

DCL50 Plastic Lid Applicator Machine

User Manual



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I. Foreword

Dear Customers:

Please read this book carefully before operating the machine . If you fail to use this manual operation of the machine, Quanzhou Dachang Company will not be responsible for any lose caused.

With the increase of application and technical improvements, we will do some adjustment on the machine parts , electrical program applications and circuit etc. It will make the actual machine operation a little different from the specifications stated in user manual . But it will not affect your use of the machine. Any questions, please do not hesitate to contact us, we will make them clear in time.

Any change in manual without prior notice.

II. Safety warming

1. Installation Requirements

① Don't install the machine in the overheating of workshop, the temperature should be below 40 °C, so as not to affect the normal operation of the electric control system.

② Don't install the machine in direct sunlight or strong point-blank light, so as not to affect the photoelectric sensor (such as color code sensor sensitivity). In case of the misoperation of equipment components.

③ Keep machine upright . Don't impact machine.

④ Machine must be installed smoothly and steadily. Please use the level-meter to calibrate. Please lock all the joint bolts of each machine section . And docking lock the cable quick joint . Please connect power's input line terminal with main air circuit breaker reliably .

⑤ This machine power supply requirement: three-phase AC 380 V, 50 HZ . Three-phase five wire system. Voltage fluctuation will make electric system work unstable, there will be a servo alarm downtime, etc. Kindly recommend to use three-phase voltage regulator. Total power into lines: 4 square millimeters, 3 * 4 + 2 * 1.5 (5 core cable).

⑥ The machine must be grounded reliably.

⑦ Please do not install or remove the machine yourself. If any need , please ask for the personnel with professional training to complete.

⑧ After completion of machine installation, please check again before electricity test the connection of the electric system to ensure that each terminal

and reliable connection and the reliable insulation with machine.

⑨ Before the first energizing test, please experiments confirm that small motor running direction. To ensure that each machine on the right running direction.

2. Operation of Machine Compliance

① Turn off the total power when you encounter strong convective weather such as heavy rain, thunder and lightning. Damage to electrical parts caused by this is not covered by warranty.

② Do not touch the running parts while the machine is running. As well as other parts that may cause personal injury such as heating parts and surrounding parts.

③ Installation of parts that are not suitable for the machine or free to modify the machine, may cause unpredictable accidents.

④ The machine powered on, is prohibited from welding and other welding operations, or measured with a megger.

⑤ When the machine has abnormal sound or smell and vibration, please shut down, cut off the power. And asked the professionals to detect.

⑥ The machine's electrical system is strictly prohibited water spray or moisture. Do not touch the electrical system of the machine.

⑦ The machine's electrical system is strictly prohibited water spray or moisture. Do not touch the electrical system of the machine in wet hand.

⑧ Machines in normal use, do not place tools or other items on the machine. Please keep electronic control box clean and tidy .

- ⑨ Please keep in mind that the flanges, hand wheel and other parts of the machine during maintenance and operation . Do not turn around, stand up, in case of the body is hurt when screwing parts.
- ⑩ The operator is prohibited of the machine operation or close to the machine working space during the period of drinking or taking the drowsiness of the drug.
- ⑪ Operators must be trained and instructed until they are fully familiar with the performance of the machine before entering the official work.
- ⑫ Operators and service personnel, please do not perform alone when commissioning and servicing the machine.
- ⑬ Maintenance of electrical systems requires qualified personnel with electrician's license to complete.

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4. Operator safety warning

① Please read this manual carefully and keep this book before operating and

maintaining the machine.

- ② The operator must clear the machine's performance and the corresponding instruction and the machine alert symbol.
- ③ Please wear suitable work clothes and do not wear objects that are not related to operation.
- ④ Keep the workshop bright and airy.
- ⑤ Use suitable devices labor protection.
- ⑥ Make sure that the safety protection device of the machine is in working condition before starting up. Such as whether the emergency stop button can make the machine emergency stop. ☒
- ⑦ Do not move or remove the safety device. In order to ensure the stability and predictability of the machine, please use our original parts
- ⑧ The maintenance of the machine must be done by qualified qualified personnel. Turn off the power and air supply when the machine stops for a long time.
- ⑨ Prohibit unauthorized personnel to operate the machine.
- ⑩ It is forbidden to extend the body's hands and feet into the inside of the machine when the power is turned on.
- ⑪ It is forbidden to adjust and move the accessory when the machine is energized.
- ⑫ No live operating electrical system .
- ⑬ Powered machine should not be cleaned .

III. Main Technical Parameter

1. Power supply: three phase 380V,50HZ
2. Power:12KW
3. Speed: 40-60packs/min (Depending on the lid glue track)
4. Product Type: DELTA Robot
5. Positional Deviation : within $\pm 1.5\text{mm}$ (Special bags negotiable)
6. Weight: 700kg
7. Size of machine(mm): 3108X2795X2233 (L X W X H)

IV. Machine parts's Unit and control process

- ① Reservoir-cap conveyor system: consists of two reservoir-cap frames and supporting the dual-axis dual-motor conveyor device. And a guide plate installed on both sides and add a stopper on its rear to prevent caps dumping.
- ② Suction lid system: consists of a pair of rotating shaft of the adsorption and its support frame and air supply components.
- ③ Lids labeling conveyor system: consists of the labeling mechanism , convex belt conveyor and limit baffle other components.
- ④ Product delivery system: by a belt conveyor body to bear the pre-cover product delivery.
- ⑤ Visual sensing system: composed of two optical flow and visual induction and wheeled encoder.
- ⑥ Gluing system: consists of a glue machine, glue gun head, anti-overflow plastic box and matching hose composition.

- ⑦ Delta Robot (spider hand) system: by the original import robot commitment to grasp lids , glue, stick lids. (The process is provided by the visual collection of information)
- ⑧ Electrical control panel: the whole electrical control components.

V. Machine Installation

1. Machine installation

1.1 Before the installation of the machine ,please first check whether the parts damage or missing.

① When the machine is in place, please first bolt each corners well. Before bolting, nuts should be applied on each bolt,so that it can be fixed on horizontal positioning. After loading the machine horizontally arranged in order, together with the link between the bolt and tighten each bolt.

② First place the suction lids frame in front of the lids mechanism, the distance from the connecting rod, and the connecting rod to dock, press the two ends of the bolt.

③ Be in order to Install the label transfer device, the product delivery device and the cover conveyor in place, and tighten the connection screw.

④ Install the accessories of each conveyor device and the photoelectric sensor.

1.2 cable, connecting cable (should be marked by the cable, the corresponding number).

1.3 After the installation is complete, no-load test run. When test run, the speed

should be not too fast, and be noted that the various parts of the device, sensor is normal. Once found a failure should be timely downtime inspection, troubleshooting.

1.4 After the test run is normal, according to the production process before the preparation of the operation and product testing machine, trial running speed should not be fast. Should check the lids cover position to meet the technical requirements and glue trajectory, the amount of glue is normal or not, to prevent the overflow glue after sticking lids.

2. Electrical Installation

- ① Electrical installation must be performed by qualified personnel hold a valid certificate.
- ② Check the electrical wiring diagram and the machine nameplate requirements specified in this manual.
- ③ Connect the correct voltage, ground wire system according to CEI-64-8.

3. Gas supply

- ① Air connection must be done by professionally trained personnel.
- ② Air filtration system consists of a combination of a filter and a separate reduction units, with the oil-water separator, air can exclude impurities, scale, rust and the coagulum.
- ③ Compressed air: 0.6-0.8Mpa, 250L/min

VI. Fault Analysis and Treatment

1. When the lids can not be adsorbed: Adjustable front-end photoelectric switch and the inclination when the cover is conveyed , to make a reasonable dip with the glue tip.
2. When the suction head suction force poor, should check whether the tracheal connection is leaking or whether the supply pressure is in the range of 0.6 to 0.8 MPa or not.
3. If machine can not be started, the alarm screen can not be eliminated, should check to reset all emergency stop switches or cut off the current, wait until the servo motor control light off, again connected to the total current.

VII. Maintenance

To make the machine safe and reliable operation, reduced noise and prolong the life of the machine, regularly servicing machine.

1. Equipment maintenance program:

- ① Equipment for electrical maintenance, should be set to "line maintenance, do not power" logo, to ensure safe operation.
- ② First judge then check, to avoid blindness. If necessary, with drawing data or instrumentation for testing and analysis to ensure that the fault range.
- ③ Using the correct means and methods of overhaul, the correct use of workers, quantity, equipment, disassembly orderly, pay attention to the integrity of the protection parts to avoid failure to expand.

④ After the equipment repaired, please keep all tools, spare parts well. Keep machine clean, do lubrication work, and confirm the equipment is safe and reliable before the trial run. After the commissioning has reached the performance requirements, then put it into normal production.

2. Maintenance of the machine

① Keep machine appearance and surrounding environment clean, free of impurities, no oil;

② When the machine appear abnormal sound, stop to check in a timely manner.

③ Check the tightness around the timing belt regular monthly, timely adjustment. Serious wear and tear, please give timely replacement. Remove foreign matter of transmission timing belt, gear, etc. Gear should be regularly coated with lubricating oil.

④ Maintenance of electrical systems must be done by staff professional qualifications certificate. Electric control box must be kept clean.

⑤ When the machine is shut down for a long time, please cut off the main power supply and refuel the parts of the horizontal seal and the transmission system.

⑥ Rolling mechanism, vertical folding mechanism, liquid feeding mechanism, horizontal folding conveyor, longitudinal sealing mechanism, transverse sealing mechanism, transmission mechanism, etc. should be clean, no debris;

⑦ Regularly check the state of each blade with a fastening transmitting

member; the tightness of the chain, belt, timing belt; operating status of each of the pneumatic assembly; the working status of each pneumatic component. Found that does not meet the requirements, it should be timely adjustment, maintenance.

- ⑧ Bearings, gears, chains, transmission should be regularly lubricated;
- ⑨ The airway, gas separation cup should be timely drainage, to keep the gas separation cup liquid level does not exceed the diversion tank, otherwise the diversion of the water will enter the gas road;
- ⑩ Technical department electricians should regularly check the working status of electrical equipment: operation buttons, knobs, touch screens, indicators, sensors, PLC units, frequency converters, contactors, temperature regulators, heating parts, etc., to ensure their good, clean. Electric control cabinet and photoelectric switch should keep clean, and keep all kinds of wires in good contact;
- ⑪ Scrub rubber parts, plastic parts, paint pieces can only use water and alcohol, strictly prohibited with toluene and natural water; scrub plexiglass banned organic solvents.
- ⑫ Equipment operation, should always observe the operating state of each part, when an abnormality occurs, immediately downtime.
- ⑬ Make detailed records of maintenance, encounter can not solve the problem, please contact the Dachang company after-sales service staff, Dachang company will help deal with timely manner.

VIII. Machine instructions

1. As show in figure 1 , click 【Delta robot 】 anyplace in the screen to enter Figure 2 to monitor the program.

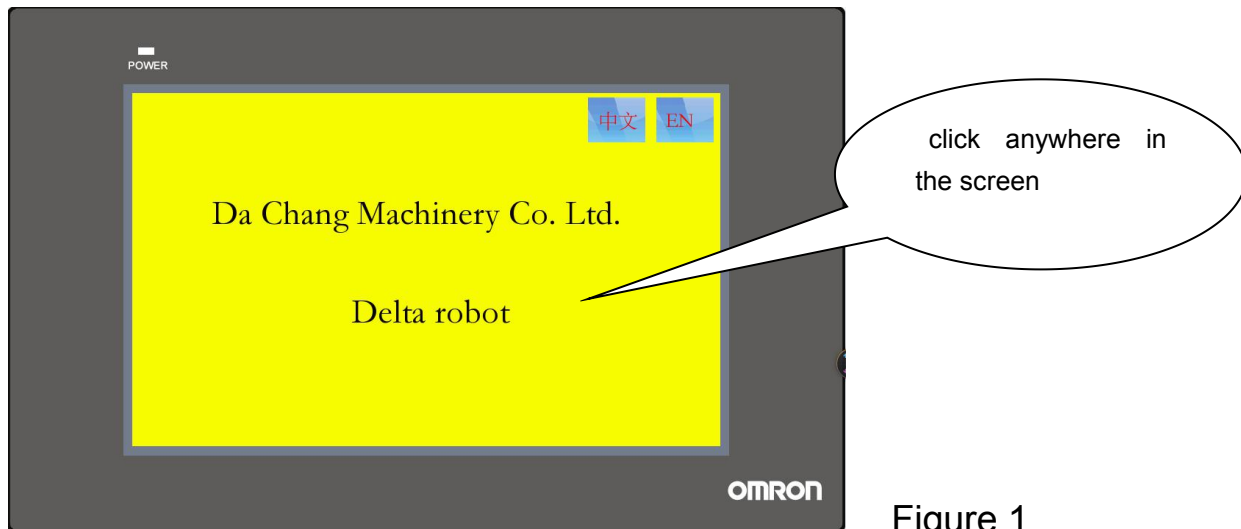


Figure 1







2. As shown in Figure 2, click on the upper right 【E-stop】 button , the bottom left of the original  【E-stop】 text disappears , and then click the  【ERROR RESET】key to enter the debug state. According to the shape of the lid of the fit requirements choose to click the 【Ellipse】  or 【square】 button , and the bottom of the page 【Gluing】 button  to enter figure 3 system.



figure 2

3. As show in figure 3, corresponding to click on the newly selected lids shape click the **【Ellipse】** or **【square】** button , enter Figure 4 or Figure 6 **【Gluing】** spray trajectory system, the system corresponds to **【Ellipse】** or **【square】** button to operate.

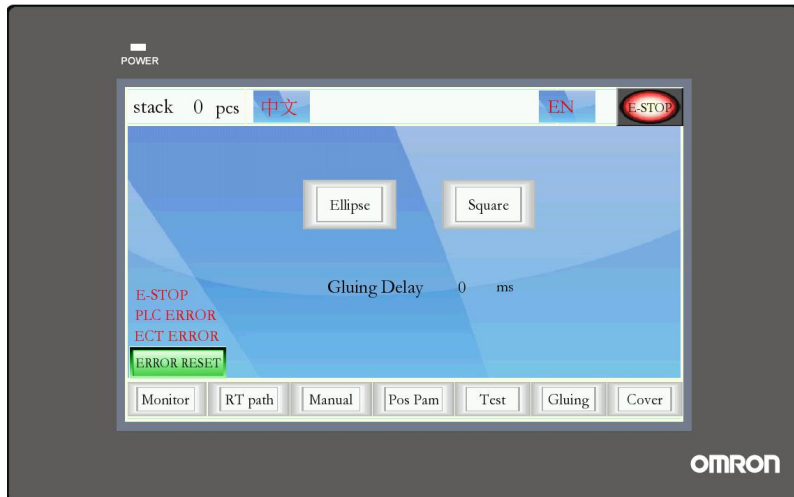



Figure 3

4.1 As show in figure 4, the screen shows the size of the parameters of the **【Gluing】** (coating /spray trajectory) parameter size, according to the value of the parameter and the actual production of the lid of the gluing at the size of the value of the amendment, after correction, click on the **【 position parameter 】**  button to enter Figure 5.

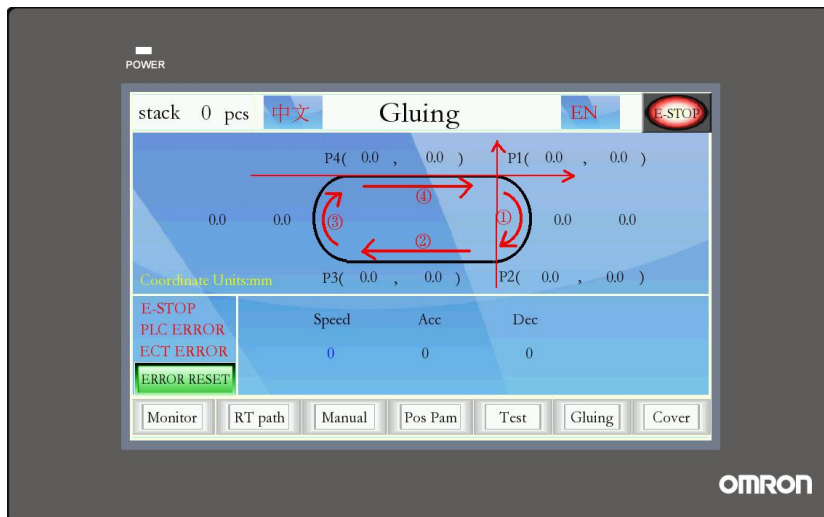


Figure 4

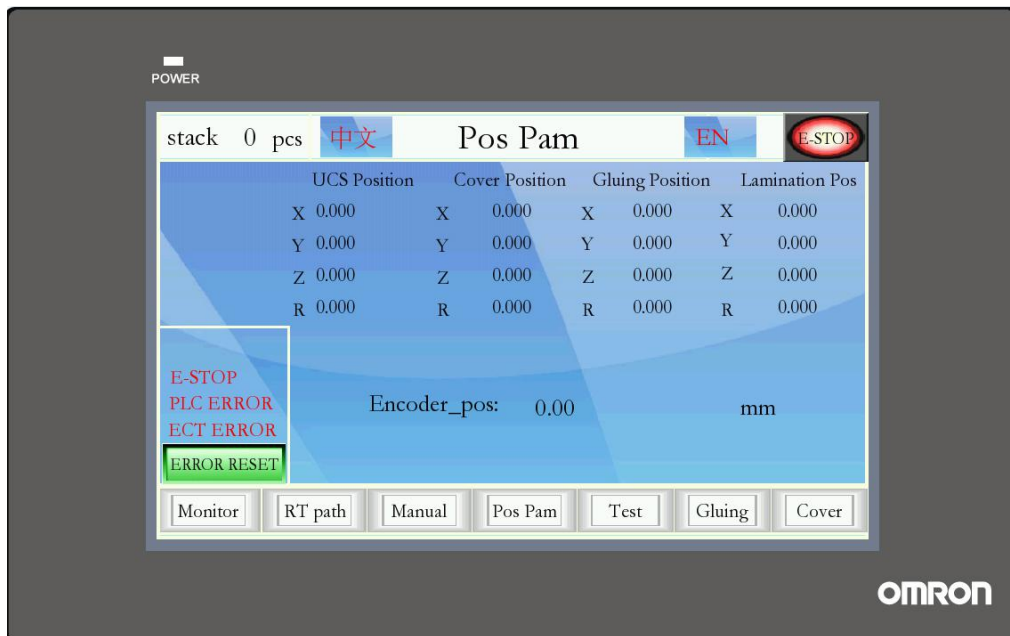


Figure 5


4.2 As show in figure 6, the screen shows the gluing (spray) trajectory parameter size coordinate value, according to the value of the parameters and the actual production of the lid of the coating at the size of the value of the correction, modify the 【position parameter】  button to enter Figure 5.



Figure 6

5. As show in figure 7, click on the **【Get cover】** button to check whether the paint effect meets the requirements, if not meet the requirements and then click the bottom of the **【 position parameter 】** button, return to Figure 5 for a second amendment until the requirements, click on the **【 monitor 】** button , enter to **【monitoring system】** .

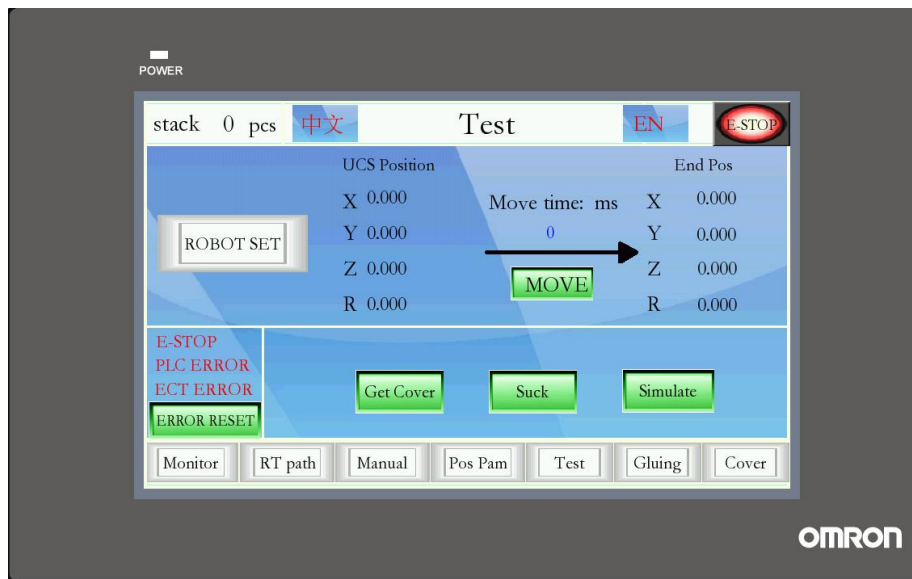


Figure 7

6. After the coordinates of the " get cover position" and the coordinates of the "glue/spray start position" are remembered, click the **【Test button below to enter the system in Figure 7.**

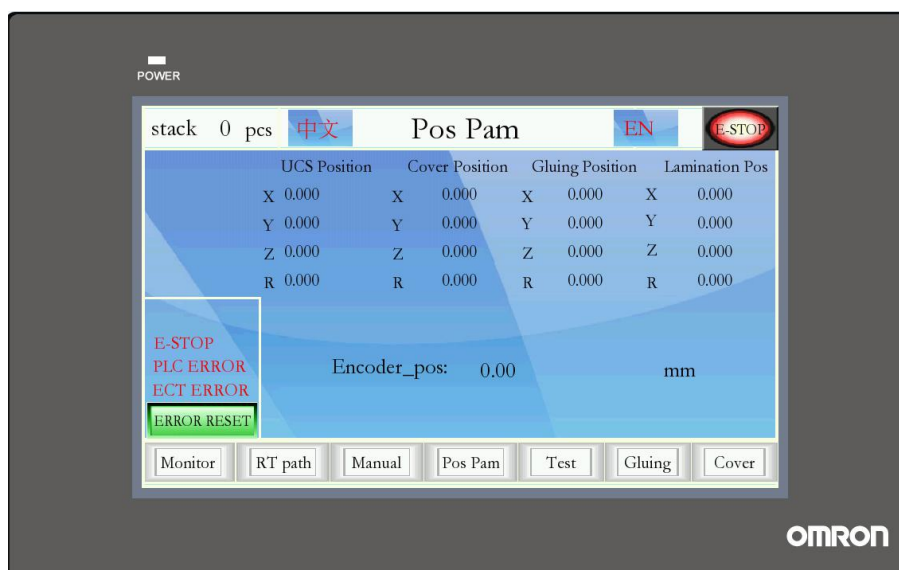


Figure 5


7. As show in figure 2, after figure 5 【position parameter】  correction set into the trial production, click on the 【Conveyor】 and 【ORG】 button, then click 【start】 button, the machine into the trial production status. Check the test production after passing the speed can be adjusted according to production needs, adjust the choice of "+", "-" key or directly press the bit speed to display the value of the rapid adjustment.



figure 2

8. As shown in Figure 8, this page for manual (jog operation) correction:

First run the robot to the top of the lid, so that the plastic sucker close to the top of the lid above the location, the page to switch to the 【position parameter】 page, this time in the UCS position shows the value is actually "Get cover position" value, so this group should be copied into the " Get cover position " . In this way, the "spray glue position" value can be obtained.

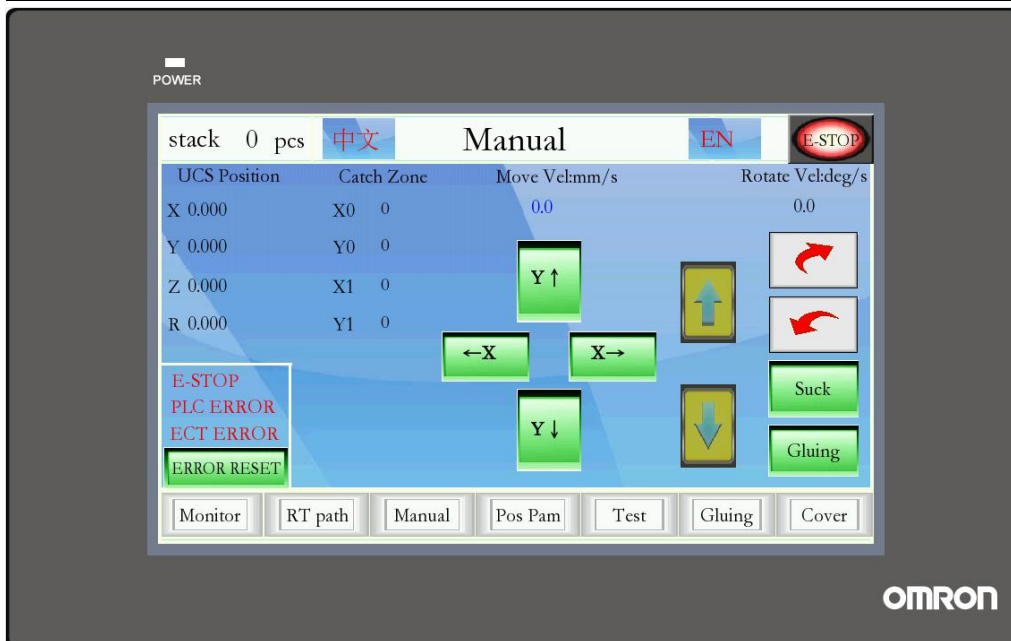


Figure 8

9. As shown in Figure 5, the value of the page in the test for the trial production of the spray trajectory to adjust the correction, where “X”, “Y” on behalf of the front and rear, left and right deviation shows the current value for the eight systems to adjust the adjustment when the reference, “Z “On behalf of the robot sucker and lid height, the same for debugging reference. “R” on behalf of the lid after the fit found in the angle deviation, the same for the reference.

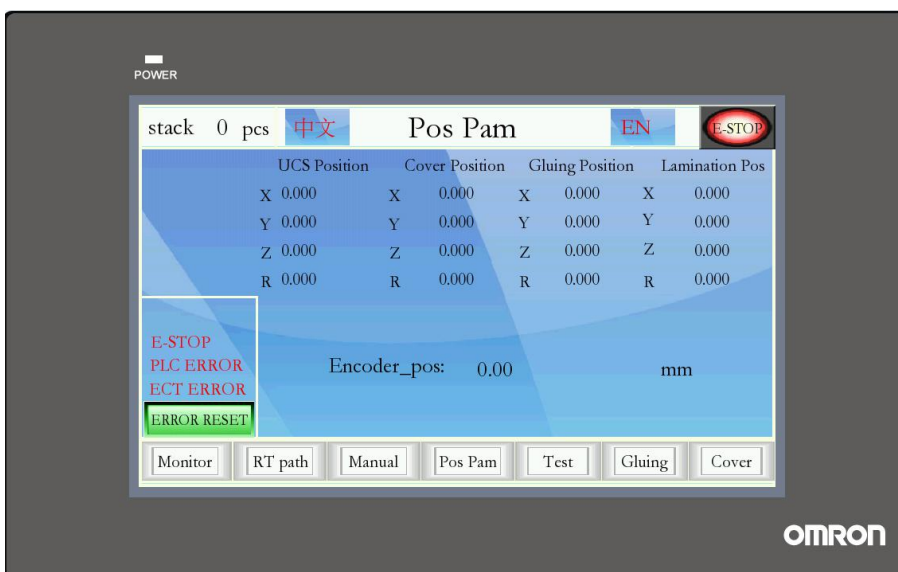


Figure 5



Figure 9

IX. Attention

In order to ensure the normal operation of the machine, the purchaser should pay attention to following points:

1. Provide staff with a high school or equivalent specialized operations (before the boot operation, our company will be trained)
2. Strictly adjust the settings by page display
3. Strictly in accordance with the operation of norms, maintenance
4. Encounter problems or failures can not be resolved, should promptly contact our after-sales director. After-sale service line : 86-595- 22427665/22465662 , Email: dachang@qzdachang.cn