartridges: Install the ink cartridges of the four ink colors of No.1 nozzle from left to right in the order of "KCMY" as follows.



5) Connect the other end of the nozzle data line to the nozzle plate, as shown in the figure below.



Matters needing attention:

- Pay attention to that when pumping ink, the ink outlet of the ink bag should be upward. Do not squeeze the ink bag diaphragm with both hands to prevent damage to the ink bag and poor cleaning.
- The ink is pumped out by the needle tube, and then pulled out after a few seconds to ensure that the ink bag is completely filled.
- After the ink is pumped out, insert the ink bag vertically into the nozzle. Be careful not to squeeze the ink bag membrane to prevent ink splashing.
- After all ink cartridges are inserted, pay attention to check whether the ink cartridges are firmly inserted to prevent ink leakage and air leakage.
- Finally, the ink in the ink bag is introduced into the nozzle through the software setting - ink loading function.

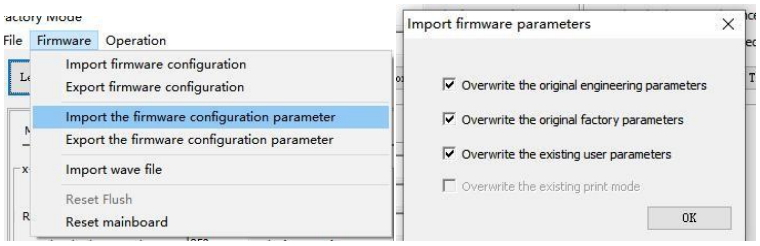
4.3.3 Flow of head calibration:

1. Nozzle detection: according to the calibration map, observe the status of the nozzle, and ensure that the nozzle is in good condition before calibration or printing.
2. Vertical calibration: adjust the left and right physical positions of the nozzle according to the calibration map, and adjust the benchmark according to the right insertion point map.
3. Step calibration: Adjust the step parameters of paper feeding according to the calibration chart.
4. Color calibration: according to the calibration chart, adjust the parameters between each row of orifices, and use different colors to hit the same position.
5. Bidirectional calibration: adjust bidirectional parameters according to calibration chart.

4.3.4 Parameter backup:

After debugging, you need to back up the parameters. Backup method:
Enter the factory mode, open the firmware in the upper left corner, export the firmware configuration and firmware parameters for backup. When the software is poisoned or the motherboard is replaced, re import the backup firmware configuration and firmware parameters, and restart the machine after successful import.

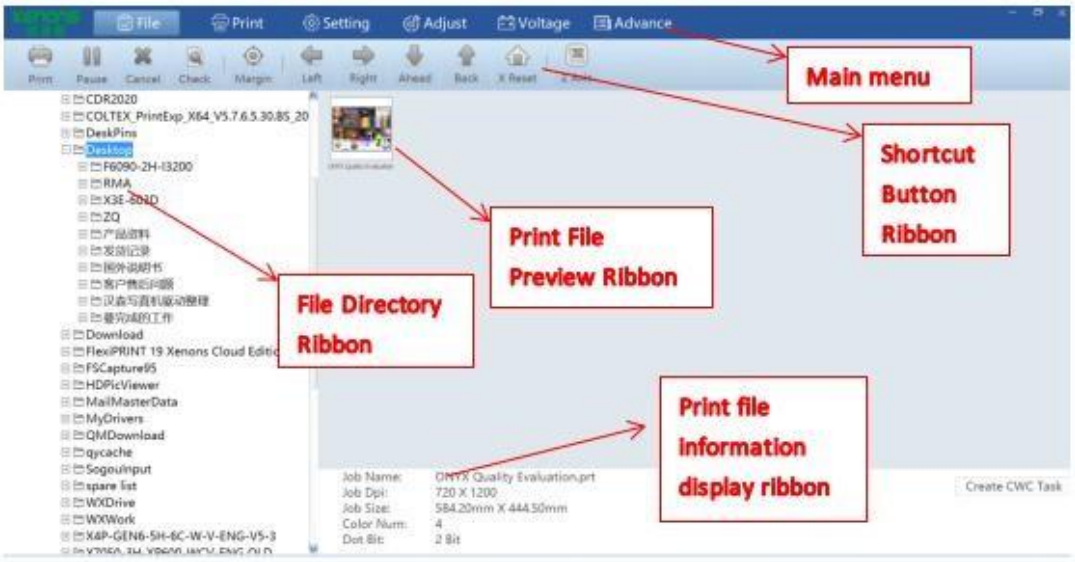
Note: When importing firmware parameters, it is necessary to overwrite the previous parameters, as shown in the figure below. Click OK to prompt that the parameter import is successful, and the machine can be restarted for normal use.



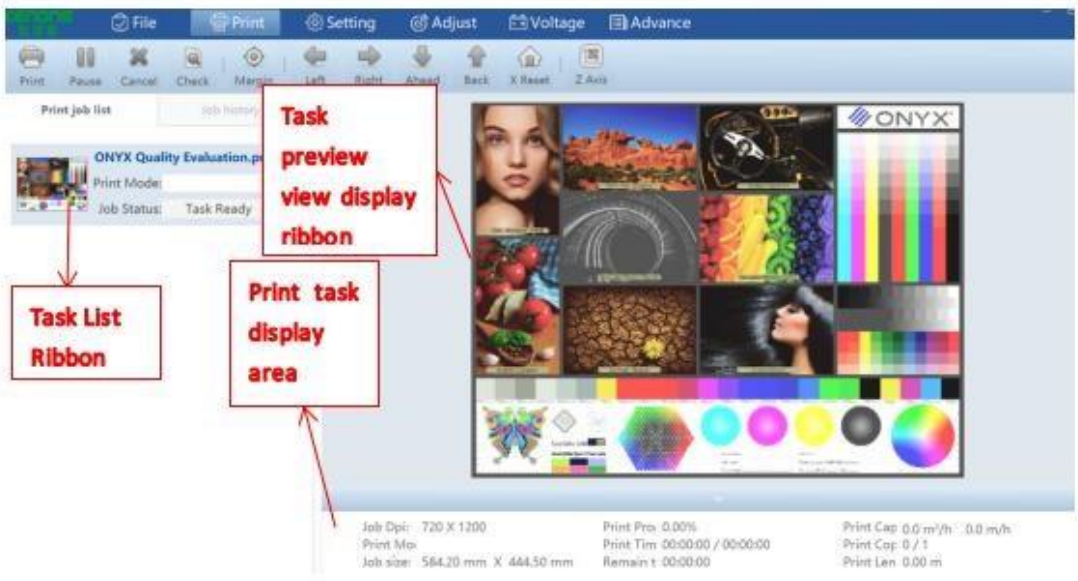
Chapter V Function Introduction of Print Control Software

Print Exp software is a printing device control software, which is simple and convenient to operate. It is mainly used for printer control, printer calibration, program upgrade and update, import and export of parameters, and saving parameters to the board. In order to enable users to quickly and comprehensively understand the printing software, be familiar with the operation of various functions, precautions and possible problems, the following is a detailed introduction to the printing software.

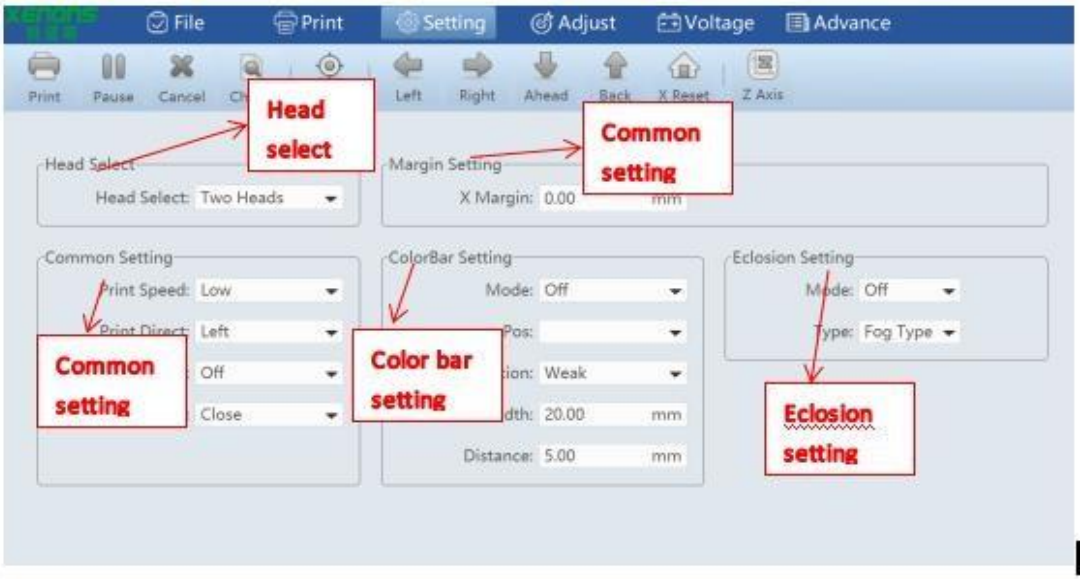
5.1 File: preview and import of print file.



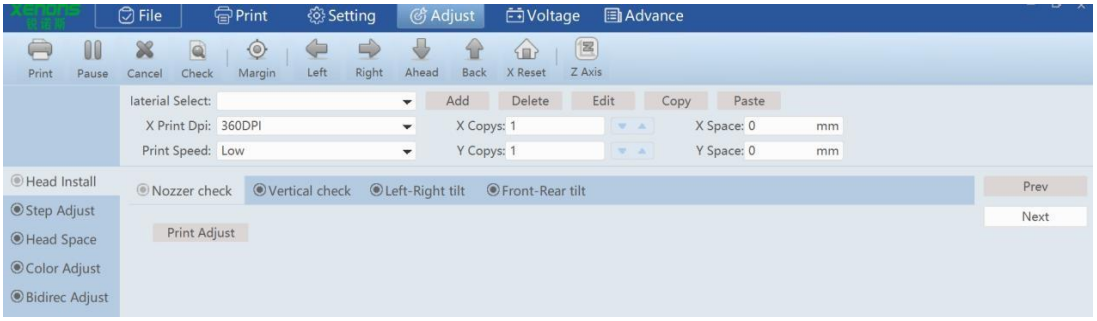
5.2 Print: preview and display of print list.



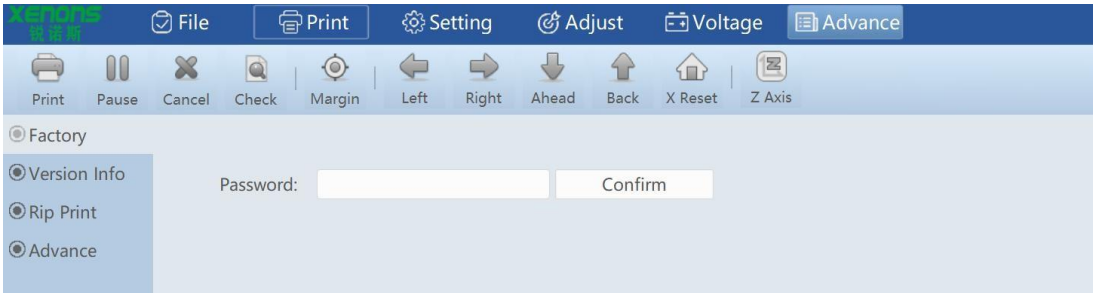
5.3 Settings: General settings before printing



5.4 Calibration: calibrate the parameters of the head



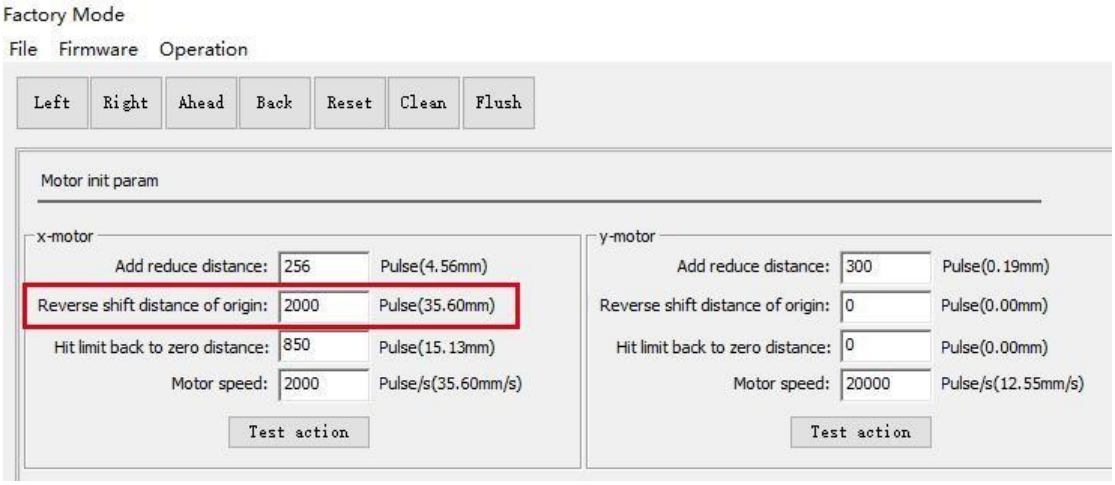
5.5 Advanced: including manufacturer settings, board software version information, rip, and advanced settings



Attachment:

1. Cleaning parameter adjustment:

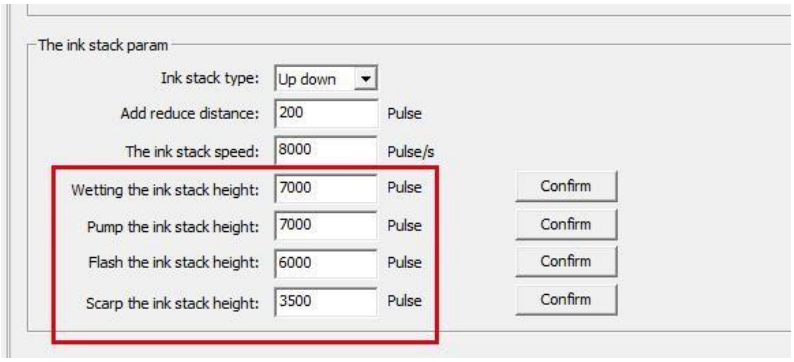
1.1 Left and right position of ink stack: after online, the ink stack cap should be in the center position of the head. If there is a deviation between the left and right, you can initialize the interface in the software factory mode and adjust the zero return distance parameter after hitting the limit position. After modification, click the Save option under the file in the upper left corner to make the parameter effective. After saving, click the initialization in the upper left corner to observe whether the left and right alignment of the printing head and ink stack is centered.



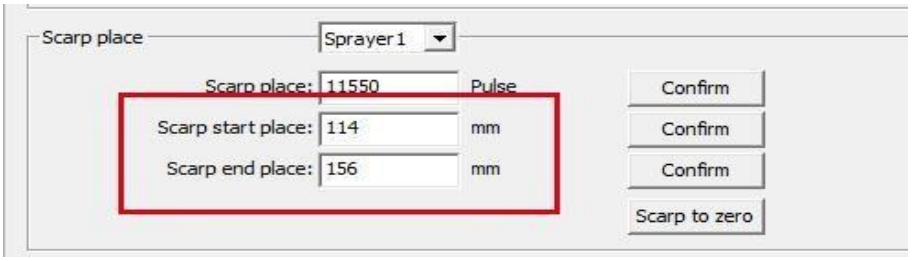
1.2 Ink stack height adjustment: observe whether the moisture retention and ink pumping height of the ink stack fit the head. If the ink pumping height is not enough, adjust the ink pumping height by increasing 300 pulses each time to ensure that all the nozzles can absorb ink smoothly. The scraping height should be about 1mm higher than the surface of the head.

Matters needing attention:

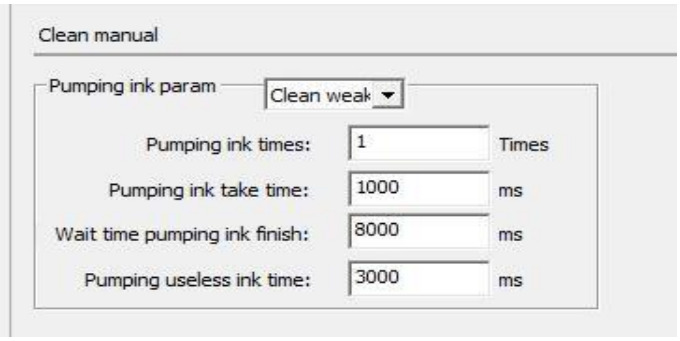
- The ink pad should not be too high to prevent the nozzle from being damaged.
- During printing, the ink pad shall be attached to the head, and shall not be too high or too low to prevent ink accumulation on the surface of the nozzle during flash spraying, which may cause color mixing and wire breakage.



1.3 Ink scraping position: observe the moving distance of the trolley during ink scraping to ensure that the blade should scrape the nozzle fully. If the distance is not enough to scrape the nozzle fully, you can adjust the starting and ending positions of ink scraping in the factory mode.

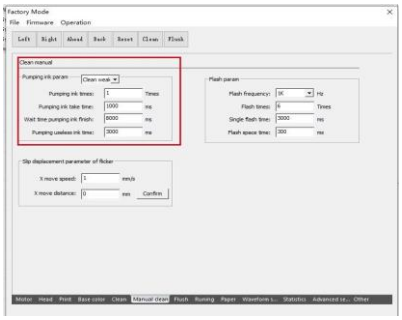


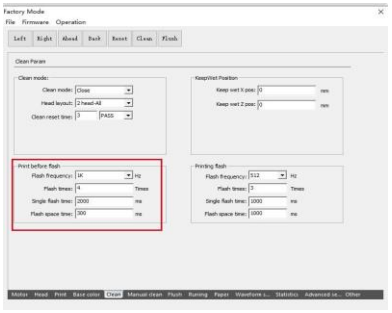
1.4 Adjustment of ink pump parameters: the diaphragm pump has large power and strong ink pumping force. When setting the cleaning, the ink pumping time is controlled at about 1-2 seconds (1 second equals 1000 milliseconds). If the ink pumping time is too long, the ink on the surface of the nozzle will be sucked back to the ink bag. It is recommended that the ink pumping time for ordinary cleaning be set to about 800 milliseconds and the cleaning time be strengthened to 2000 milliseconds. The delay waiting time is 5000 milliseconds by default, and the indoor water-based machine can be increased to 8000 milliseconds or more.



1.5 Adjustment of flash parameters: it is recommended to set the frequency of flash after cleaning and before printing as 1KHZ, the number of times of cleaning flash is 4, the flash time is 2000-4000ms, and the interval is 300-500ms.

Precautions: The flash frequency shall not exceed 1KHz, otherwise ink break is likely to occur, and the comprehensive flash time before printing shall not exceed 25 seconds, otherwise the software will report an error of "exceeding the waiting time".





2. Board

2.1 Main board: collect signals, control motor operation and send printing data to the nozzle plate. The appearance of the motherboard is shown in the figure below.

2.2 Print head board: controls the ink output of the nozzle by receiving the print data sent by the mainboard. The appearance of the nozzle plate is shown in the figure below.

Single head print head board

2.3 Power board: AC voltage is converted into DC low voltage to supply power to other boards.

The appearance of the power panel is shown in the figure below.

300W power board

2.4 Key board: manual control function. The appearance of the key board is shown in the figure below

2.5 Heating control and air suction knob: control the heating function of the front and rear guide boards and the air suction function of the printing platform. The appearance of heating control knob and air suction knob is shown in the figure below.

Heating and fan control

Heating control panel

Calle 10 No. 206, Col. Granjas San Antonio
Del. Iztapalapa, C.P. 09070

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www.polaroidlargeformat.com