自动衬衫袖叉机

Sleeve Placket Setter

（MB5009B-BR）

电控系统使用说明书

Instruction manual for electric control system

常州智谷机电科技有限公司

IMB AUTOMATION CO.,LTD

在使用本设备之前请先阅读本使用说明书

Please read the operation manual of the touch screen interface before using the device

请将本使用说明书放在便于查阅的地方保管

Please keep this operation manual of touch screen interface in convenient place for reference

版本信息/ Version

2022.08.08

感谢购买 IMB 工业用缝纫机。
在使用此机器之前，请仔细阅读以下的说明，这样可以更好地帮到您了解此机器的相关操作。
这些说明是根据现行的条例明确阐述了正确的工作方法。
Thank you for purchasing this industrial sewing machine from IMB
Before using this automatic unit, please read the following instructions, which will help you to
understand how the machine operates.
These instructions illustrate the correct working methods to comply with current regulations.

我们将欣然接受各位提出的改进此说明书的任何建议和指示
We are happy to receive suggestions and/or indications on ways we could improve this manual.

本机介绍说明分为三部分，具体请参照《MB5009B-使用说明书》、《MB5009B-零件手册》、《MB5009B-电控系统使用说明书》。

The introduction of this machine is divided into three parts. For details, please refer to 《MB5009B Operation manual》 and 《MB5009B Parts Manual》《MB5009B Instruction manual for electric control system》

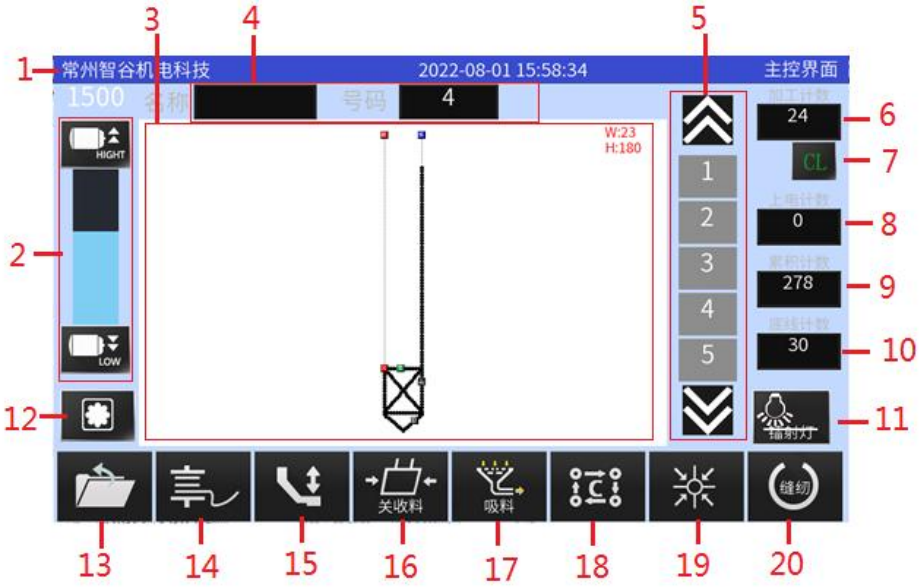
目录

1.1 Display interface description

1.1-1 Main interface description

The operation panel adopts the advanced touch operation technology in the industry. The friendly interface and simple control will bring innovative experience to the daily use of users. The user can touch the screen with a finger to complete the corresponding operation. At the same time, users should avoid touching the screen with sharp objects to avoid permanent damage to the screen

The following is a description of the main control interface:



1. Title Bar
   Display equipment manufacturer information, time and current interface name。
2. speed controller
   The speed increases / decreases by 100。
3. Pattern display area
   Display the pattern diagram, and the size of the current pattern in the upper right corner。
4. Pattern
   Name and number of current pattern。
5. Pattern selection
   You can select the required pattern and page change。
6. Pro-counter
   Displays the current number of workpieces。
7. Clear key
   Clear machining count and single count count value。
8. Pow-count
   Count the processing value from power on。
9. S-count
   Display the total number of pieces and press the key to enter the counter setting screen。
10. Bottom thread setting

Enter the bottom thread counter setting screen。

11. Laser

Enter the screen of setting laser。

12. Mold alignment button

Click to enter pattern alignment and set the stacker。

13. Menu key

Function list: 〈USB〉〈SYSTEM〉〈NEW〉〈EDIT〉<P-CYCLE>
<PATTERN PARAMETER> <PARAMETER><DEVICE CHECK〉〈FUNCTION〉<STEP CHECK><JIG CHECK>

14. Winding

Click to enter the winding interface, and press the foot pedal switch to wind the wire

15. Pressure foot

It is used to lift and place the pressure foot to facilitate threading.

16. Stacker

Used to open and close the stacker.

17. Suction

Button for opening and closing the suction motor.

18. Circular pattern

It is used to sort circular patterns and enter the circular sewing interface.

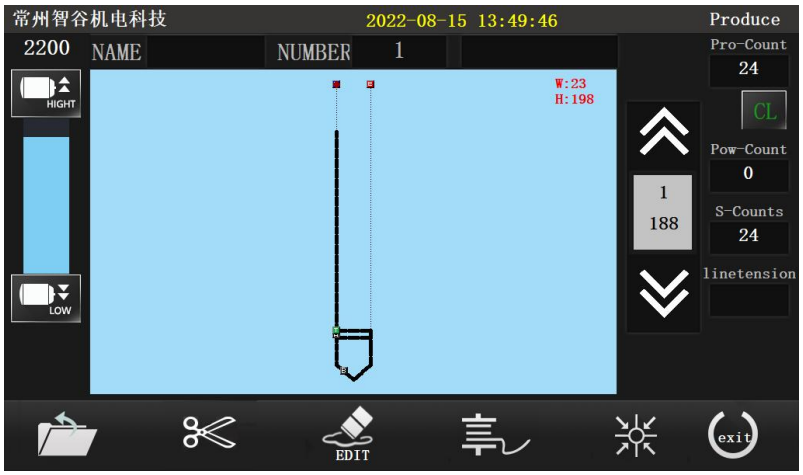
19. Home key

It is used for the zeroing of each motor and the air valve enters the ready state.

20. Sewing Key

Enter sewing interface。

1.1-2 Processing interface description



1. 

——**exit** Used to exit the processing mode。

2. 

——EDIT It is used to change pattern data and add code。

3. 
—— Trimmer manually trimming.

1.2 Operating instructions

1.2-1 Needle position adjustment

Before starting the machine, confirm that the air source and power supply are connected, and then turn on the power switch. After the self-test, the screen will enter the main control interface

(1): Press  , Machine and motor back to home position;

(2): Press  , Enter the main control interface, Press 

Select 

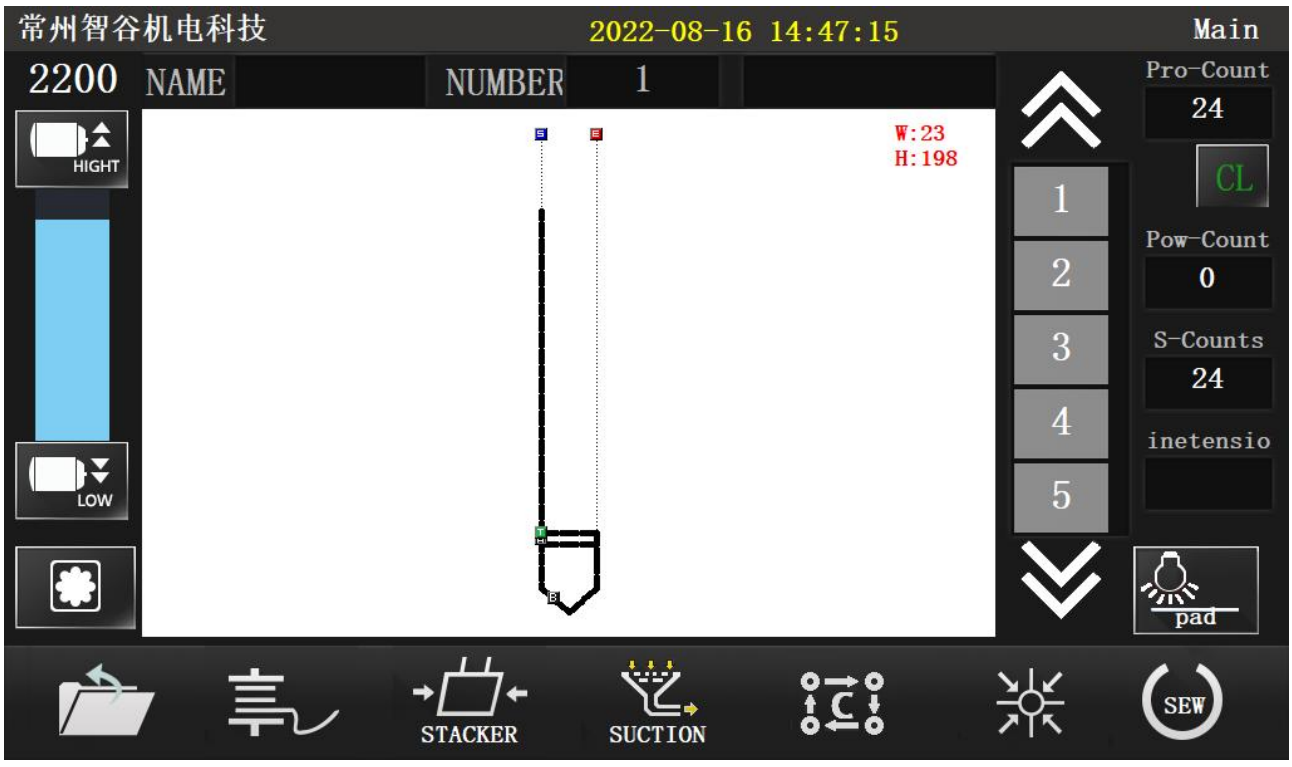
,

Then rotate the spindle clockwise by hand wheel to rotate the thread take-up lever to the highest position;

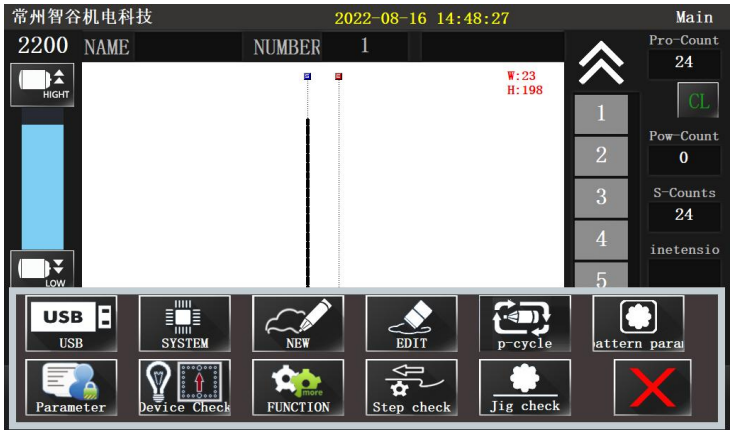
(3): Click 

位, Thus, the needle stop position is set.

1.2-2Main function menu



Press  , You can expand the list of function keys (As shown below:) :



现在分别对各个功能按键做一简要说明：

<USD> : Display all patterns in USB disk。

<SYSTEM> :Indicates all the patterns in the touch screen。

<NEW> : It is used to make new patterns。

<EDIT> : Edit the current pattern。

<P-CYCLE> : It is used for pattern change and other functions。

<PATTERN PARAMETER> : Making new patterns with parameter method。

<PARAMETER> : SYSTEM PARAMETER。

<FUNCTION> : System upgrade. Time setting; Service life and other functions。

<STEP CHECK> : It is used to set and test the folding and picking positions and other functions。

<JIG CHECK> : Material withdrawal test。

1.2-3 Sewing data setting

1. Maximum speed limit setting

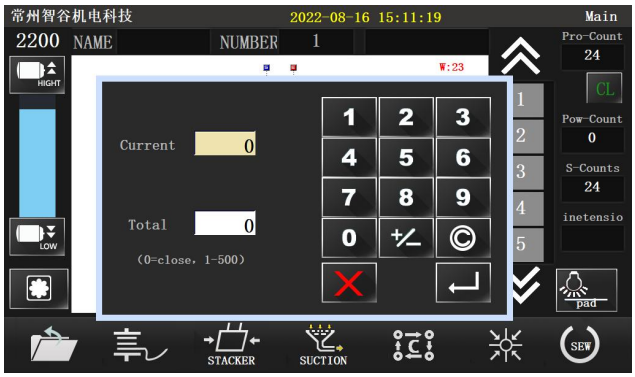
In the main control interface and sewing processing interface, Press HIGHT or HIGHT at any time to adjust the sewing speed。However, the maximum speed is also limited by the value set by the system parameters。

2. Bobbin thread counter

Modify the total number of bobbins according to the number of times a bobbin

can be sewn, Press 

:



In the sewing process, subtract one from the current number of bobbins for each sewing piece, and when the last number of bobbins is 0, Error code"E046 bobbin remaining length is insufficient, please replace bobbin", If the value is set to zero, the bobbin thread count function is turned off.

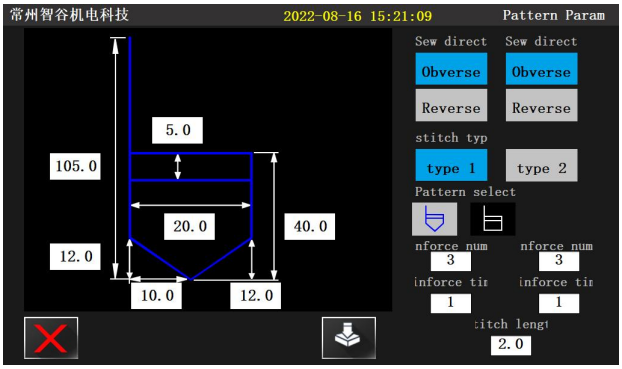
Since the number of bobbins is estimated, and the bobbin winding length is related, the remaining bobbin thread is not completely consistent each time.

2.1 Data pattern and debugging process

The data pattern is mainly aimed at the general standard pattern, so as to quickly establish the sewing data and modify the completed pattern at any time。In this interface, you can set the position of u and V axes, set the stacker position, set the fast folding and test the confirmed pattern data

2.1-1 Data pattern

Press  then select 



1: Select the desired standard shape;(Note: for example, when turning is selected in 3.35, only type 1 and type 2 can be selected; When telescopic is selected, type 1, 2, 3 and 4 can be selected);

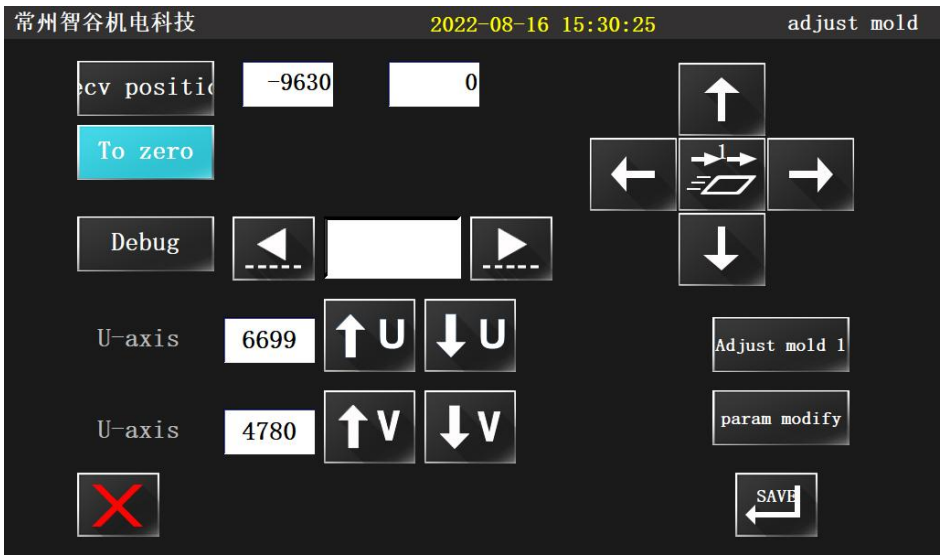
2: According to the material conditions, select the left side or the right side to start the needle, and set the corresponding size data;

3: Press  to save, Make new patterns.

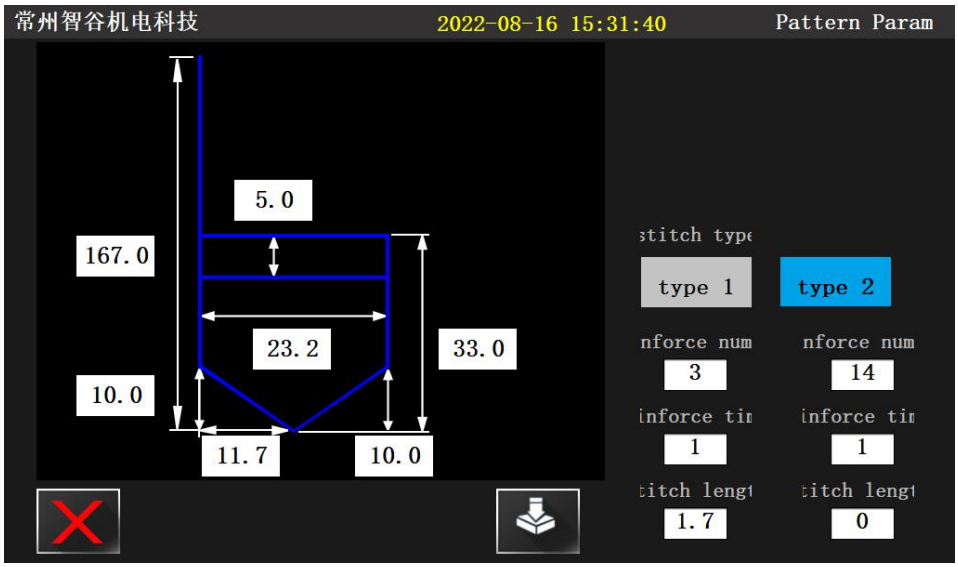
2.1-2Data modification

This interface adjusts the existing pattern data to meet the sewing requirements。

On the main control interface, Press  , enter the following interface::



Press  , enter the following interface:

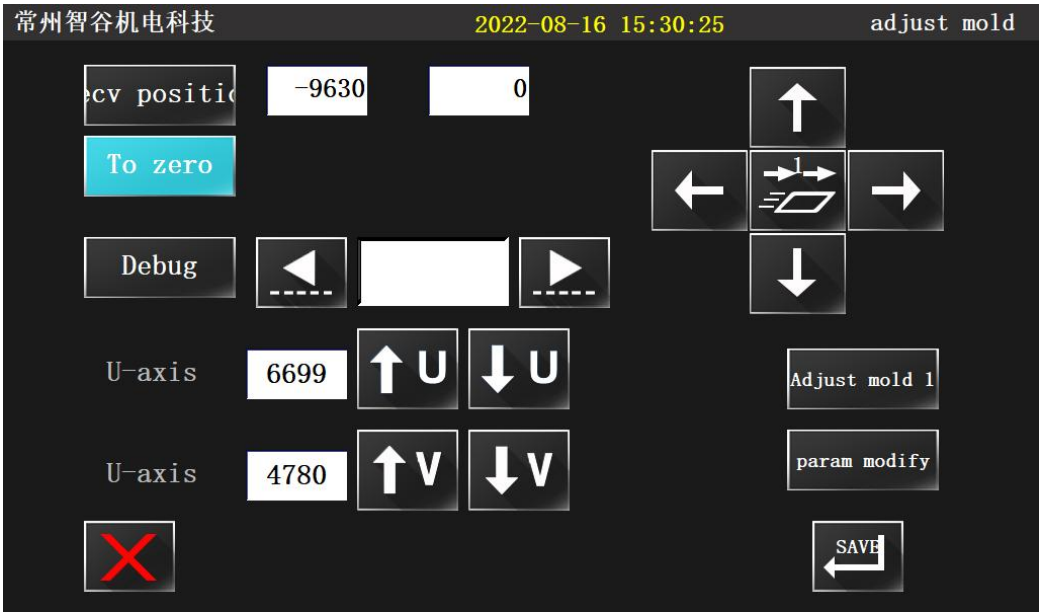


In this interface, you can modify the previously set parameters again, then press  to save。

2.1-3 Mold debugging

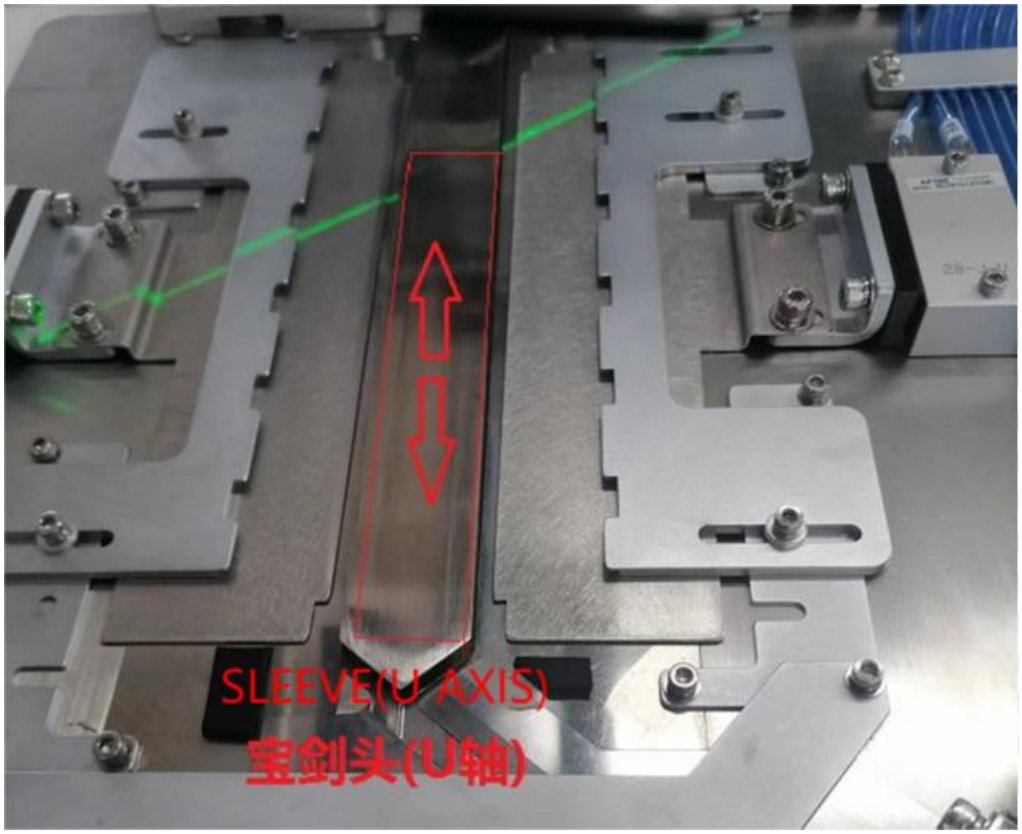
This interface is mainly used to set the position of the sleeve (U-axis) or the upper pressing plate (v-axis) for the sewing pattern with data set。

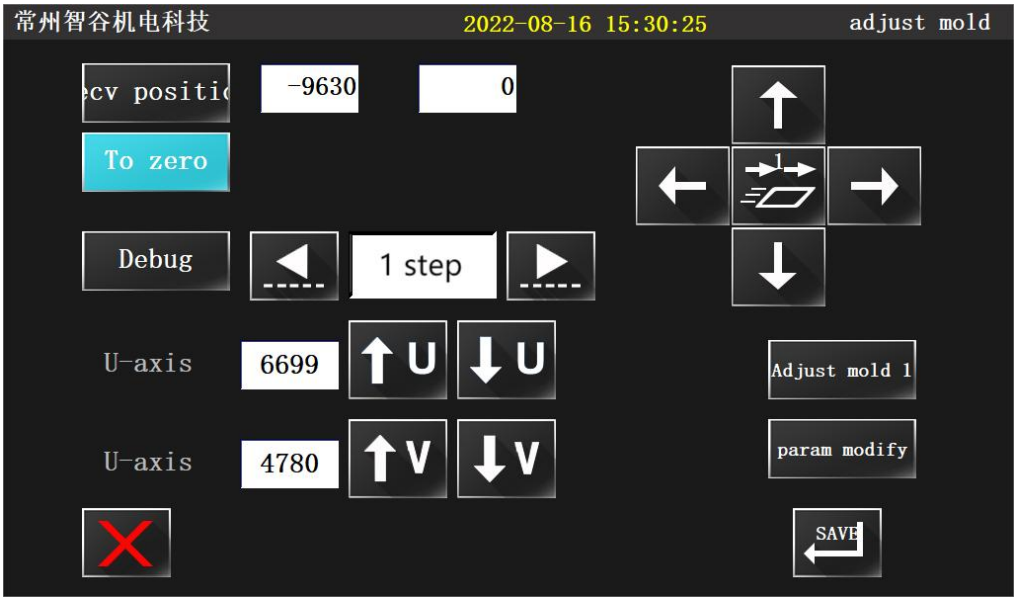
1. Press  enter the following interface



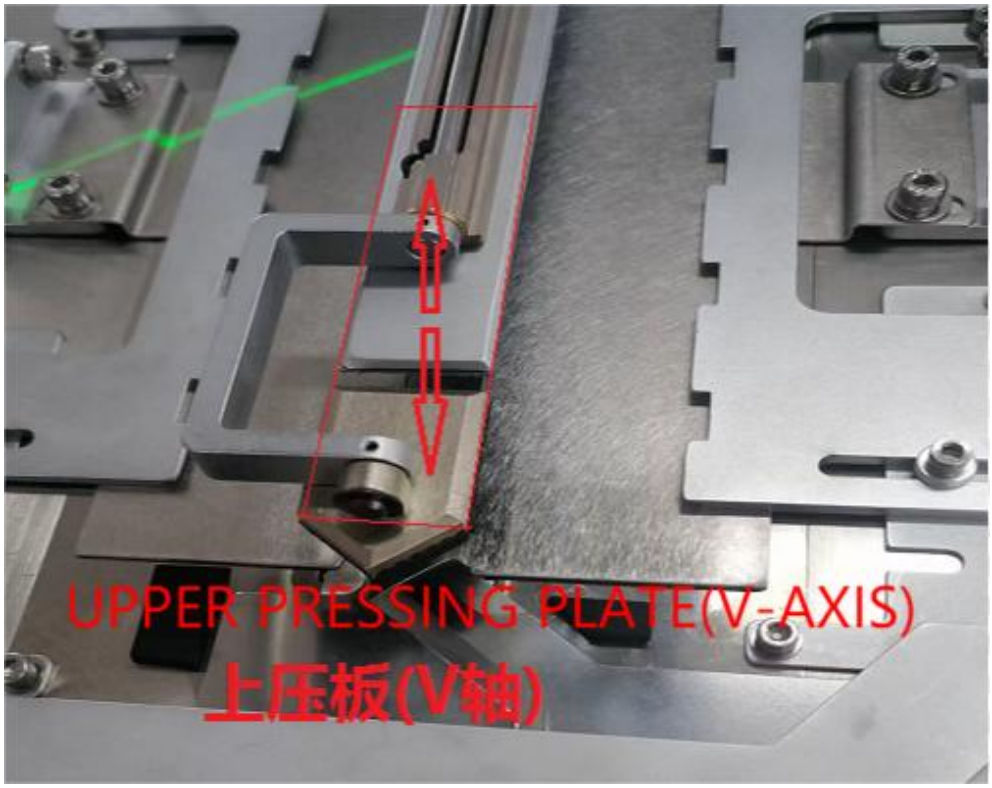
Press  , then  , Single step debugging is possible,

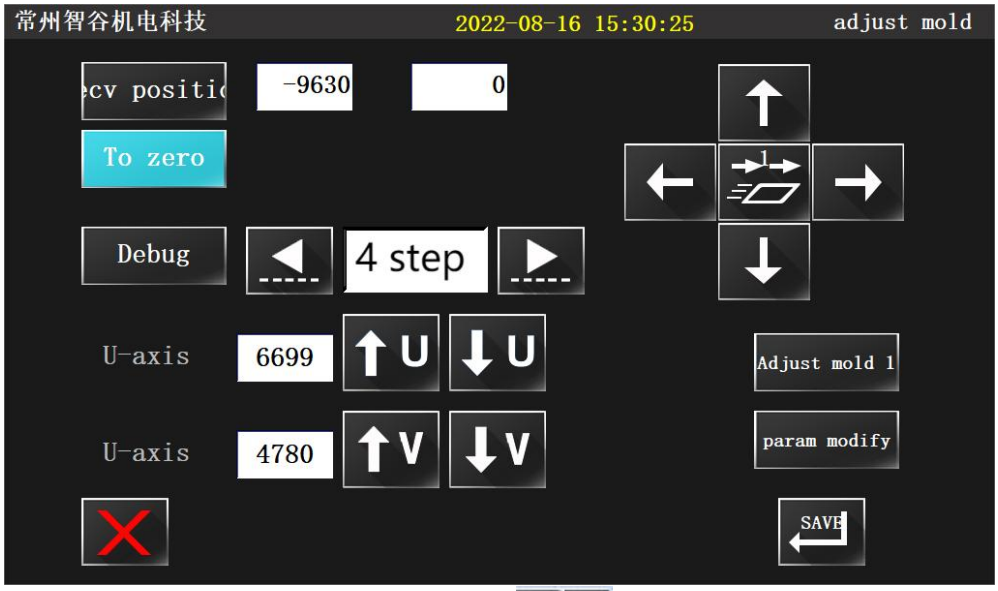
2. If adjust the U-axis, go to step 1, Press  to move the sleeve to the desired position





3. If adjust the v-axis, Press ▶ to 4 step , press ▲V ▼V to move upper pressing plate to the desired position





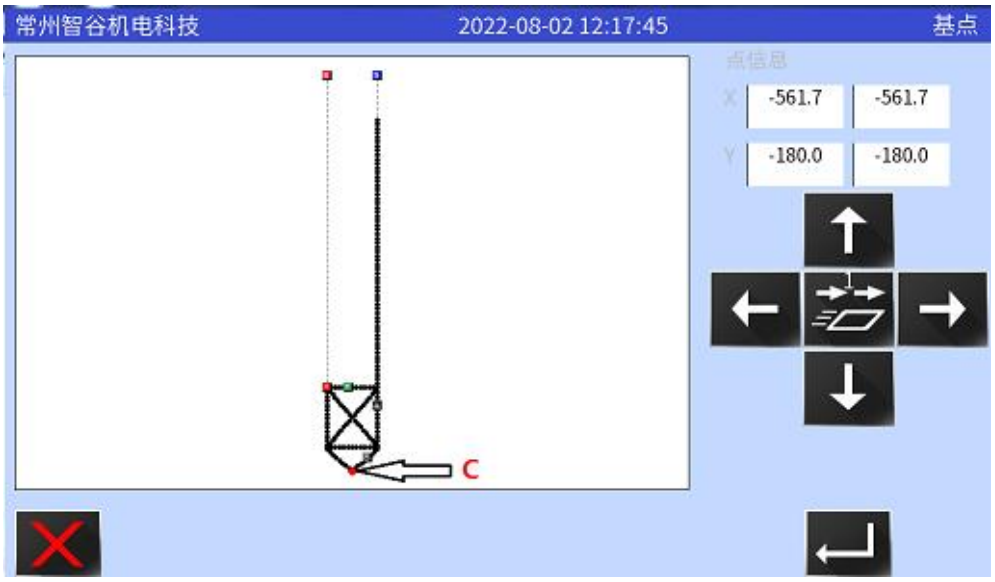
To adjust the moving speed:, press  1, 2 and 3 levels can be selected。

3. Continue pressing  to 8 step , press  , then  to save。

Note: during the operation, each  should have corresponding action. If there is no action, it indicates that there is a fault or the sensor does not sense. According to the sequence of mechanical action, there are several steps that cannot be reversed or directly exited. Please complete one process in sequence before exiting.

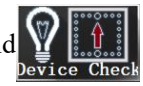
2.1-4 Adjust mold 1

Press  , then press  enter the following interface:

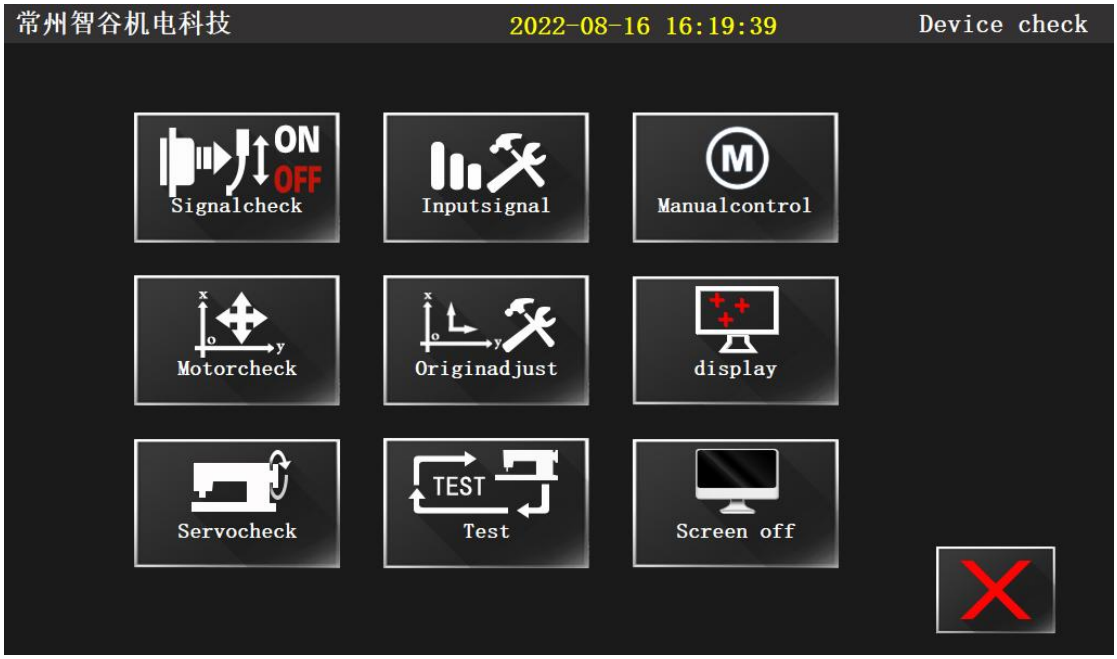


Then press  , Move point C in the figure to the right below the needle, press  to save

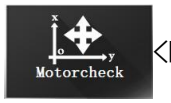
3.1Equipment detection and parameter setting

Press  and 

to following interface:



<Signal check> : Test each solenoid valve。



<Motor check> :Test the stepper motor and stepper drive。

<Servocheck> : Test the spindle motor (servo)。

<Inputsignal> : Test the switch signal of each sensor

<TEST> : Don’t use it。

<Screen off> : Screen backlight settings.

<Manual control> : Don’t use it.

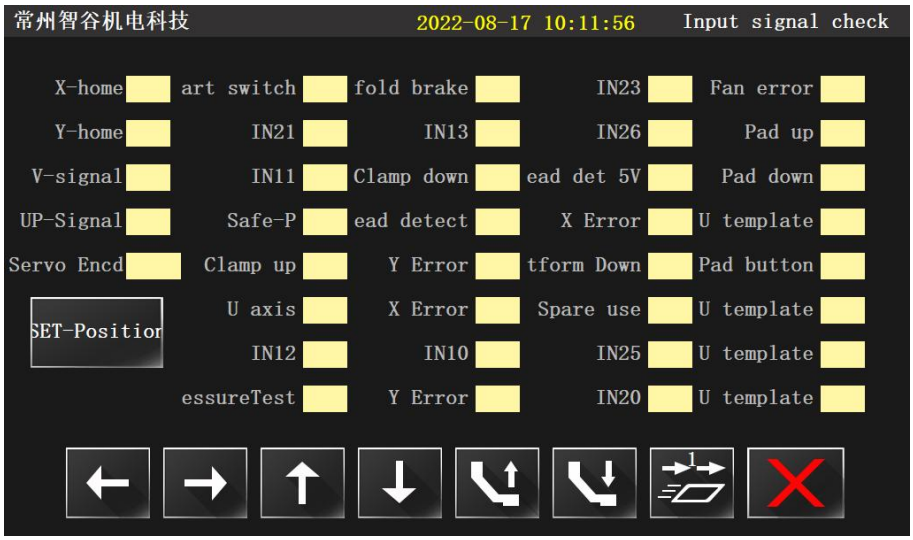
<Origin adjust> : Don’t use it.

<Display> : Don’t use it.

3.1-1 Sensor / switch signal detection

Press 

, Enter the input signal detection interface to display the sensor signal and switch signal.



1:When each sensor works, L / h, on / off and 0 / 1 change. Note that the light on the sensor indicates that the power supply is normal, which does not mean that the signal is normal. Only when the corresponding signal position changes can the signal of this sensor be normal.

2:For button switches, normally open and normally closed, inching and self-locking, pay attention to distinguish。

3:When the spindle rotates normally, the spindle servo code will increase or decrease from 0 to 1440 (some models) When the spindle rotates for one revolution, the servo up will appear on to off conversion。

4:For thread break detection, the pulling force of the spring may vary, as long as the signal changes when the wire is pulled。

3.1-2 Electromagnet detection

Press 

Test each solenoid valve。

Note:

1:When testing the air valve action, attention shall be paid to the relationship between various mechanical parts to avoid irreparable problems caused by mutual interference。

2:The electromagnet shall not be opened for a long time, and shall be closed in time after the test is completed to prevent the electromagnet from burning。

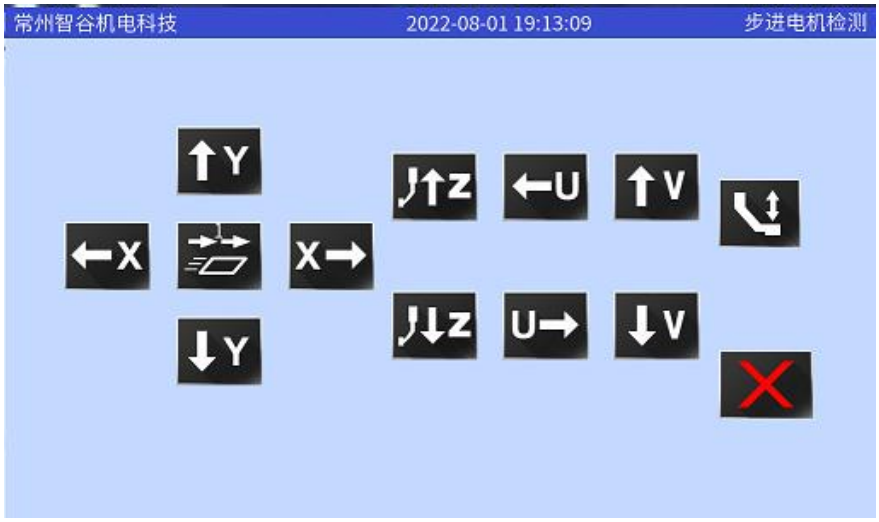
3:If the test does not respond, first check whether the touch screen and the main board have been disconnected, and then check whether the fuse, wiring and solenoid valve / electromagnet are normal。

3.1-3 Motor detection

Press 

Test the stepper motor and stepper drive。

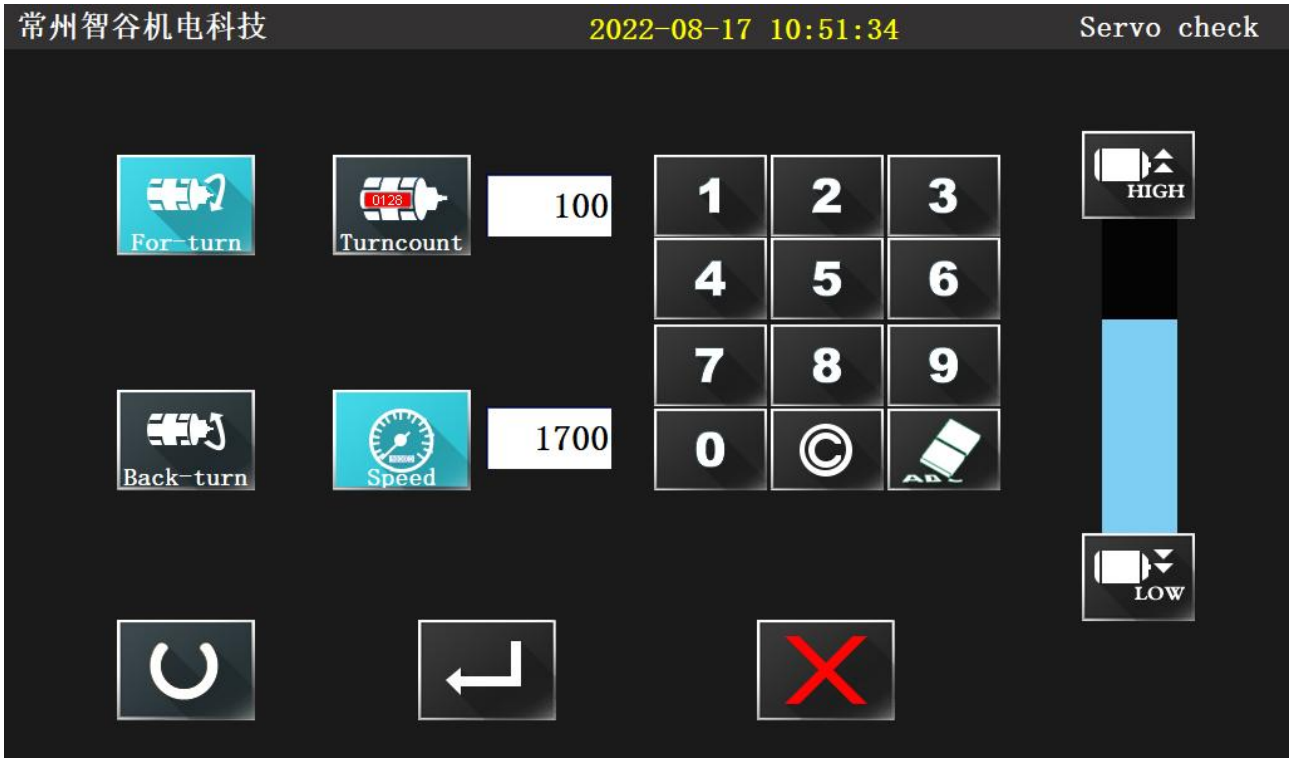
On this interface, you can test whether the stepping motor rotates smoothly, whether the speed can change, and whether the direction can change. If the above effect cannot be achieved, you should check whether the power supply of the driver is normal, or whether the connecting wire is plugged properly.



3.1-4Servo motor detection

Press 

, enter following interface:

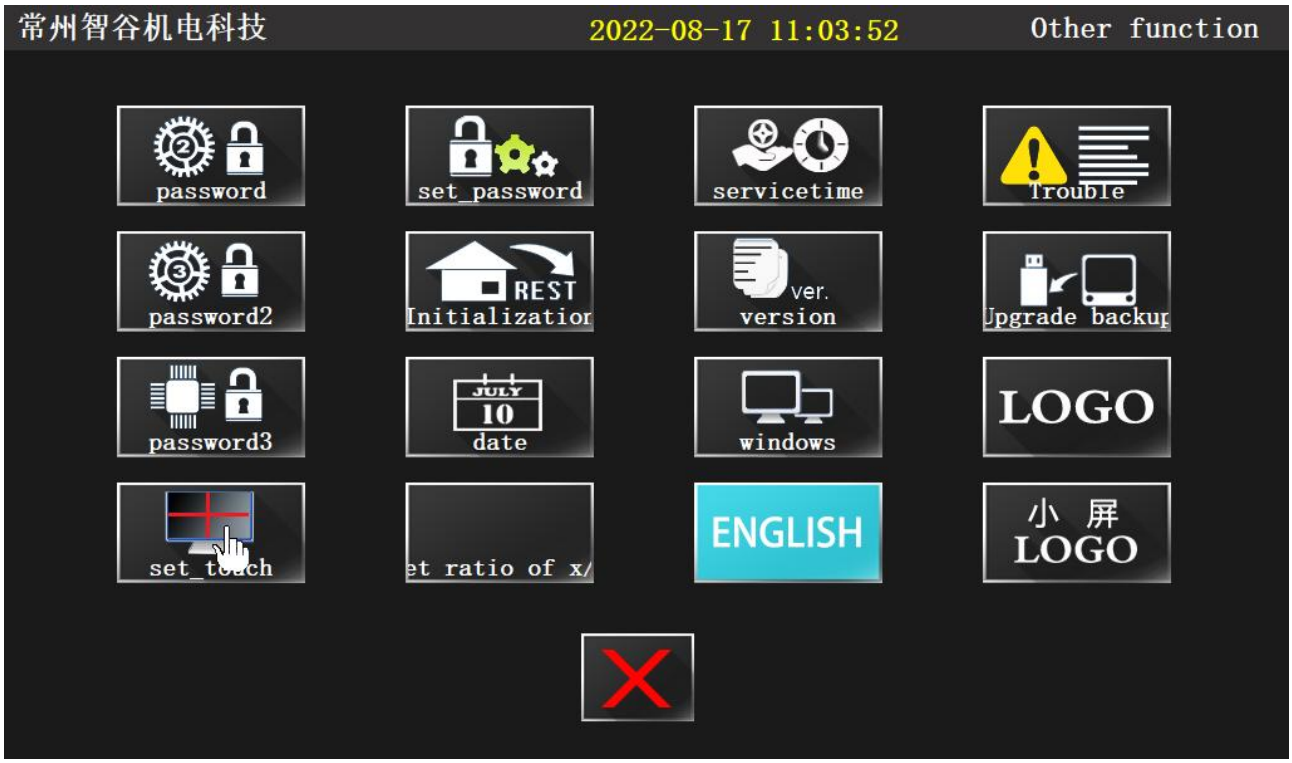


After setting the running speed and the number of turns on this interface, press  , The spindle motor shall be able to rotate normally, After the set number of turns, the motor stops, Otherwise, check whether the motor line and encoder are correctly connected. In addition, pay attention to the matching between the spindle servo board and the spindle motor。

4.1Accessibility settings

Press  and 

,enter following interface:



4.1-1 Time setting

Press 

, enter following interface:

When your screen is used for a long time, the battery is low, or the battery is replaced (CR2032), The date displayed on the screen will be incorrect, so date

correction is required, press   to set, then press  to save。

4.1-2 Language

Press  to switch English and Chinese:

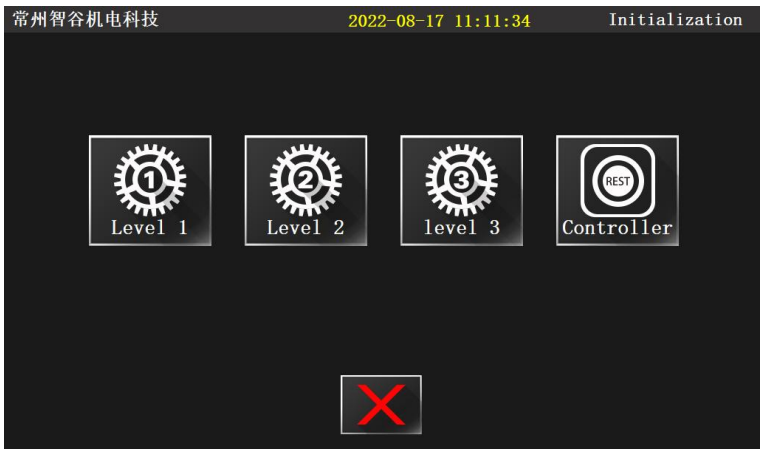
4.1-3 Upgrade backup

Press  ,

When you plug the USB disk into the USB socket of the touch screen, the system will upgrade your touch screen program to the version number you need. After the upgrade is completed, you will be prompted to shut down and unplug the USB disk. After that, you can use the new version.

4.1-4 Restore settings

press  , enter following interface:



1: After the new installation of the machine is completed, an initial operation is required before the commissioning. When the parameter items of the machine are increased or decreased, and when the processing is obviously incorrect during the use, the initial operation of the equipment is required;

2: The initial implementation is carried out from right to left, i.e. starting from the controller, then three levels, two levels and one level;

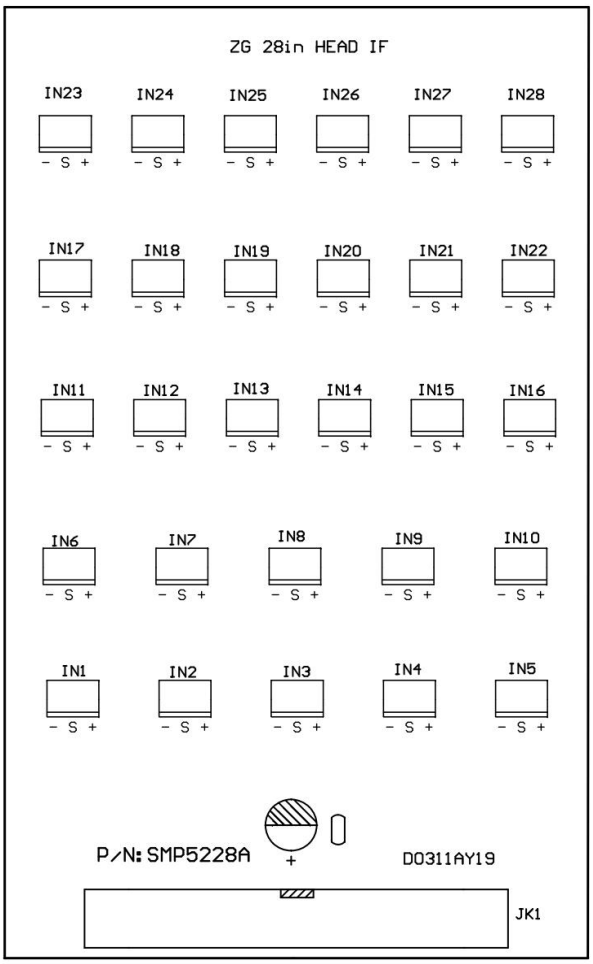
3: When the initial operation is completed, the machine should be shut down once。

For example press  , enter following interface:

After entering the password, press  The screen will display: "e1013 controller initialization succeeded", This means that the initial implementation of the controller is completed, Similarly, make the parameters of level 3, level 2 and level 1 initial, and then shut down; If there is no prompt that the initialization is successful, the communication between the screen and the motherboard may have been disconnected, so it is necessary to shut down and restart the computer before the initialization.

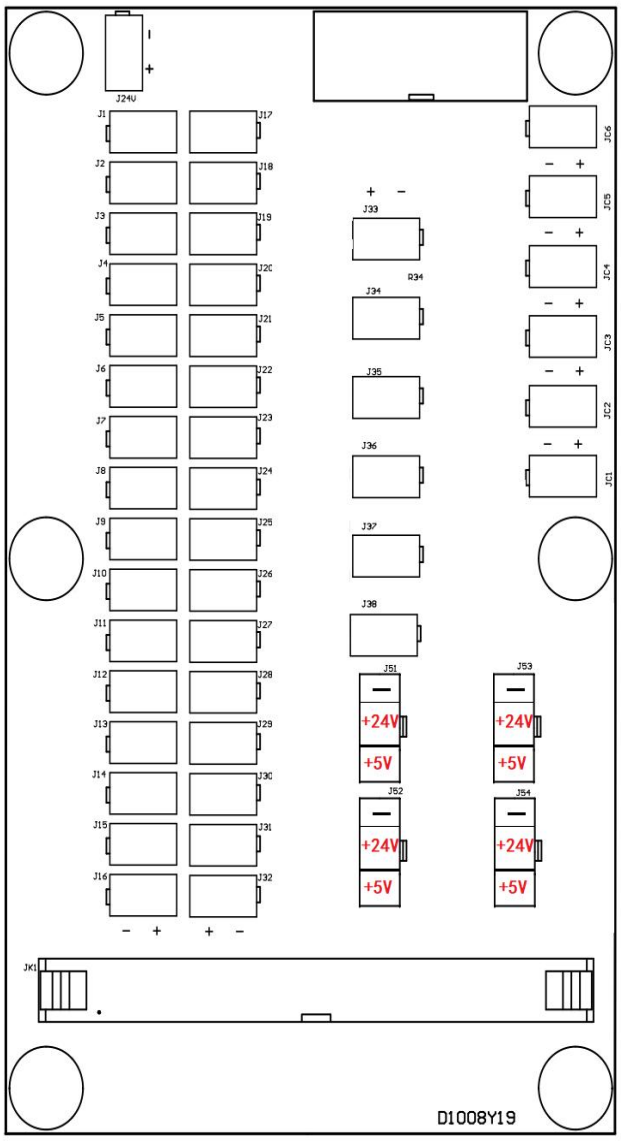
Appendix I input and output wiring list

INPUT SIGNAL



Signal	NO	NORM	WIRE
X origin	IN1	1X3	1X3
Y origin	IN2	1X3	1X3
Z origin	IN3	1X3	1X3
V origin	IN4	1X3	1X3
Upper plate	IN5	1X3	1x2
Bottom plate	IN6	1X3	1X3
Air pressure	IN7	1X3	1X3
Emerg-stop 1	IN8	1X3	1X3
U origin	IN9	1X3	1X3
Pedal 1	IN14	1X3	1x2
Pedal 2	IN16	1X3	1x2
Manual	IN18	1X3	1x2
Emerg-stop 2	IN21	1X3	1x2
Folding stop	IN22	1X3	1x2
X alarm	接口板	JK2	1X3
Y alarm	接口板	JK2	1x2
Thread-break5V	接口板	J6/4	1x2

Output signal table



Signal	NO		
Stacker 1	J1	Solenoid	
P-lift	J2	Solenoid	
support	J3	Solenoid	
Folding 1	J4	Solenoid	
Folding 2	J5	Solenoid	
Folding 3	J6	Solenoid	
Suction 2	J8	Solenoid	
Clamp	J11	Solenoid	
Mould 1	J12	Solenoid	
Mould 2	J13	Solenoid	
Hammer	J14	Solenoid	
Out91	J15	Solenoid	
Pressurize	J16	Solenoid	
Turning	J17	Solenoid	
Suction 1	J18	Solenoid	
Suc-motor	J20	Solenoid	
Stacker 2	J26	Solenoid	
Laser 1	J51	5V out	
Laser 2	J52	5V out	
Laser 3	J53	5V out	
Laser 4	J54	5V out	
Out71	JC1	electromagnet	
Out75	JC2	electromagnet	
Trimmer	JC3	electromagnet	
Clip	JC4	electromagnet	
Out72	JC5	electromagnet	
Out76	JC6	electromagnet	

Appendix II system parameter table

No	Description	Range	Initialize
1.1	Maximum speed	400～ 3200	2500
1.2	1st stitch speed	100～ 2000	400
1.3	2nd stitch speed	200～ 2500	800
1.4	3rd stitch speed	300～ 3000	1500
1.5	Emergency stop trimming	1 Yes, 0 No	No
1.6	Needle stop position	0～ 4319	-
1.7	return speed U to origin	1~ 6	3
1.8	Folding interval	150~ 1000	200
1.9	Extend folding interval	1500~ 5000	2500
1.10	Trimmer	0 Off , 1 On	On
1.11	Needle bar lifting angle	-120--120	-30
1.12	Feeding method	0 Auto/1 Manual	Auto
1.13	Return speed	1~ 4	3
1.14	Feed without fabric speed	1~ 18	16
1.15	Mould speed	1~ 5	3
1.16	Lifting clamp after sewing	0 No 1Yes	Yes
1.17	Air pressure switch	0 OFF 1 On	On
1.18	Air pressure polarity	0 Positive 1 Negative	Negative
1.19	Feeding with trimmer	0 No 1 Yes	No
1.20	Presser foot lifting	0 Yes 1 No	
1.21	Pattern feeding time	10-2000	0
1.22	Sweeping switch	0 Off 1 On	Off
1.23	Polarity of emergency stop	0 Positive 1 Negative	Positive
1.24	V-axis speed	1-6	5
1.25	Loosen switch	0 Off 1 On	On
1.26	Sweeping time	50---2000	100
1.27	Trimmer after sewing	0 No 1 Yes	Yes
1.28	U-axis extend speed	1-6	3
1.29	Thread detection switch	0 Off 1 On	On
1.30	Shaft lock after stop	0 No 1 Yes	No
1.31	Winding speed	1300-2500	1300
1.32	Calibrate spindle	0 No 1 Yes	Yes
1.33	V-axis sensor detection	0 Off 1 On	Off
1.34	Thread detect frequency	1-45	25
1.35	Suction 2 to stacker 3	0 Single 1 Double	0
1.36	Folding start times	2-4	4
1.37	Break detection polarity	0 Positive 1 Negative	Positive
1.38	Semi-stitch position	0-4096	0
1.39	Y reverse feeding syn-ver	-100-100	-70
1.40	X reverse feeding syn-ver	-100-100	-70

No	Description	Range	Initialize
1.41	Y feeding syn-verifi	-100-100	-70
1.42	X feeding syn-verifi	-100-100	-70
2.1	X Origin	-500k------500k	0
2.2	Y Origin	-500k------500k	0
2.3	Trimmer open position	1000------3000	1694
2.4	Trimmer off position	2000------4096	3305
2.5	Clip electromagnet PWM	10------700	175
2.6	Clamp Electromagnet PWM	10------700	650
2.7	PF electromagnet PWM	10------700	350
2.8	Clamp 2 的 PWM	10------700	80
2.9	X sensor polarity	0 Positive 1 Negative	Negative
2.10	Y sensor polarity	0 Positive 1 Negative	Negative
2.11	Spare	50---250	Motor
2.12	Stitches after break	0-----20	8
2.13	Needle stop position	-300-----300	0
2.14	Clamp signal number	0-----4	1
2.15	Speed limitation	400-----2700	2500
2.16	Clamp length	-300-----300	10
2.17	Clamp width	-300-----300	0
2.18	PF lifting time	50-----2000	100
2.19	Spindle starting time	40-----1000	50
2.20	PF maximum height	30-----200	250
2.21	Z sensor polarity	0 Positive 1 Negative	Negative
2.22	PF motor direction	0 Positive 1 Negative	Negative
2.23	Clamp 1 statue	0 Down---1 Up	Down
2.24	Clamp 2 statue	0 Down---1 Up	Down
2.25	U sensor polarity	0 Positive 1 Negative	Positive
2.26	X sewing range	500-7000	11800
2.27	Y sewing range	400-4000	6000
2.28	Clip closing angle	0-350	270
2.29	Thread tension control	0 Clip---1 Select	Clip
2.30	Clamp lifting time V	-800---800	600
2.31	Clamp press time U	-300---300	200
2.32	Clip cylinder	0 Off---1 On	On
2.33	Inflection point speed	500---1500	1200
2.34	Trimming PWM	10---700	560
2.35	Mould PWM	10---700	500
2.36	Mould extension time	0---250	500
2.37	Mould suction time	0---250	200
2.38	PF lifting time	0-1000	200
2.39	PF drop time	0-1000	200
2.40	Mould returning time	0-1000	250
2.41	Hammer open time	0-1000	250
2.42	Mould drop time	0-1000	150

NO	Description	Range	Initialize
2.43	Folder 1 open time	0-1000	300
2.44	Folder 1 off time	0-1000	400
2.45	Folder 2 open time	0-1000	350
2.46	Folder 2 off time	0-1000	350
2.47	Folder 3 open time	0-1000	400
2.48	Folder 3 off time	0-1000	250
2.49	U mould position detection	0 Off-1 On	Off
2.50	V clamp position detection	0 Off-1 On	Off
2.51	Stacker 1 open time		500
2.52	Stacker 1 off time		10
2.53	Stacker 2 open time		500
2.54	Stacker 2 off time		100
2.55	Clamp LF delay time		350
2.56	Spare		350
2.57	V return time adjust		300
2.58	Clamp return start time		400
2.59	Spare		50
2.60	Spare		100
2.61	Spare		100
2.62	Spare		2000
2.63	Spare		0
2.64	Spare		单启动
2.65	Spare		0
3.1	Trimming time	200-----500	220
3.2	Working/testing switch	0 Working',1 Testing	Working
3.3	Testing pause time	0-----60	2
3.4	Debugging parameters	10---250	1
3.5	Debugging parameters	0---250	50
3.6	Debugging parameters	1-----6	3
3.7	Debugging parameters	0 No-Lift',1 Lift	Lift
3.8	U-axis length	0-----20000	4750
3.9	Debugging parameters		Off
3.10	Debugging parameters	0 1	Nil
3.11	Feeding time	10-----500	20
3.12	Debugging parameters	0-----500	Off
3.13	X repairing move value	0-----9000	8680
3.14	Z Motor transmission ratio		1200
3.15	X Motor transmission ratio	230	153.3
3.16	Y Motor transmission ratio	230	230.0
3.17	Debugging parameters		250
3.18	Debugging parameters		250
3.19	PF motor type	0/	Nil
3.20	Debugging parameters		110
3.21	X500 Pulse width	100-----950	550

NO	Description	Range	Initialize
3.22	X1000 Pulse width	100-----950	550
3.23	X1500 Pulse width	100-----950	550
3.24	X2000 Pulse width	100-----950	650
3.25	X2500 Pulse width	100-----950	680
3.26	X3000 Pulse width	100-----950	680
3.27	Y500 Pulse width	100-----950	520
3.28	Y1000 Pulse width	100-----950	520
3.29	Y1500 Pulse width	100-----950	400
3.30	Y2000 Pulse width	100-----950	400
3.31	Y2500 Pulse width	100-----950	400
3.32	Y3000 Pulse width	100-----950	400
3.33	Button stitch switch		Off
3.34	Trimming switch		
3.35	Clamp type		
3.36	Stacker switch		Off
3.37	Debugging parameters		-3000
3.38	Debugging parameters		3000
3.39	Debugging parameters		2
3.40	Stacker waiting time		0