A4/A4B Automatic Dispenser
-100% Recirculation
User Manual
# Contents

1. Using Requirement..................................................................................................................1
2. Specifications..........................................................................................................................1
3. Safety Instructions....................................................................................................................2
4. Machine Composition..............................................................................................................2
5. Installation...............................................................................................................................4
   5.1 Installing Machine..............................................................................................................4
   5.2 Installing Computer.............................................................................................................5
   5.3 Installing Software...............................................................................................................5
6. Machine Adjustment................................................................................................................6
   6.1 Software Adjustment..........................................................................................................6
   6.2 Machine Adjustment..........................................................................................................6
   6.3 Add Colorant.....................................................................................................................6
   6.4 Emptying Pump..................................................................................................................7
   6.5 Calibration of Colorants....................................................................................................7
7. Operation..................................................................................................................................7
   7.1 Put the Base Paint Can......................................................................................................8
   7.2 Changing the Water of the Cleaning Box.........................................................................8
8. Maintenance.............................................................................................................................10
   8.1 Daily Maintenance............................................................................................................10
   8.2 Periodical Maintenance....................................................................................................10
9. Replacing Spare Parts............................................................................................................10
10. Circuit Diagram......................................................................................................................11
11. Troubleshooting.....................................................................................................................12

**Warning Labels:**

⚠️ Electrical Shock Danger! Cut off power supply before cleaning and maintenance.

⚠️ Important Information! Read carefully.
1. Using Requirements

1) Do provide separate power supply socket for this machine. The loading capacity of the socket shall be in line with the requirements listed in the User Manual. Please confirm that there is dependable ground wire with the electrical socket before usage.

2) Working environment temperature: 0℃～+55℃, relative humidity: 15%～90%. Transformation and storage temperatures shall be within a range of -10 ℃ to +55 ℃ and for short periods not exceeding 24h at up to +60 ℃.

3) The proposed atmospheric pressure range is 86kPa ~ 106kPa for the machine;

4) This equipment is prohibited for a potentially explosive environment.

5) This machine is only used for dispensing of the water based paint. To mix and dispense the flammable, explosive, poisonous and harmful liquid are prohibited.

6) Do keep the children away from the machine. Do not operate the machine except for the staff.

7) Computer Composition:

<table>
<thead>
<tr>
<th></th>
<th>Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>CPU PIII</td>
</tr>
<tr>
<td>2</td>
<td>CD-ROM Driver</td>
</tr>
<tr>
<td>3</td>
<td>15 Inches Monitor, screen resolution is 1024X768 pixels or higher</td>
</tr>
<tr>
<td>4</td>
<td>USB/COM Interface</td>
</tr>
<tr>
<td>5</td>
<td>Windows 2000 or higher Operating System</td>
</tr>
</tbody>
</table>

2. Specifications

**Type**: A4/A4B  **Model**: A4-100% 16/14/12/10  A4B – 100% 24/20/18/12

<table>
<thead>
<tr>
<th>Item</th>
<th>Content</th>
<th>Item</th>
<th>Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Canisters</td>
<td>16/14/12/10</td>
<td>Min Dispensing</td>
<td>0.077ml (1Y/384)</td>
</tr>
<tr>
<td>Max Flow Rate</td>
<td>0.90ltr/min</td>
<td>Canister Size</td>
<td>1.8/2.3/3.8ltr</td>
</tr>
<tr>
<td>Pump Size</td>
<td>62mltr</td>
<td>Stirring Speed</td>
<td>20 Revolutions/minute</td>
</tr>
<tr>
<td>Power</td>
<td>≤100W</td>
<td>Power Supply</td>
<td>See the Nameplate</td>
</tr>
<tr>
<td>Can Size (D x H)</td>
<td>A4: AUTO MAX 350mm x 470mm MANUAL MIN 320mmX500mm</td>
<td>Stirring Timing</td>
<td>Stir 10 minutes every 4 hours or Stir 1 minute every 1 hour</td>
</tr>
<tr>
<td></td>
<td>A4B: AUTO MAX 390mm x 420mm MANUAL MIN 360mmX450mm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Machine Size (Height x Width x Depth)</td>
<td>A4: 1270X707X848 (mm)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>A4B: 1290X870X1026 (mm)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Notes: Stirring time is available for customerization.

3. Safety Instructions

1. Please read this manual carefully before installation and operation.
2. Only trained professionals are allowed for operation and/or maintenance.
3. Prolonging wire is prohibited.
4. The machine is only available for 0.5 liter to 20 liter (40kg) paint cans.
5. The machine should be powered on all the time to make the stirring available.
6. The side door shall be closed prior to close the top cover.
7. Press the emergency stop button, the machine will stop working and the stirring will stop at the same time.
8. If it is not used for a long time, the canisters should be cleaned and plugged off.
9. During transportation, the machine should be leveled, preventing from being shocked, pressed, and bottomed up or side faced on the ground. The machine should be kept in ventilated and dry room which is moisture-proof fire-proof.
10. It is forbidden to work the machine in the inflammable and explosive environment.
11. No hot-plug of the serial port line.

4. Machine Composition
Canister Assembly: container of colorant is with piston pump and valve, on the valve there is a valve handle and a nozzle for colorant dispensing.

1. Do not make the added colorant exceed the maximum volume of the canister. See the label on the canister.

2. Keep the nozzle clean.

3. The plastic lid of the canister shall be properly covered to prevent dryness.

Turntable assembly: canisters are fixed on the turntable, which can be turned to send the canisters to dispensing position, stirring inside canisters also can be carried out while turning. Stirring avoids the colorants depositing.

Washing assembly: wash the dispensed nozzle. The washing wheel inside the washing box shall be kept clean to ensure the washing function.

Lifting assembly: with the assistance of electrical control system, the machine can make the piston up and down so to dispense colorant out. Only authorized personnel are allowed to open the front door for service.

Loading plate: paint can is located herein.
5. Installation

5.1 Installing Machine

- Unpack the wooden case and inner film of the machine with necessary tools.
- Take out tool box, check the items inside according to the packing list. Preserve the tool box for next use.
- Get the side door keys from the tool box and unlock the lock to open the side door.
- Remove the transportation fixing plates by using inner hexagon spanner 5.

- Release the 8 bolts from the feet platen. Locate the machine onto the position desired.

- Use the spanner to rotate the four feet clockwise to locate them. Level the machine to avoid it moving during operation.

- Take out the mouse tray from the tool kit and fix it onto the side of the machine.

- Insert the power supply wire into the socket on the back of the machine.
Before installation and maintenance, must cut off the power supply and unplug from outlet.

Do not unplug by pulling on cord. To unplug, grasp the plug, not the cord.

Do not operate any appliance with a damaged cord or plug, or after the appliance malfunctions or is dropped or damaged in any manner. Contact the nearest authorized service facility for examination, repair, or electrical or mechanical adjustment.

Do not lengthen the power line.

Do not operate the machine in case the machine shell is removed.

5.2 Installing Computer

- Unpack the carton, locate the computer on the bottom plate under the dispenser.
- Locate the keyboard and the mouse on the top of the machine.

Installing Monitor

1. Connect the power supply wire, data wire with the monitor.

2. Connect the series port wire to the corresponding plugs, the installation is finished.

3. ⚠️ Hot plug of serial port line is prohibited.

5.3 Installing software.

1. Turn on monitor and the computer, run windows system.

2. Open CD-ROM, put in the installing disk, run the CD-ROM;

See Software Manual for detail info about installation and using.
6. Machine Adjustment

The machine has been tested before leaving factory, normally the professional go to your site to do machine adjustment. If you don’t need, please install and adjust the machine under the guidance of the professional.

6.1 Software adjustment

1. Turn on the switch on the back of machine. Ensure that the emergency stop button is on (if equips uninterruptable power supply, ensure that the power supply is on)

2. Open (double-click the icon) Color Expert 3.0 program;
   Machine begins to initialize, and pop up the below figure, if there is abnormal sound coming from the machine, press emergency stop button and start problem solving.

6.2 Machine Adjustment

When the software shows **Ready**, please start to adjust the machine.

- Check whether the piston is on the bottom; the initialization of turntable should be in normal condition.
- Locate the paint can in the center of the loading plate. If there is no paint can or take away the paint can suddenly, the software shows **E18 “No paint can, colorant could not be spouted out”**.
- Test the top cover: the machine could not be operated when the top cover is opened.

Press the emergency stop button under any suddenness.

⚠️ Pressing the emergency stop button also can stop stirring.

6.3 Add Colorant

- Before colorant is added in to canister, it must be fully mixed by stirring ruler, it is not recommended to mix the colorant by shaker; in that case, too many bubbles are produced and they will affect the accuracy.

⚠️ The maximum capacity of canister is 1.8/3.8L notice that the colorant must not be filled above the uppermost mark of stirring device.

- The machine has good distribution before leaving factory. See **Service.exe** in the **bin** file of the installation catalog; with the instruction of **Software Manual**, and please assign the colorants to respective canisters if it is necessary to change.

- The left side of the machine is default side for adding the colorant.
Open [Maintenance], choose the colorant code, click “add colorant” to add corresponding colorant, please ensure the colorant names in the software match the colorant of the canisters.

Open the top cover. The canisters are pasted with sequential labels corresponding to the colorants.

Open the cover of the canister and insert the stirring ruler, and then the colorant can be poured into canister along the stirring ruler. Be careful not to pour the colorant out of the canister. Cover the canister cover when you finish adding the colorant. When the top cover is opened, machine will not rotate.

Add the actual corresponding colorant quantity in the adding colorant interface, and click “add”.

Rotate the canisters and add the corresponding colorant in the other canisters.

Click the **stir** to stir the colorant.

### 6.4 Emptying Pump

- Air in the pump affect the accuracy, so emptying the air in pumps is a must.

- Lift the piston pole and then press it to the bottom and repeat for 4-5 times. Turn the valve rod from horizontal to vertical position. If there is no colorant dropping from the valve rod, it means the pump is emptied. Then turn the valve rod to horizontal position. If any colorant drops, turn the valve rod to horizontal position. Lift and press the piston rod for 2-3 times. Repeat the foregoing steps till there is no colorant drops out.

- Rotate the turntable and empty the canisters in turns with the same method.

- The machine will lift and press the piston rod for recirculation and exhausting the air automatically in every 24 hours.

- Do not lift the piston rod if not necessary.

- Please cover the lids promptly to avoid evaporation of colorant.

### 6.5 Calibration of Colorants

The machine had been calibrated in the factory. Customers can also recalibrate in 4-7 hours after colorants have been filled if they need. A scale with minimum accuracy of 0.001g and the colorant density are a must for recalibration.

⚠️ Stir for 30 minutes after adding colorants, to remove bubbles.

⚠️ When no continuous dispensing of colorants, please re-empty air or check if nozzle is blocked.

All the preparation steps are followed, the colorants could be dispensed after 4 hours.
7. Operation

The operations of how to search, dispense and modify the formula are explained in the software using manual. The operator can operate the machine according to the user manual. But normally, the operator should be got well trained to operate the dispenser better.

⚠️ The machine should be powered on all the time, there will be no action when emergency button is pressed.
⚠️ The colorant volume in canister should not be lower than 0.5L.

7.1 Locate Base Paint Can

A. For electric platform, press the two buttons at the same time to lift or lower the platform. It stops when the paint can is sensed by the sensor.

B. There are 3 platforms for manual version. You may locate them onto the positions you use most frequently.
7.2 Wash the cleaning box.

The cleaning box is build-in. The daily maintenance and periodically maintenance shall be implemented by following the reminders from the dispensing software.

The hairbrush shall be used in the following manners to ensure the cleaning effects:

1. Rotate the locking handle clockwise and upward to release the cleaning box.
2. Pull out the cleaning box.
3. You may clean the brush wheel and the cleaning box separately. Clean each valve bottom thoroughly.
4. Insert the cleaning box into its seat (push it to ensure the hairbrush shaft contact the motor) and rotate the locking handle anti-clockwise to fasten it. Press the cleaning box.

B. Washing the cleaning box.
8. Maintenance

Routine maintenance is needed to ensure that the machine remains in good working condition and has a long service life. Maintenance and any repairs should only be carried out by qualified personnel.

8.1 Daily Maintenance

- The dispensing software will remind you the minimum volume of the colorant. Fill it in time.
- If the colorant in the canister is too little, less than 0.5L, which will affect the accuracy of the dispensing. Then cover the canister lid.
- Keep machine power on; even it is not used.

8.2 Periodical Maintenance

Do the following maintenance every 1-6 months:

- Check stirring paddle inside each canister, see whether it works; if not, repair.
- Lubricate screw and guiding rod in every six months.
- If the machine has not been used over one week, the machine shall be powered on and recirculate it automatically before usage.

9. Replacing Spare Parts

1) Replacing Outer Canister:

Loose the three screws which fix the canister on the turntable using screwdriver, and then drive the canister anticlockwise to take off the canister.

2) Replacing Inner Canister:

a. If you will replace the inner canister, you want to take off its right outer canister first.
b. Remove the screw on the bracket to fix the canister, pull out the bracket for 10mm. Pay attention to not to pull out the bracket too much to avoid the colorant leaking off the canister.

c. Rotate the canister anticlockwise, the canister can be taken off the turntable.

10. Circuit Diagram
# 11. Troubleshooting

<table>
<thead>
<tr>
<th>Issue</th>
<th>Cause</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mixing motor doesn’t work.</td>
<td>1 Unconnected power supply.</td>
<td>1 Connect the power supply.</td>
</tr>
<tr>
<td></td>
<td>2 Broken fuse.</td>
<td>2 Change the fuse.</td>
</tr>
<tr>
<td></td>
<td>3 Motor wiring falls off.</td>
<td>3 Open the lower side door to connect it.</td>
</tr>
<tr>
<td></td>
<td>4 Broken motor.</td>
<td>4 Change the motor.</td>
</tr>
<tr>
<td>Intermittent outpouring of colorants.</td>
<td>1 Air bubble in the cylinder.</td>
<td>Reference “Preparation prior to operation”.</td>
</tr>
<tr>
<td></td>
<td>2 Insufficient colorants.</td>
<td>Add colorants.</td>
</tr>
<tr>
<td></td>
<td>3 Sedimentation blockage.</td>
<td>Clean “Canister Units” and accessories.</td>
</tr>
<tr>
<td>Loose canister on the rotary plate.</td>
<td>Unfastened screw.</td>
<td>Fasten it.</td>
</tr>
<tr>
<td>No outpoured colorants.</td>
<td>Nozzle blocked.</td>
<td>Clean it.</td>
</tr>
<tr>
<td></td>
<td>Valve motor in trouble.</td>
<td>Change the valve motor structure.</td>
</tr>
<tr>
<td></td>
<td>Valve handle doesn’t work.</td>
<td>Change the position of the valve motor and the handle.</td>
</tr>
<tr>
<td>Piston blocked.</td>
<td>Dry colorants in the cylinder.</td>
<td>Empty it and clean the canister and cylinder.</td>
</tr>
<tr>
<td></td>
<td>Resistance between the guide screw and guide pin.</td>
<td>Lubricate the guide screw and the guide pin.</td>
</tr>
<tr>
<td></td>
<td>Unfastened screw.</td>
<td>Fasten it.</td>
</tr>
<tr>
<td>Noisy stepper motor.</td>
<td>Abnormal voltage.</td>
<td>Check the power supply voltage.</td>
</tr>
<tr>
<td></td>
<td>Resistance between the guide screw and guide pin.</td>
<td>Lubricate them.</td>
</tr>
<tr>
<td></td>
<td>Unfastened screw.</td>
<td>Fasten it.</td>
</tr>
<tr>
<td>Colorants leakage from the nozzle.</td>
<td>Valve is broken.</td>
<td>Change it.</td>
</tr>
<tr>
<td>LCD shows “Emergency Stop Switch Unreleased”</td>
<td>1 It is not released.</td>
<td>Release it.</td>
</tr>
<tr>
<td></td>
<td>2 Broken emergency stop switch or the wire is broken.</td>
<td>Change the switch or connect the wire.</td>
</tr>
<tr>
<td>LCD shows “Door Unclosed’”</td>
<td>1 The door is not closed properly.</td>
<td>Close it properly.</td>
</tr>
<tr>
<td>Issue Code</td>
<td>Cause</td>
<td>Solution</td>
</tr>
<tr>
<td>------------</td>
<td>-------</td>
<td>----------</td>
</tr>
<tr>
<td>E11</td>
<td>Emergency stop switch is unreleased.</td>
<td>Release it.</td>
</tr>
</tbody>
</table>
| E12        | Top cover is not closed.  
Top cover sensitive switch is broken. | Close it.  
Change it. |
| E18        | Base paint can is not located.  
The base paint can is too far away from the sensor.  
Base paint can sensor is broken. | Locate it.  
Make them nearer.  
Adjust it or change it. |
| E31        | Valve motor is broken.  
Valve motor driver is broken.  
Right valve sensor is too far away.  
Right valve sensor is broken. | Change it.  
Change the driver circuit board.  
Make it nearer.  
Change it. |
| E32        | Step motor is broken.  
Step motor driver is broken.  
Lifting block sensor is too far away.  
Lifting block sensor is broken. | Change it.  
Change it.  
Make it nearer.  
Change it. |
| E35        | Rotary plate motor is broken.  
Rotary plate motor driver is broken.  
Can coder sensor in trouble. | Change it.  
Change the driver circuit board.  
Change it. |
| E36        | Magnet is not in the proper location.  
Can coder is broken. | Locate it properly.  
Change it. |
| E38        | Pump is lifted or the elastic pin of valve is not at the horizontal position.  
Pump sensitive switch is broken. | Reset the pump or rotate the elastic pin of valve to the horizontal position.  
Change it. |
| E39        | The plate is rotated when the step motor or valve is not reset. | Check the valve and the sensor. |
| E41        | Valve motor is broken.  
Valve motor sensor is broken.  
Left valve sensor is too far away.  
Left valve sensor is broken. | Change it.  
Change the driver circuit board.  
Make it nearer.  
Change it. |

Contact the supplier with the model and serial number for other issue(s).
ZHENGZHOU SANHUA TECHNOLOGY & INDUSTRY CO. LTD.

ADD: Feilong Road, Zhengzhou Xingyang Industries Convergent Areas,
Zhengzhou City, Henan Province. PR. China. 450042
TEL: (86) 371-67857168   After-Service: (86) 371-67857319
FAX: (86) 371-67857166   WEB: http://www.santint.com
   E-mail: info@santint.com