

自动送扣说明书

Instruction

For

Button Auto-Feeding Machine



目录

Contents

(一)安全警告

1.Safety Warning

(二) 系统介绍

2.System Introduction

(三) 技术参数

3.Technical Parameters

(四) 基本操作：

4.Operation Introduction

(五) 触摸屏界面介绍.

5.Touch Screen Interface Introduction

(六) 故障应对

6.Solutions against Error

安全警告

Safety Warning

告示：用户在满装使用此设备前，务必仔细阅读有关安全注意事项，以确保人身安全和设备损坏。

由于不遵守本说明书的操作规定而造成的人身伤害或设备损坏，本公司将不承担相应的责任。

The operator must read the relevant safety instructions before operating this equipment to ensure the safety of personnel and the equipment.

The manufacturer assumes no responsibility for personal injury or equipment damage caused by the disobey to the operating provisions of this instruction.

警告：机器链接电源之前，必须由具有电工安装资质的专业人员检查电源电压，频率，功率等参数是否与机器名牌的表示相符。机器金属外壳必须要和缝纫机的外壳用金属导线连接后再用接地线接到专门的保护地线上。

Warning: Before connecting the machine to power supply, professional personnel with electric installation qualification must inspect if the parameters like the power supply voltage, frequency and power are the same with the machine nameplate. Must connect the button feeding machine case and the sewing machine case with the wire to the common ground.

危险： 维修或搬迁设备需要开启电控箱的时候，必须先切断电源，否则内部 220V 交流电源可能会对人体造成触电危险以致危及生命。

Danger: Before opening electric cabinet for equipment repair or removal, the power supply must be cut off. Otherwise, the internal 220V AC power supply may cause the electric shock.

注意： 任何时候不要把手放在机器的运动部分。以免造成伤害。
压缩空气的气源应在 0.35-0.45MPa 之间。

Attention: Never put your hand on the moving part of the machine to get avoid of injury.

The pressure will be during 0.35-0.45MPa.

系统介绍:

System Introduction

自动送扣装置有纽扣正反面识别机构，导料送扣组件，转扭箱组件，测厚组件，闸板组件，机械臂基座组件，松线组件，电控箱组件组成。它的作用是快速，定时定量，准确的给钉扣缝纫机送去纽扣，高效完成送扣钉扣任务。

Auto-feeding machine consists of the distinguishing part of the front and back of the button, button diameter adjusting part, button rotational locating part, thickness measurement part, baffle part, button feeding part, thread loosen part pneumatic-electric controller part. It can accurately feed the setted buttons to the sewing machine quickly in the setted time. And finish the buttoning task with high efficiency.

技术参数： Technical Parameters

编号	参数内容	标准范围	备注
1	电源电压	220VAC/50Hz	
2.	额定功率	65W	
3	长宽高	460x420x375	
4.	重量	35Kg	
5	额定钉扣速度	13000-15000pcs/8h	
6	连续送扣速度	28000PCS/8h	
7	送扣稳定性	99.7%	
8	纽扣直径	9-22mm	

No.	Parameter content	Standard scope	Remarks
1	Power supply voltage	220VAC/50Hz	
2.	Rated power	65W	
3	Length ×width ×height	460x420x375	
4.	Weight	35Kg	
5	Rated buttoning speed	13000-15000pcs/8h	
6	Continuous button feeding speed	28000PCS/8h	
7	Button feeding stability	99.7%	
8	Diameter of button	9-22mm	

基本操作介绍:

Operation Introduction

1. 开机操作:

- 1) 检查机器周边有无工具，异物。
- 2) 接通气源，调节压力，确保压力表的数值在 0.35-0.45MPa 之间。
- 3) 接通电源，面板上的按钮指示灯变成绿色，触摸屏显示中英文欢迎界面。
- 4) 按下围板上的红色复位按钮，机器恢复到初始状态，即待机状态。
- 5) 按下缝纫机准备键，压脚抬起，操作屏变为绿色，进入待机状态。

1. Start-up Operation

- 1) Check the surrounding area of the machine to ensure that there is no tool or clutter.
- 2) Connect the air supply and adjust the pressure to ensure that the value indicated on the pressure gauge is during 0.35-0.45MPa.
- 3) Switch on the power knob with indicator light and the touch screen displays the welcome interface both in Chinese and English.
- 4) Press the red reset button on brattice (refer to figure 1-1),

and then the machine resets to initial state, namely stand-by mode.

5) Press the reset key of the sewing machine operation panel, and then the presser foot up, the operation screen turns to green and the sewing machine enters into stand-by mode.

2. 初始状态: (待机状态)

编号	气缸编号	电磁阀编号	状态	磁开关名称	磁开关指示灯	备注
1	NO1.气缸	NO1.电磁阀	处于上方	X2	灭	
2	NO.2 气缸	NO2.电磁阀	静止	-----	-----	
3	NO.3 气缸	NO3.电磁阀	处于下方	X3	灭	
4	NO.4 气缸	NO4.电磁阀	处于原点	X5, X4	X5 亮, x4 灭	
5	NO.5 气缸	NO5.电磁阀	缩回位置	X7	灭	
6	NO.6 气缸	NO6.电磁阀	合拢	X9	灭(有扣) 亮(无扣)	工作前手动 送扣一颗
7	NO.7 气缸	NO7.电磁阀	伸出位置	-----	-----	
8		NO8.电磁阀			NO.8 电磁阀 灯亮	选购件
9	NO.9 气缸	NO9.电磁阀			NO.9 电磁阀 灯灭	选购件

2. Initial state: (standby mode)

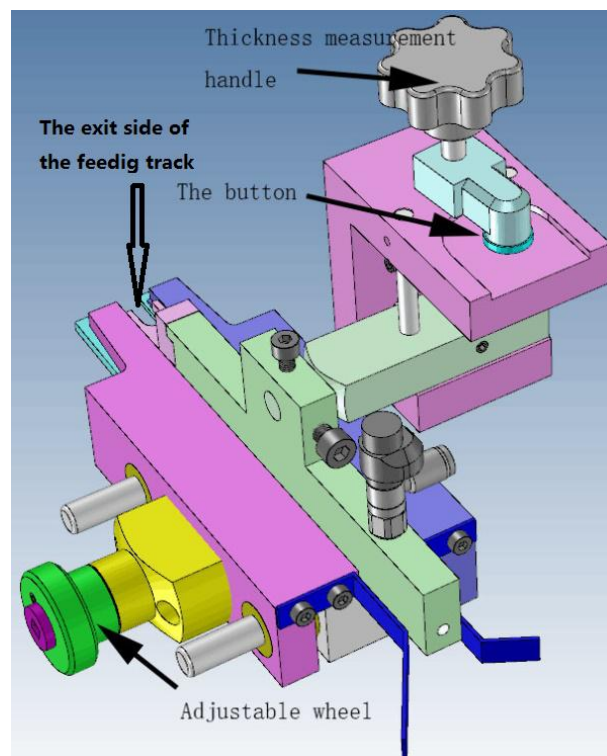
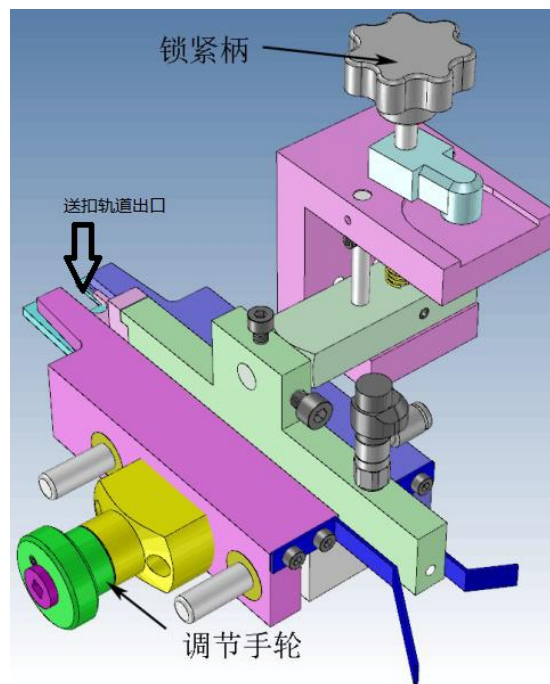
No.	Name of cylinder	Name of solenoid valve	State	Name of magnistor	Indicator light of magnistor	Remarks
1	NO.1 cylinder	NO.1 solenoid valve	In upper position	X2	off	
2	NO.2 cylinder	NO.2 solenoid valve	Static	
3	NO.3 cylinder	NO.3 solenoid valve	In lower position	X3	Off	
4	NO.4 cylinder	NO.4 solenoid valve	In origin position	X5, X4	X5 on ,x4 off	
5	NO.5 cylinder	NO.5 solenoid valve	Retrieving position	X7	Off	
6	NO.6 cylinder	NO.6 solenoid valve	Close	X9	off(with button) on(without button)	Get a button manually
7	Blower nozzle	NO.7 solenoid valve		-----	-----	
8	No.8 Cylinder	NO.8 solenoid valve	Extend position		NO.8 solenoid valve light on	option
9	NO.9 cylinder	NO.9 solenoid valve			NO.9 solenoid valve light on	option

3. 换扣操作:

3.Button-changing Operation

1) 调节送扣轨道的高度和宽度

1) Adjust the width and height of the track which feed the buttons.



转动调节手轮（如图所示）调节送扣轨道的宽度（即为 W ）

使 $W = \text{纽扣的直径} + (1-2\text{mm})$

上下拉动锁紧柄调节送扣轨道的高度（即为 h ）

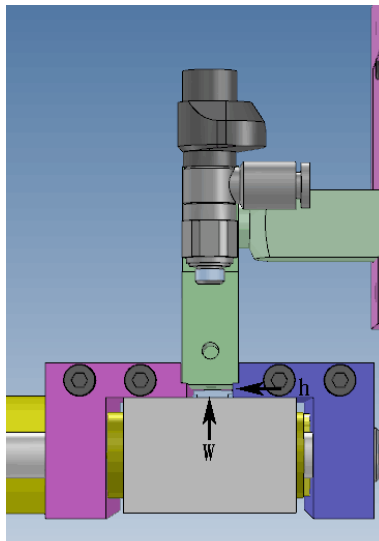
使 $h = \text{纽扣的厚度} + (0.5-1\text{mm})$ 且纽扣离地面为 0.5mm 。

Rotate the adjustable wheel to change the width of the feeding track (W)

$W = \text{The diameter of the button} + (1-2\text{mm})$

Pull the thickness measurement handle up and down to change the height of the feeding track (h)

$H = \text{the thickness of the button} + (0.5-1\text{mm})$



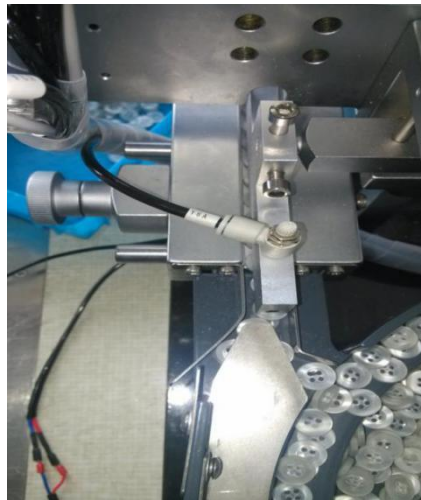
2) 转动闸板调节机构的螺杆，调节拦口闸板到送扣轨道出口的距离使拦口闸板内侧到纽扣边缘的距离为 $0.2-0.5\text{mm}$

2) Rotate the screw rod of the baffle part to adjust the distance between the block baffle and the exit side of the feeding track. Make the distance between the block baffle

and the edge of the button 0.2-0.5mm.

这样纽扣刚好落到送扣爪上

And the button will fall down to the pin of the button feeding part.



3)接通气源,调节气压表压力在 0.35-0.45MPa 之间。如图(4-1)所示

3) Connect the air supply and adjust the pressure of the gauge to be during 0.35-0.45MPa,



图 3-1
Figure 3-1

4)接通电源按钮,电源指示灯亮(如图 4-2 所示),触摸屏显示中英文开机页面,调节送料盘速度,以能够连续供应纽扣为准,让轨道充满扣子。

5)Power on, and then the power indicator is on (as shown in Figure (4-2)), and the touch screen displays the start-up page both in Chinese and English; adjust the speed of feed table to continuously supply buttons and to fill the track with buttons.



图 3-2

Figure 3-2

5)再按机械手送扣键使其回原点。伸出闸板，使其和纽扣间隙为 0.2-0.5 为佳。

5)Press the mechanical hand feeding key again to make it reset to the origin, protrude the damper to leave the clearance between it and button as 0.2-0.5mm.

6)按下围板上的红色复位按钮，机器恢复到初始化状态。

6)Press the red reset button on brattice, and then the machine resets to initial state.

4. 钉扣操作：略

4. Buttoning Operation: omitted

5. 故障排除：

5.Error Clearance

触摸屏页面功能介绍

Function Introduction for Touch Screen Page

1. 当启动电源后,触摸屏弹出菜单显示画面(如图 5-1)

1.When the power supply is on, the menu display screen will be shown up on the touch screen (as shown in Figure 5-1).



图 5-1

Figure 5-1

2. 按下初始画面后,弹出对话框画面(如图 5-2),主要用于整个操作画面的中英文切换

2.Press the initial screen, and the dialog box screen will be shown up (as shown in Figure 5-2); it is mainly used to switch the whole operation screen between Chinese and English.

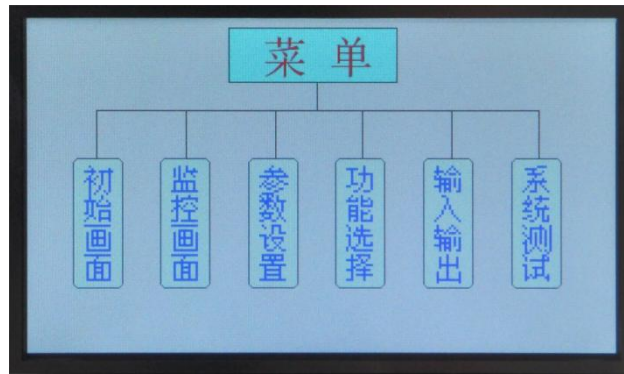


图 5-2

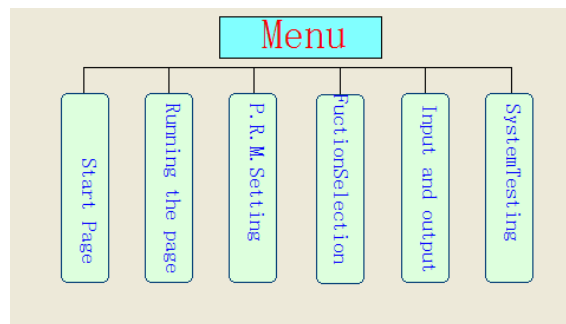


Figure 5-2

3. 按下监控画面后,弹出对话框画面(如图 5-3),主要用于产量计数与清零,按下菜单键,返回上一界面

3.Press the monitoring screen and the dialog box screen will be shown up (as shown in Figure 5-3); it is mainly used to production statistics and zero clearing; press the menu key and then return to the previous interface.

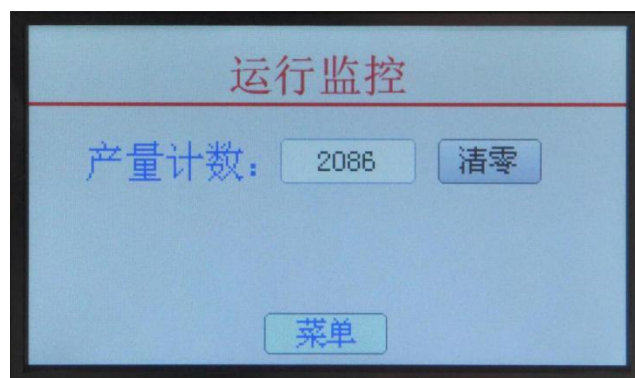


图 5-3

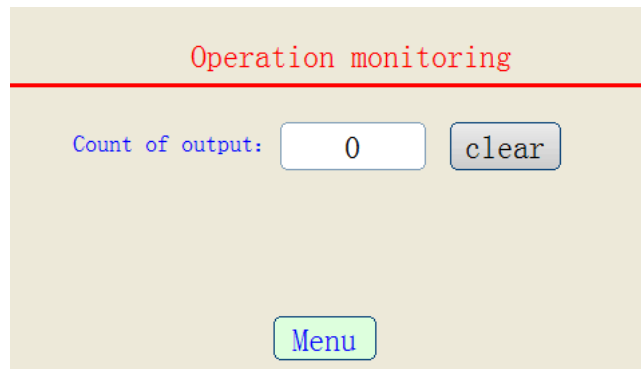


Figure 5-3

4. 按下参数选择后, 弹出对话框画面(如图 5-4),系统提示需输入密码,一般情况下整机参数都已整定完成,不需要再去另行修改,请按 ESC 键返回上一界面

4.Press the P.R.MS election, and the dialog box screen will be shown up (as shown in Figure 5-4); input the password as prompted by the system; generally, all the parameters of the machine have been set and need no modification. Please press ESC key to return to the previous interface.



图 5-4

Figure 5-4

5. 按下功能选择后, 弹出对话框画面(如图 5-5),分为以下 3

种功能,通过重复点选各子功能项来对其进行切换.

5. Press the function selection, and the dialog box screen will be shown up (as shown in Figure 5-5); it is divided into the three following functions and switching may be realized by repeatedly clicking each subfunction item, as shown in Figure 5-5.

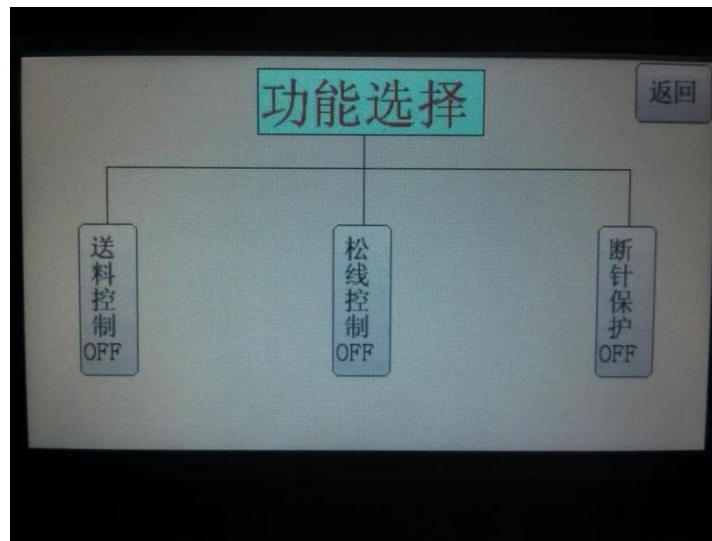


图 5-5

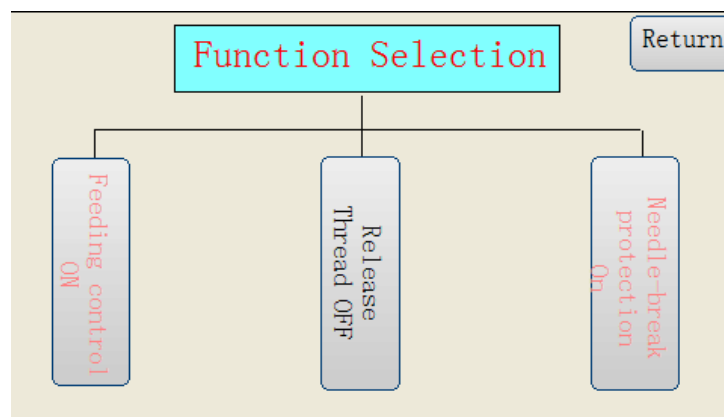


Figure 5-5

- a) 送料控制: 送料控制的选择有 ON 与 OFF,选择为 ON,震动盘在两分钟内没有送扣动作就停止工作,选择为 OFF, 震动盘在通电状态下一直工作. 默认设置为 ON

a) Feeding control: there are two options for feeding control, namely ON and OFF. If ON is selected, the vibrating plate will stop working when no feeding action available in 2 minutes. When OFF is selected, the vibrating plate will keep working as long as the power supply is connected. The default setting is ON.

b) 松线控制:松线控制的选择有 ON 与 OFF,选择为 ON,解锁松线气缸,可使用松线功能. 选择为 OFF,无前述功能. 默认设置为 ON

b) Thread release control: There are two options namely ON and OFF. If on is selected, unlock the thread release cylinder, the thread release function will work. If the OFF is selected, the function will not work. The default option is OFF.

c) 手动送扣: 手动送扣的选择有 ON 与 OFF, 选择为 ON, 手动送扣功能开启, 按一次绿色按钮, 送扣一次。默认设置为 OFF

c) Manual button feeding: There are two options namely ON and OFF. The manual button feeding function works when we choose ON. Press the green button one time, feed one button. The default is OFF.

d) 断针保护: 如下 2 种情形, 即使踩下踏脚开关也不发生钉扣动作。

1) 钮夹没取到纽扣。

2) 送扣爪在送扣过程中 X5 磁开关指示灯从灯亮到灭期间，踏脚开关无效。

d) In the following two conditions, the buttoning action will not happen even you depress the pedal.

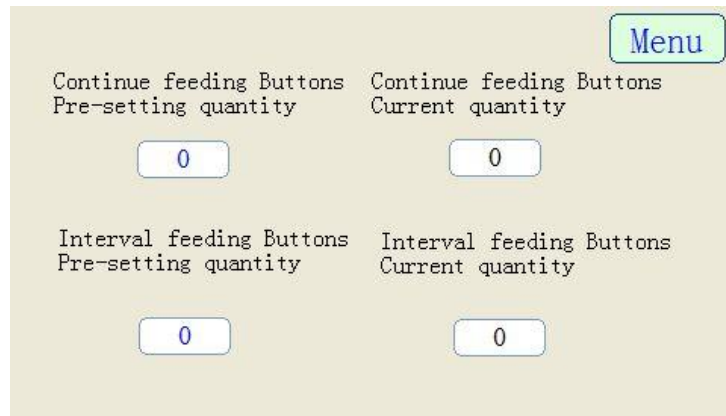
(1) The button clip fails to get the button.

(2) In the period during the on and off of the magnistor X5 through the feeding process.

e) 间歇送扣：间歇送扣的选择有 ON 与 OFF，选择为 ON 时，启动间歇送扣功能，按照间歇送扣页面设置的参数，进行自动送扣与手动送扣的切换。默认设置为 OFF

e) interval button feeding : There are two options namely ON and OFF. If ON is selected, the interval button feeding function works. Switch among the automatic button feeding mode and the manual button feeding mode according to the parameters set in the interval button feeding page. The default is OFF.

		菜单
连续送扣 预设数量	连续送扣 当前数量	
0	0	
间歇送扣 预设数量	间歇送扣 当前数量	
0	0	



a) 连续送扣：自动送扣数量， b) 间歇送扣：手动送扣数量

到达设定自动送扣数量之后，送料机械臂进入手动送扣模式，比自动送扣模式多送出 15°，方便将特殊纽扣放入机械臂，待放好纽扣后，再次按下绿色按钮，机械臂自动复位至钮夹取扣。当手动送扣至预设数量后，恢复至自动送扣模式，如此循环。

a) continue feeding button: the automatic button feeding quantity

b) Interval feeding button: the manual button feeding quantity.

Reach to the automatic button feeding quantity set in advance. The button feeding part will be in the manual feeding mode. The button feeding part rotates 15 degree more than the normal in order to place the button in the pin of the button feeding part. And then press the green button, the button feeding part will reset to the the button clip. The button clip picks up the button. When reach to the the

quantity set in advance, switch to the automatic button

feeding mode. Circles like that.

- 按下输入输出后, 弹出对话框画面(如图 6),此画面用来监控 PLC 各输入输出点的运行状态,若灯亮,表明有信号输入



图 5-6

6. Press the input and output, and the dialog box screen will be shown up (as shown in Figure 5-6); this screen is used to monitor the operation state of each PLC input and output point. If the light is on, input or output signal is available.

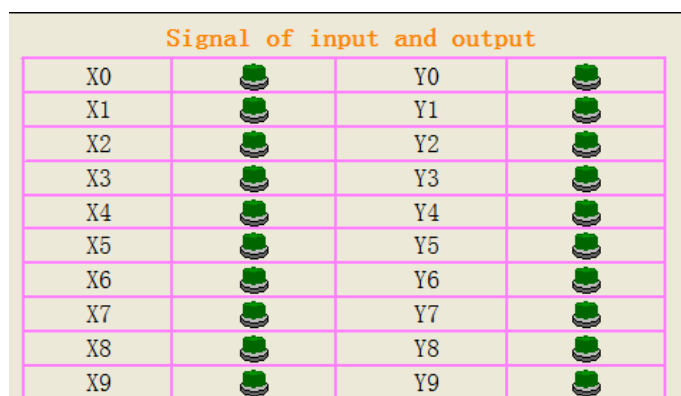


Figure 5-6

7. 按下系统测试后, 弹出对话框画面(如图 5-7),可对以下 8 种动作单独控制. 通过重复点选各子功能项来对其进行

切换.

7. Press the system test, and the dialog box screen will be shown up (as shown in Figure 5-7), then the following 8 actions will be individually controlled and switching will be realized by repeatedly clicking each subfunction item.

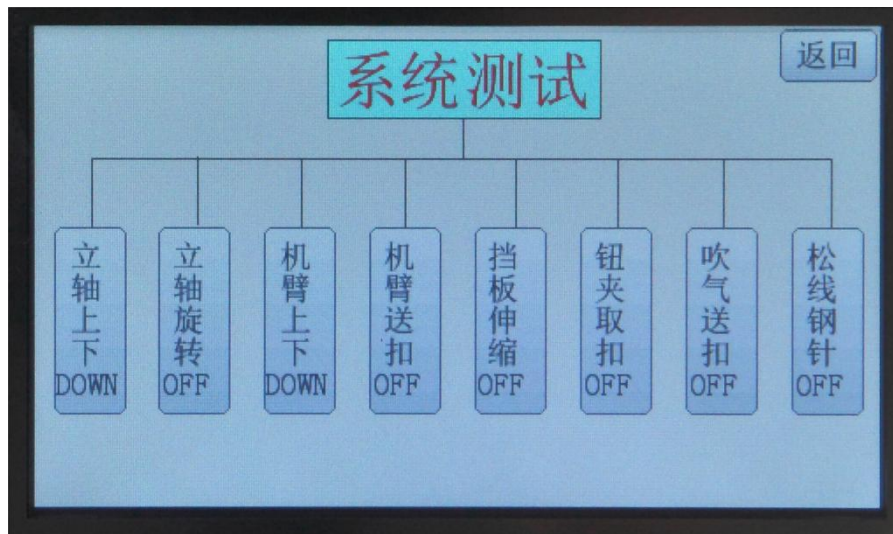


图 5-7

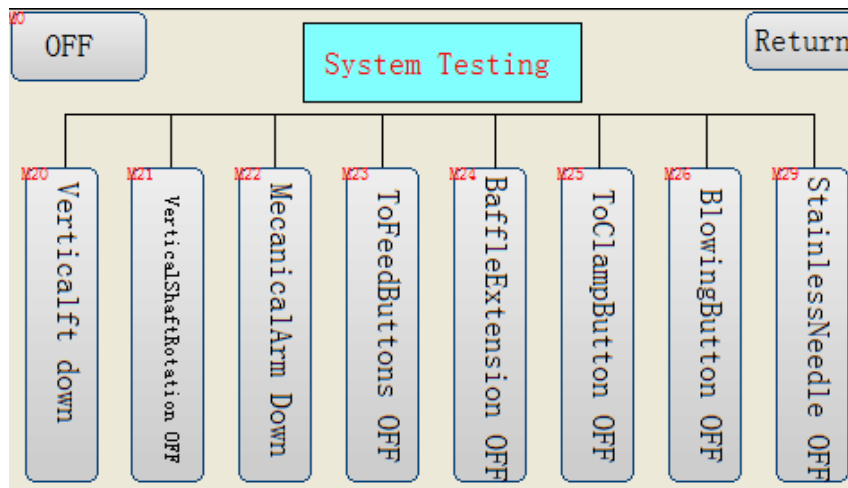


Figure 5-7

- 立轴上下: 立轴上下的选择有 UP 与 DOWN,选择为 UP,立轴向上动作. 选择为 DOWN,立轴向下动作.
- 立轴旋转: 立轴旋转的选择有 ON 与 OFF, 选择为 ON, 立

轴顺时针旋转. 选择为 OFF, 立轴逆时针旋转.

- c) 机臂上下: 机臂上下的选择有 UP 与 DOWN, 选择为 UP, 机臂向上动作. 选择为 DOWN,机臂向下动作.
- d) 机臂送扣:机臂送扣的选择有 ON 与 OFF, 选择为 ON,机臂逆时针转动, 选择为 OFF, 机臂顺时针旋转.
- e) 挡板伸缩: 挡板伸缩的选择有 ON 与 OFF, 选择为 ON,挡板伸出阻挡钮扣移动, 选择为 OFF, 挡板缩回,钮扣可自由移动.
- f) 纽夹取扣: 纽夹取扣的选择有 ON 与 OFF, 选择为 ON,纽夹摆臂收缩,夹紧钮扣. 选择为 OFF, ,纽夹摆臂弹开, 松开钮扣.
- g) 吹气送扣: 吹气送扣的选择有 ON 与 OFF, 选择为 ON,轨道上自动吹气打开, 选择为 OFF, 轨道上自动吹气关闭.
- h) 松线钢针: 松线钢针的选择有 ON 与 OFF, 选择为 ON,钢针插入钮扣与布料之间. 选择为 OFF, 钢针停留在初始位置.

a) Vertical shaft up and down: there are two options for vertical shaft, namely UP and DOWN. The vertical shaft moves upward when UP is selected and downward when DOWN is selected.

b) Vertical shaft rotation: there are two options for vertical shaft rotation, namely ON and OFF. The vertical shaft rotates clockwise when ON is selected. The vertical shaft rotates

counterclockwise when OFF is selected.

c) Mechanical arm up and down: there are two options for mechanical arm, namely UP and DOWN. The mechanical arm moves upward when UP is selected .The mechanical arms moves downward where DOWN is selected.

d) To feed button: there are two options for mechanical arm feeding, namely ON and OFF. The mechanical arm rotates counterclockwise when ON is selected. The mechanical arm rotates clockwise when OFF is selected.

e) Buffle Extension: there are two options for buffle retraction, namely ON and OFF. The buffle is protruded to block the button movement where ON is selected.The baffle is retracted to leave the button free in movement when OFF is selected.

f) To clamp button: there are two options for clip button-acquisition, namely ON and OFF. The clip arms are contracted to fix button when ON is selected.The clip arms are unfolded to release button when OFF is selected.

g) Blow buttoning: there are two options for blow feeding, namely ON and OFF. The automatic blowing on the track will be turned on when ON is selected.The automatic blowing on the track will be shut down where OFF is selected.

h) Stainless steel needle: there are two options for thread-release

steel needle, namely ON and OFF. The steel needle is inserted between button and cloth when ON is selected. The steel needle is kept in initial position when OFF is selected.

故障 1：无扣

应对方法

1. 检查磁控开关位置,
2. 检查 PLC 输入端 X2
3. 检查 24v 电源

Error1: No Button

Solutions:

1. Check the position of the magnetically controlled switch.
2. Check the PLC input terminal X2.
3. Check the 24V power supply.

故障 2: 钮扣不落位

应对方法

1. 检查磁控开关位置
2. 检查旋转立柱和送扣针板的中心位置
3. 检查闸板位置
4. 检查送扣针板上是否有余扣
5. 检查 PLC 输入端 X3
6. 检查 24V 电源

Error2: Unlocated Button

Solutions

1. Check the position of magnetically controlled switch.
2. Check the center position of rotating post and the feeding needle plate.
3. Check the baffle position.
4. Check whether there is any surplus button on feeding needle plate or not.
5. Check the PLC input terminal X3.
6. Check the 24V power supply.

故障 3: 不送扣

应对方法

1. 检查无扣磁控开关 X2 位置
2. 检查自动送扣光电开关 X1 位置
3. 检查机械手上升磁控开关 X3 位置
4. 检查原点磁控开关 X5 位置
5. 检查闸板伸缩磁控开关 X7 位置
6. 检查 PLC 相关输入端
7. 检查 24V 电源

Error3: Feeding Failure

Solutions

1. Check the position of button-free magnetically controlled switch X2.
2. Check the position of auto-feeding photoelectric switch X1.
3. Check the position of the rising magnetically controlled switch X3 of the mechanical hand.
4. Check the position of the origin magnetically controlled switch X5.
5. Check the position of retractable magnetically controlled

switch of the baffle.

6. Check relevant PLC input terminal.
7. Check the 24V power supply.

故障 4： 震动机不工作

应对方法

1. 检查 220V 电源
2. 检查 KA1 继电器
3. 检查 PLC 输出 Y7 指示灯
4. 检查震动机线圈
5. 检查震动机控制器电路板输出

Error4: Vibrator Failure

Solutions

1. Check the 220V power supply.
2. Check the KA1 relay.
3. Check the PLC output Y7 indicator light.
4. Check the vibrator coil.
5. Check the circuit board output of the vibrator controller.