YF-8208

Two Axis Spring Controller

User Manual

Precautions

※ **Transport and storage**

- ☞ Product package should not exceed six crates stacked
- ☞ It's not available to climb, stand or place heavy objects on the package of product
- ☞ Don't use the connecting cable drag or carry the product
- ☞ Non-collision , scratch panel and display
- ☞ Product package should avoid moisture, insolation and rain

※Unpack checking

- ☞ Unpack then confirm if the product is the same as your purchasing
- ☞ Check if damage to the products during transportation
- ☞ Follow the list to check if parts are complete without damage
- ☞ Please contact our company in time once product model not matched、missing attachments、transport damage，etc.

※Wiring

- ☞ The person who make wiring and inspection must have the appropriate professional capacity.
- ☞ Products must be grounded , grounding resistance should be less than 4 ohms , you can not use the neutral line (zero line) instead of ground.
- ☞ Wiring must be properly and securely so as not to cause the product to malfunction or unintended consequences.
- ☞ Connection with the product must be connected to a surge absorption diode predetermined direction , otherwise it will damage the product.
- ☞ Before the plug or open the product chassis, the power supply must be cut off.

※Inspection and repair

- ☞ Cut off the power supply before inspection or components replacement.
- ☞ If short circuit or over load, please check the malfunction、troubleshooting and restart.
- ☞ Product can not be powered on and off frequently, to be re- energized after a power off at least one minute break.

※Others

- ☞ Don't open the cabinet without permission.
- ☞ Turn off the power supply if product idled long time.
- ☞ Be careful not to let dust , iron powder go into the controller
- ☞ If the output relay non- solid state relays, the relay coil shall be parallel freewheeling diodes. Check the connected power supply meets the requirements , to eliminate the controller burned.
- ☞ The life of controller have a great relationship with ambient temperature. If the temperature is too high at the processing site, please install the cooling fan.
- ☞ The controller allows the working ambient temperature range between 0 ℃ -60 ℃.
- ☞ Avoid using in the hot、humid、dusty or corrosive gas environment.
- ☞ In place with strong vibration, rubber shock pad should be added to the buffer .

※Maintenance

Under normal usage conditions (ambient conditions: daily average 30 ℃, load factor 80% , run rate 12 hours a day) , make daily checks and periodic inspections by the following items.

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Daily inspection	Daily	● Check the ambient temperature, the temperature , dust, foreign matter ● If any abnormal vibration , sound ● The ventilation holes plugged by yarn
Periodic inspection	One year	● Rugged components loose or not ● Terminal block damage or not

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CONTENT

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Chapter One Product Overview

1. Exterior Renderings

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2. Product Brief

YF-8208 2-3 axis spring machine control system : 7-inch LCD ; 2-3 axis servo control ; support group probe input 4-8 , 4-8 group of cylinders output ; supports sending wire frame wrapped around the wire , broken alarm detection . Supporting used in various spring , torsion spring machines .

3. Product Features

1. 7 -inch color LCD
2. Chinese / English interface , suitable for different customers state system
3. Using ARM9 processor , higher processing efficiency
4. 2-3 axis servo control
5. support group probes 4-8 cylinders
6. support for sending wire frame wrapped around the lines, broken alarm detection
7. The hand wheel and jog dual debugging processing features
8. Programming intuitive and easy to learn
9. The full and complete information prompts
10. U disk support function , easy software upgrades
11. support USB and RS232 communication function, convenient and computer on-line

4. System Accessories

Item Name	Description	Quantity	Remark
Controller	YF-8208	1set	Standard
Control card	TH846(2axis)	1pc	Standard
Terminal board	TH834-F5	1pc	Standard
Shielded cable	DB25 Male to male	1pc	Standard
15 pin servo cable	DB15	2pcs	Standard

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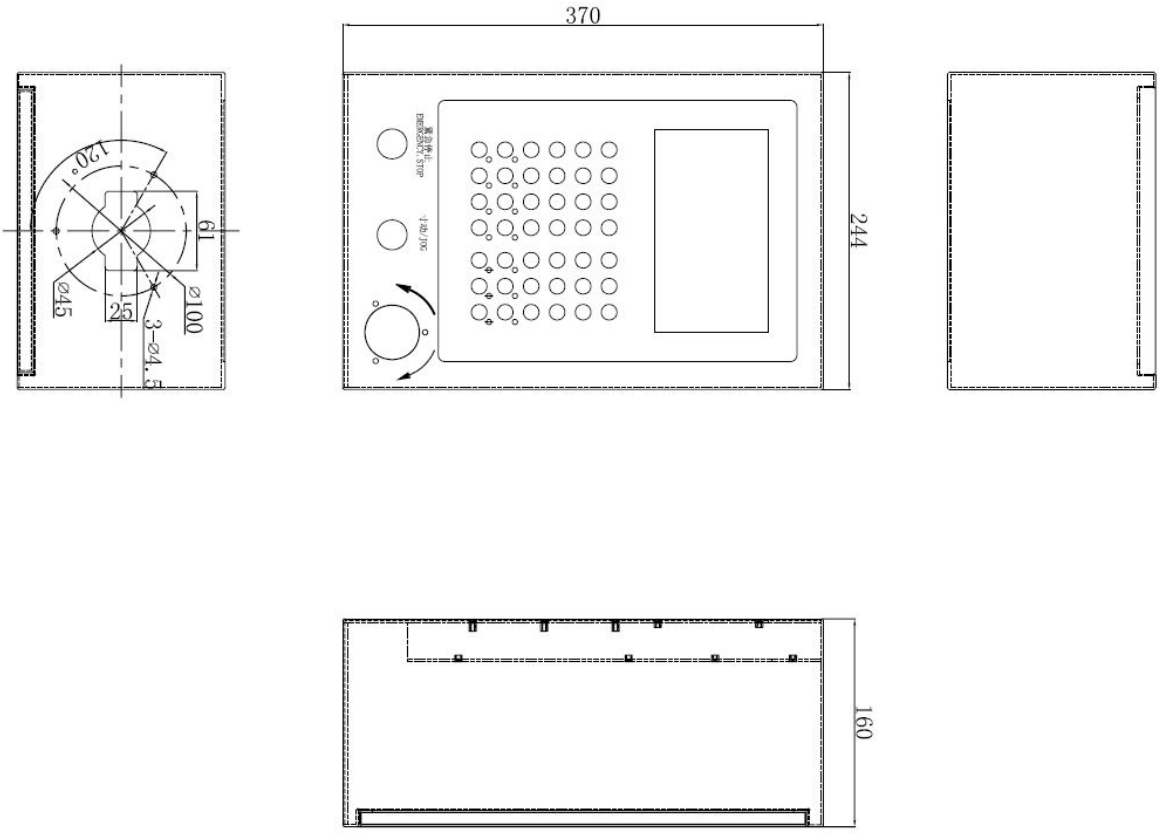
Chapter Two Electrical Wiring

1. Dimensions



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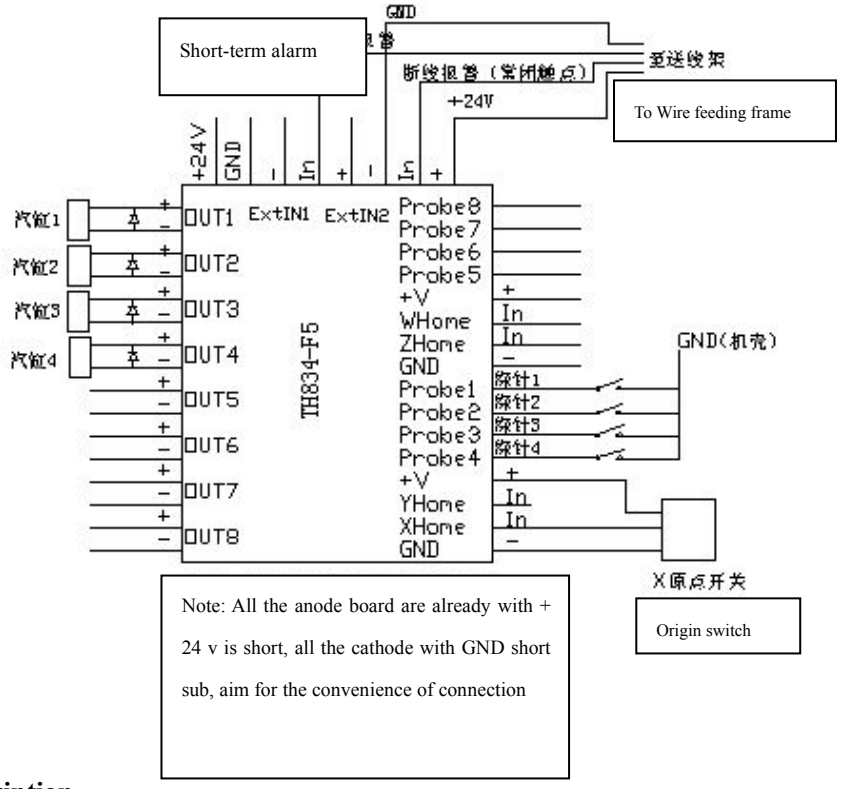
2. Electrical wiring

2.1Wiring terminals



2.2Terminals description

There are two wiring board (three-axis system has more than 4) origin input signal interface , four (three-axis system has more than eight) probe inputs , four (three-axis system for more than eight) cylinder output interface a wire frame wrapped around the wire feed inputs, a disconnection alarm input interface , and another set of + 24V and GND interface for accessing external DC24V power .

2.3 PU+，PU-wiring definition

15pin signal socket （XS1/ XS2/ XS3/ XS4/ XS5/ XS6）

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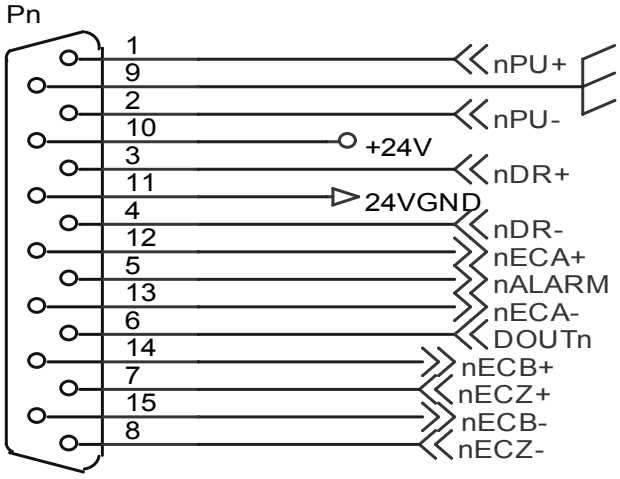

CONNECTOR DB15

DB15SF2

Wire number	Definition	Function
1	nPU+	Pulse signal+
2	nPU-	Pulse signal-
3	nDR+	Direction signal+
4	nDR-	Direction signal-
5	nALARM	General input，alarm input (X-34 Y-35 Z-36 A-37 B-38 C-39)
6	OUTn	General output (X-18 Y-19 Z-20 A-21 B-22 C-23)
7	nECZ+	Encoder Z phase+ (X-42 Y-45 Z-48 A-51 B-54 C-57)
8	nECZ-	Encoder Z phase input-
9	GND	5V power ground, internal using
10	+24V	External supply DC24 power, for driver signal, not big load power supply
11	24VGND	

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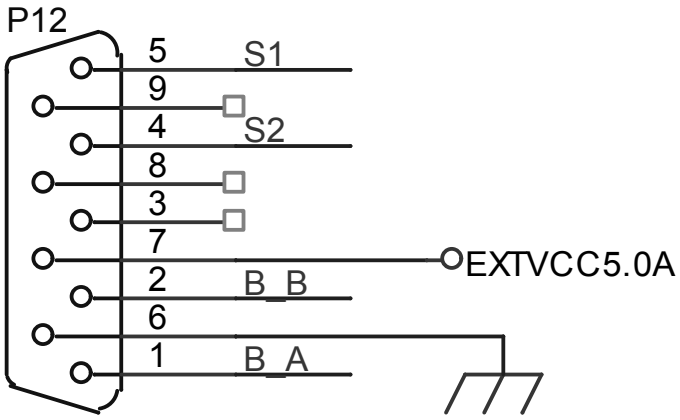
12	nECA+	Encoder A phase input + （X-40 Y-43 Z-46 A-49 B-52 C-55）
13	nECA-	Encoder A phase input-
-14	nECB+	Encoder B phase input + （X-41 Y-44 Z-47 A-50 B-53 C-56）
15	nECB-	Encoder B phase input -

9 pin signal socket （ XS8）



Wire number	Symbol	Description
1	ECB	B phase hand wheel input
2	ECA	A phase hand wheel input
3	NC	Empty
4	STOP	Stop button input
5	START	Start button input
6	GND	Internal supply 5V power negative,for hand wheel
7	+5V	Internal supply 5V power positive,for hand wheel
8	NC	Empty
9	NC	Empty

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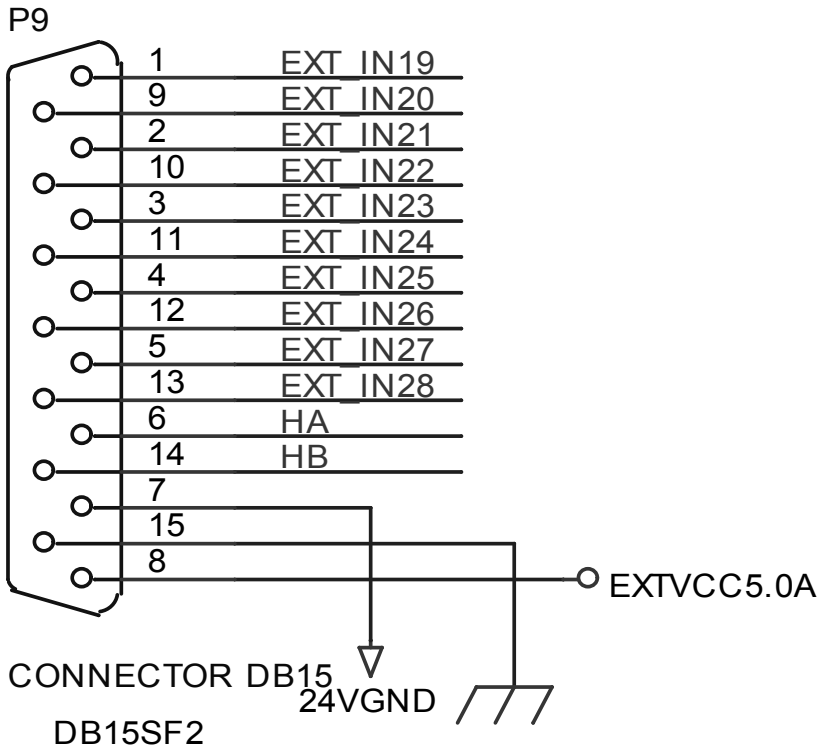
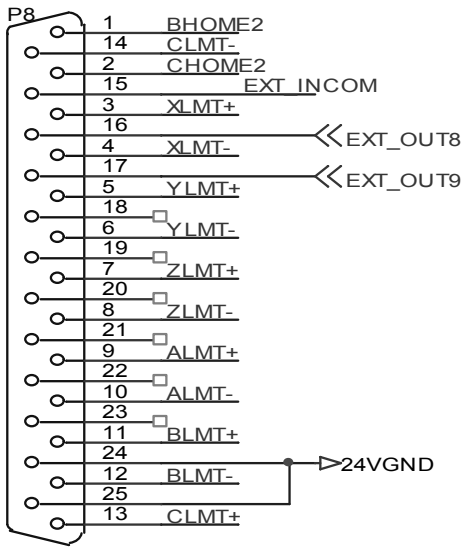
15pin signal socket （XS9）



Wire number	Name	Function
1-5、9-13	External input	General input
6	Handhold box input	Handhold box A phase
14	Handhold box input	Handhold box B phase
7	24V	COMMON INPUT
8	EXTVCC5.0A	Handhold box 5V power supply
15	GND	Handhold box 5V ground

25pin signal socket （XS11）



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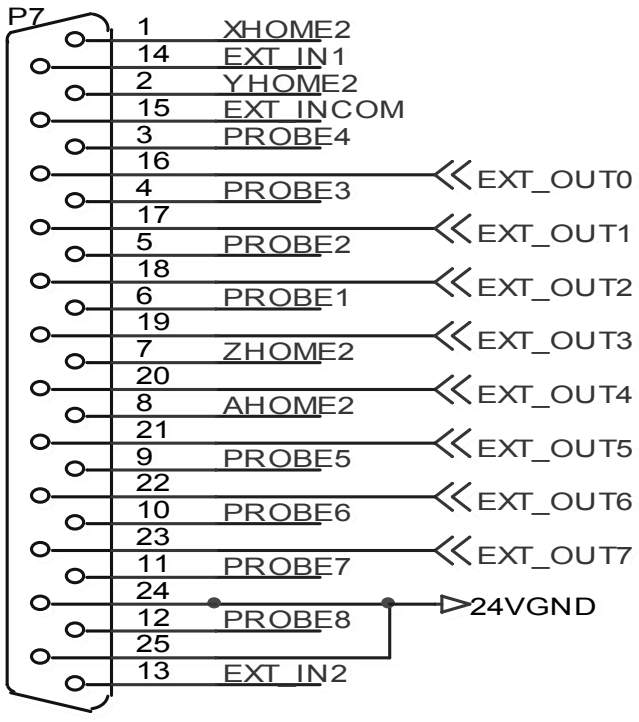
Wire Number	Name	Function
1	BHOME2	B axis origin point 2
2	CHOME2	C axis origin point 2
3	XLMT+	X axis limit+
4	XLMT-	X axis limit -
5	YLMT+	Y axis limit +
6	YLMT-	Y axis limit -
7	ZLMT+	Z axis limit +
8	ZLMT-	Z axis limit -
9	ALMT+	A axis limit +
10	ALMT-	A axis limit -
11	BLMT+	B axis limit +
12	BLMT-	B axis limit -
13	CLMT+	C axis limit +
14	CLMT-	C axis limit -
15	EXT_INCOM	External input COM(+24V)
16	EXT_OUT8	General output
17	EXT_OUT9	General output
18--23	NC	Empty
24	24VGND	24V Power ground
25	24VGND	24V Power ground

25 Pin Signal Socket（XS10）



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Wire number	Symbol	Description
1	XHOME2/IN2	X external origin signal (input)
2	YHOME2/IN7	Y external origin signal (input)
3	PROBE4/IN8	Probe input signal
4	PROBE3/IN9	Probe input signal
5	PROBE2/IN3	Probe input signal
6	PROBE1/IN4	Probe input signal
7	ZHOME2/IN12	Z external origin signal(input)
8	AHOME2/IN17	A external origin signal(input)
9	PROBE5/IN14	Probe input signal
10	PROBE6/IN13	Probe input signal
11	PROBE7/IN19	Probe input signal
12	PROBE8/IN18	Probe input signal
13	IN21	Common input signal
14	IN20	Common input signal
15	INCOM1	Input COM ,external power supply positive
16	OUT0	Cylinder output 0
17	OUT1	Cylinder output 1
18	OUT2	Cylinder output 2
19	OUT3	Cylinder output 3
20	OUT4	Cylinder output 4
21	OUT5	Cylinder output 5
22	OUT6	Cylinder output 6
23	OUT7	Cylinder output 7
24	OUTCOM1	OUTCOM1,Output COM,external power supply negative
25	OUTCOM1	

3. Installation Precautions

3.1 System Main Power Requirements : 200-230V AC 45-65Hz

3.2 The controller's LCD display part , you can not beat or hit

3.3 It should be installed in no small shock or vibration. If unavoidable, it should be between the controller and a layer of rubber shock pad mounting plate gasket to cushion shock.

3.4 When the installation must avoid hot, humid , dusty, or corrosive gas environments.

3.5 should be installed in an ambient temperature of 0 ℃ -60 ℃, humidity of 20% -80 % of the local

4. Testing

After installation and wiring is completed and checked , you can connect the power to the test run , the specific operation is as follows :4.1 After power- enter the main interface .4.2 Press the * key to select the input and output diagnostics option to enter the I / O diagnostic test interface.

4.3 Check the respective input and output signals

4.4 To start the actual spring commissioning work after all signals to be detected correctly.

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Chapter Three Function Operation

1. Operation Panel Description

1.1Keyboard Panel And Button Description

SCREEN Switch between main interface and teach interface and press this button to quit in other parameter interface.

* The key for the auxiliary function select keys , press this button will appear after the auxiliary function selection interface , detailed instructions Accessibility section .

PROBE Set number of probe failures , the number of failed when the probe reaches this value, the system stops working .

CLYDINER When the key is pressed into the cylinder test state , then press the numeric keys 1-8 to control the corresponding cylinder action.

DEL ALL In the programming interface , press to delete all procedures and standards of conduct set speed setting first program line .

HOME X camshaft automatic reset , if within a certain period of time (typically 6-10 seconds) did not touch the zero position switch, or press the 'Stop ' button is interrupted, the display zero failures.

START

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When this button is pressed , according to the programmed motion axis operates in the main processing interface and programming interface.

STOP — Press this key to zero , a mechanical stop immediately ; Press this button during processing , machining finished a spring then stop processing and for this key is invalid for other actions.

DEL — Remove the cursor line program . This key is valid only when the programming interface.

PROBERST — In the main processing interface and programming interface, press this button will probe failures cleared. When the machining operation failed because the probe to reach and stop times , press the button , the processing can continue .

CYLINDER1 — In manual mode, the control cylinder open and close 1 .

CYLINDER 2 — In manual mode, the control cylinder open and close 2 .

CYLINDER 3 — In manual mode, the control cylinder open and close 3 .

CYLINDER 4 — In manual mode, the control cylinder open and close 4 .

COUNTRST — In the main processing interface and programming interface, press this button the number of processing cleared. When the machining operation stopped because the number reached , press the button , the processing can continue .

INS — Before blue light bar, insert a line instruction program . This key is valid only when the input program .

PAGE UP — This key is valid only when the programming interface enables multi -line program up roll.

PAGE DOWN — ly when the programming interface enables multi -line program tumbling down .

REPEAT

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Add a loop instruction , and to achieve "send line open" and " delivery line off" switch loop mode .

CLR The digital white light strip at the empty , this key is valid when any input data or parameters.

STL Send spool open and close switch function key.

Z Z -axis and off switching function keys open only in 3-axis or 3 axis system more effective .

FEED% In programming interface press this key to move the cursor quickly navigate to the " ratio " data item.

MPG Switch speed and operation of the hand shaft encoder . Optional 1-3 speed gear.

MANU Automatic and manual mode switch

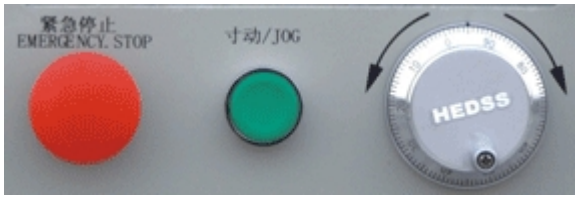
ENT Determination of input data . For this key document selection screen for confirmation Exit.

X AXIS Y AXIS Z AXIS When moving or hand operation, this key to select the corresponding action axis , Z axis selection is invalid.

+/- Symbol ‘-’ button

Up down ,left right--the cursor arrow keys

1.2 Panel Button Description



There are two buttons and one handwheel on the controller panel.

Sometimes the unexpected happens and can press this button emergency stop operation in which the red mushroom -shaped button for the emergency stop button, or zero in the processing operation , in addition to the manual mode, press the emergency stop state can return to automatic mode .

Green jog buttons for inching button, press this button after inching process began inching

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processing stops when you lift , processing speed based on the current set magnification ratio 1 corresponds to the slowest speed , the corresponding ratio 3 the fastest speed , the use of this feature can be very convenient for the spring trial work easy to adjust various types of springs.

The function of MPG is to manually move each axis valid only in the programming interface, programming interface, automatic mode, turn the hand wheel corresponding axis (the axis of the cursor) can be achieved manually moving uniaxial , in manual mode the rotation of the hand wheel will be multi-axis machining of the spring in order to achieve the purpose of the hand .

2. Operation Interface And Resource Description

2.1Main processing interface

Resource description:

1) Program Number : This can move the cursor directly input (0 to 999) in this interface for storage program number , this value.
2) The current line number : Displays the currently executing program line number when processing.
3) Remaining time : The time to finish processing the current rate set by the target number is also needed .
4) Current Mode: Tip of the current operating mode (automatic / manual)
5) The current number : the number of products has been completed , and when this value is equal to the value of the target amount , the system stops working , as shown :

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Warning
The number of products has been done!
300 Pecs

Press “Enter” to home processing numbers automatically.

Press [COUNTRST] for other home

1) Completion : Automatic Number of processed products , this value can be adjusted by moving the cursor keys at this interface (1-9999999) .
2) Probe setting : Set the number of probes touch , this value can be adjusted by moving the cursor keys (0-99999) at this interface is 0:00 when this technology does not detect the probe failed.
3) Probe failure: When the probe did not specify to capture the signal and the probe is set to touch is not zero, the value will increase , so the value is greater than or equal to the value of the probe set , the process completed after the current product automatic shutdown. And prompts probe reached ! Figure:

System warning
Reach to the number of probe failure

Confirm

Press the "Enter" key is automatically cleared probe failure times

Other times can be cleared [PROBERST] key this value .

4) Production speed : Displays the current processing speed .
5) Display the current date and time for the user’s reference.
6) The message prompts : Display and maintain the final message appears .
7) Cylinder 1/2/3/4 : 1-4 shows the current status of the cylinder .
8) Probe 1 : Display the current status of the 1st probe.
9) Position: Display X、Y axis coordinate

2. Program Editing Interface

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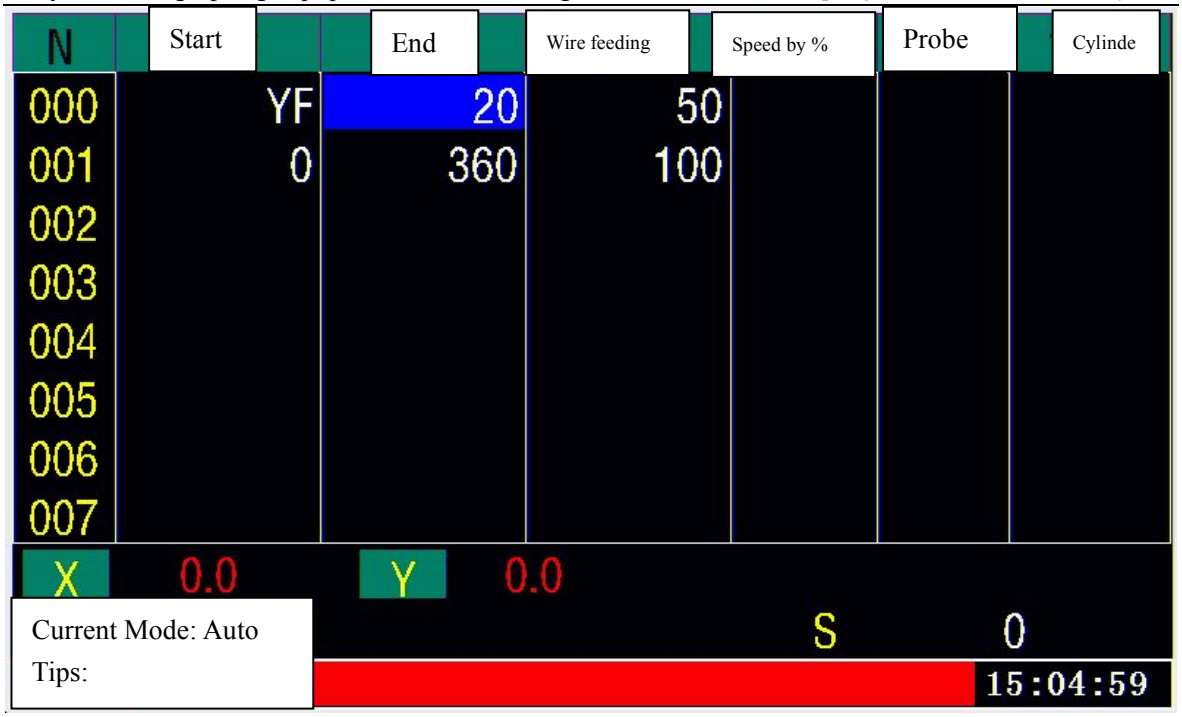
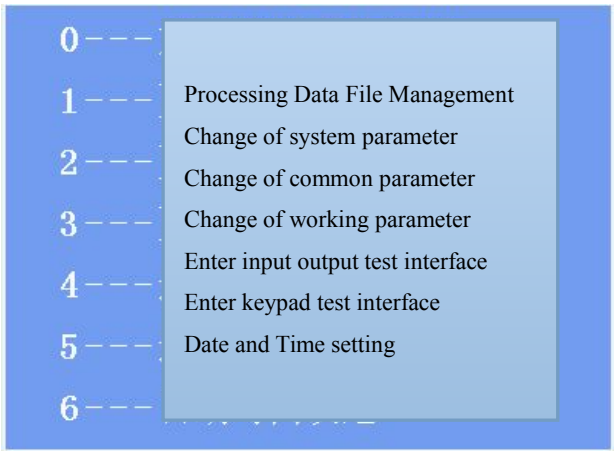


1) N: Indicates the program line number.
2) Start : Indicates the camshaft position (-360 to 360)
3) End : Indicates the position of the camshaft (-360 to 360)
4) The feed line : send the line indicates the length (~ 9999.99 -999.99 unit: mm)
5) Ratio : the ratio indicates the processing speed in order to achieve a corresponding change in speed (0.01 - 5.0)
6) Probe : Indicates the number of input probe (1-4)
7) Cylinder : Indicates the cylinder number (0000 to 1111)

Note: After the input data is completed, be sure to press [Save] button , the program will save the data on your hard drive to prevent loss after an unexpected power outages .

3. Accessibility Interface

In the main screen, press the screen as shown in the "* " key appears: Now press the corresponding number keys to enter a different interface .



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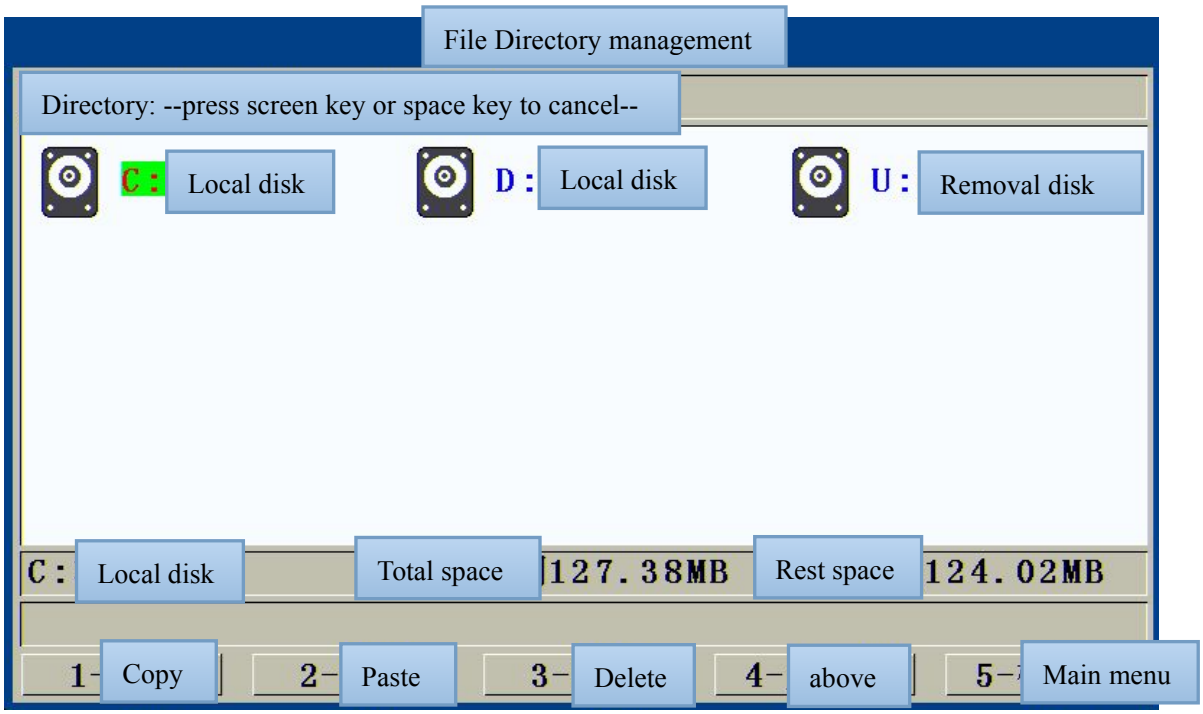
4. Processing File Management Interface

Press "0 " to enter the processing file management interface as :



At this point you can press the up and down arrow keys to select the file , press the corresponding number key corresponding operation , press "1" disks can be switched , if the system is inserted into the mobile U disk, can operate on mobile U disk (the current directory is displayed as usb :) , press "1" to select the file or directory copy operation, press "2" to paste the copied just selected files or directories press "3 " to delete the selected file , the system prompts "Y / N" press " Enter " to confirm the operation , press" Cancel " to cancel the operation.

Note: When using the mobile U disk operating mobile U disk must be formatted as FAT format , otherwise the file may not be read properly.

5. System Parameter Setting Interface

Press "1" after the password (the default password for system initialization 123) after verification into the system parameter setting interface as :

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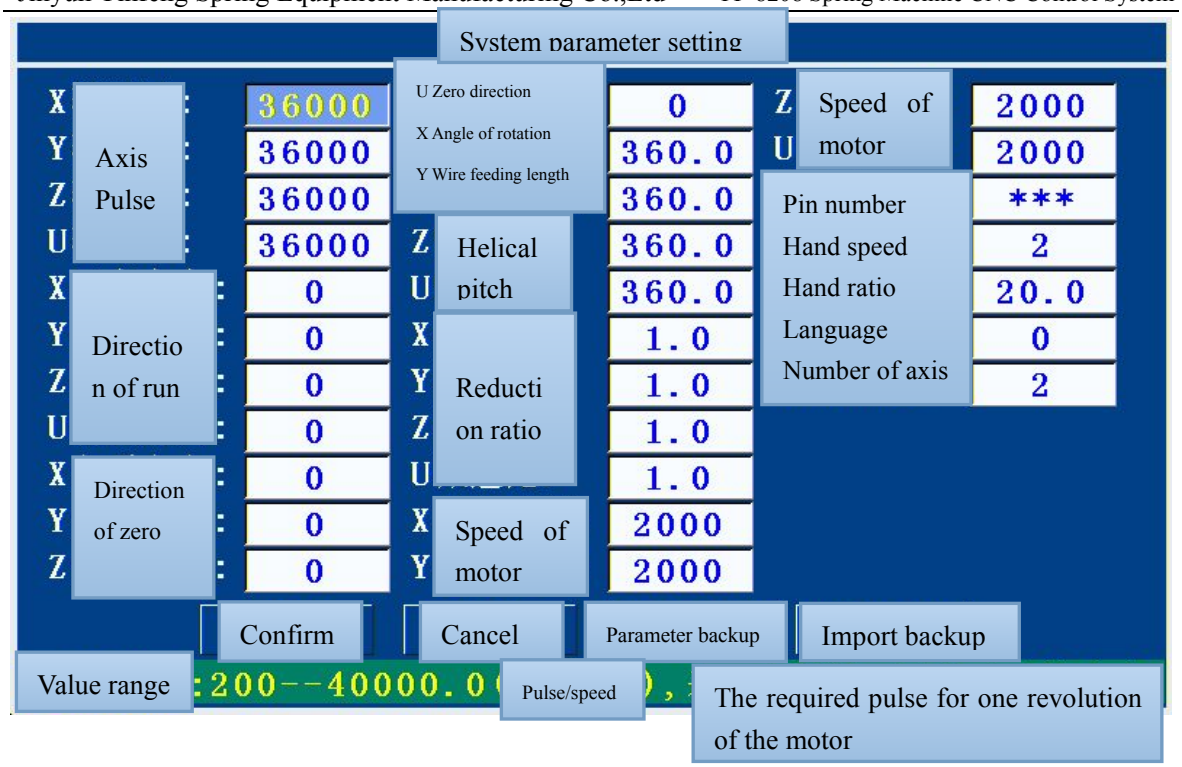

1) X, Y, Z, U -axis pulse : the corresponding X, Y, Z, U number of pulses per shaft rotation revolution need, must match the setting of the drive .

2) X, Y, Z, U running direction : a corresponding X, Y, Z, U in the running direction .

3) X, Y, Z, U zero direction : a corresponding X, Y, Z, U in the direction of zero .

4) X rotation angle : X -axis in the hair to set the number of pulses corresponding to the first rotation angle is set to 360 .

5) Y delivery line length: send spool in the hair first set number of pulses sent to the line length , usually feed wire wheel circumference.

6) Z screw pitch , U screw pitch : Z, U axis when the number of pulses sent the first set of motion distance to 360 .

7) X, Y, Z, U reduction ratio : a speed reduction ratio of the mechanical axes .

8) X, Y, Z, U motor speed : Set each axis of the motor rated speed.

9) System Password : Set to enter the system parameter setting interface password.

10) Hand speed: hand wheel set count statistical parameters during processing , this value will produce large hysteresis process as opposed to hand- cranked operation is stopped , and too small may cause the slow rotation of the hand wheel when machining chattering , usually about 3, please do not easily change .

11) Hand ratio : the ratio of hand- set speed changes during processing , larger values did not change significantly smaller than the obvious time , usually 20 or so , do not easily changed.

12) Language: system language selection (0: Chinese , 1: English)

13) The system of axes: the system of axes choice, 2-4 axis.

Press [Save] button to save the current data changes and exit the screen, press the [Cancel] button, you can discard the data current changes and exit this screen .

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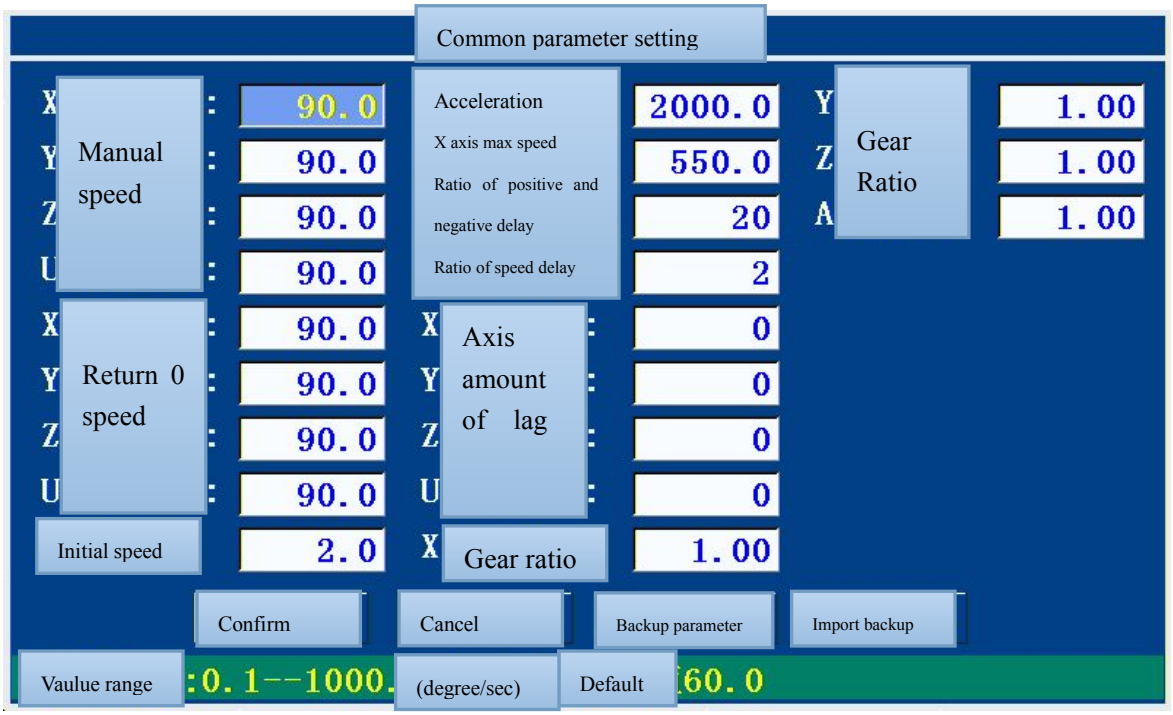
6. Common Parameter Setting Interface

Press "2" after the password (the default password for system initialization 123) After verifying access to frequently used parameter setting interface as :



1) X, Y, Z, A manual speed : speed of each axis manual (hand movement of the movable independently of each axis) velocity .

2) X, Y, Z, A zero speed: when the running speed of each axis to zero .

3) Starting speed: Setting the X-axis starting speed , when the system starts running when the camshaft will run times deceleration parameter value is set as the starting speed processing units : degrees / sec .

4) Acceleration : acceleration deceleration setting the camshaft , this value is generally relatively large to be set in order to ensure continuous operation of the camshaft .

5) X Maximum speed: Sets the maximum speed X -axis can be set when the input speed is greater than this value will prompt information.

6) Reversible delay ratio: the proportion of time to set the system delay occurred when reversing , increase the value will make the waiting time longer when reversing system .

7) Speed Delay ratio: the ratio of the delay to set the system speed , increase the value will make the waiting time longer delay when the speed increases .

8) X, Y, Z, A lags behind the pulse : setting the maximum allowable lag value for each pulse position and the actual position of the axis of the logic between .

9) X, Y, Z, A gear ratio: the set value of each axis servo electronic gear ratio.

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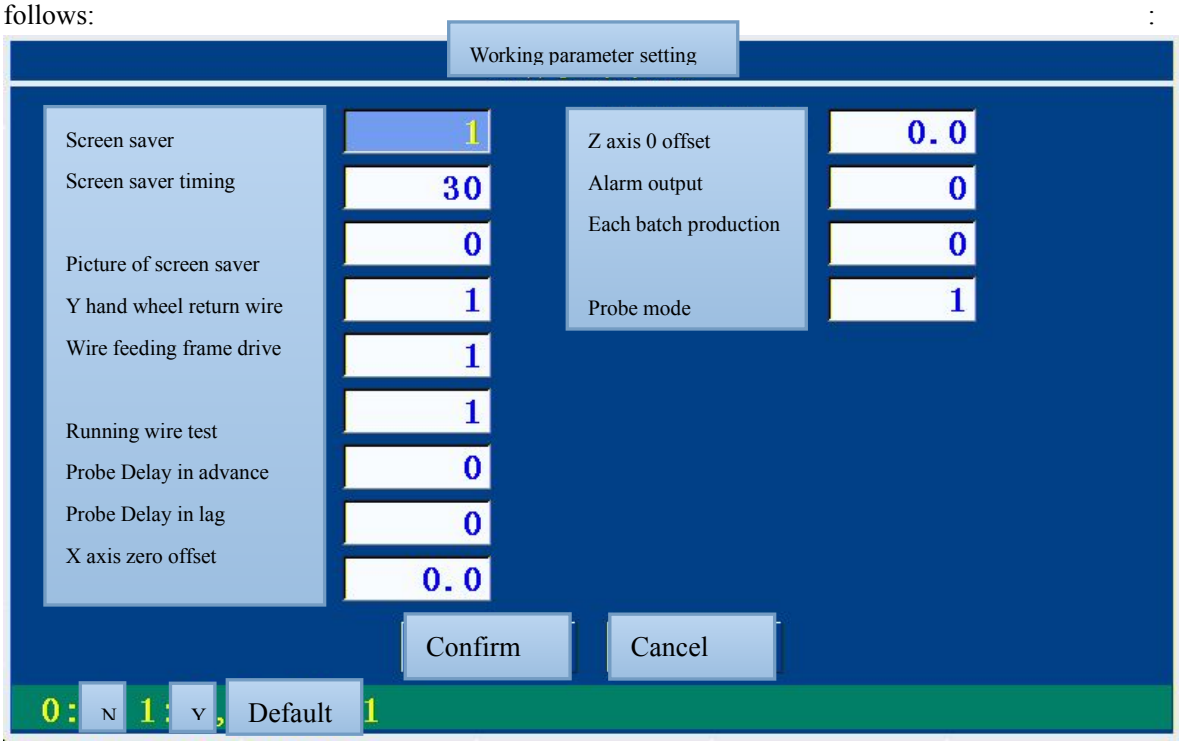
7. Working Parameter Setting Interface

Press "3" after the password (the default password for system initialization 123) after verification into the working parameter setting interface as follows: :



1) Is the screen saver : Set whether the automatic processing begins after the time set off the display screen saver , 1 is closed , 0 is not closed

2) Screen saver Time : Set the automatic processing begins much time (unit: minutes), turn off the screen display.

3) Photos Screen saver : Does screen savers with images , you need to select the screen saver is enabled and after the set time is reached the system automatically calls the screen saver screen to start the screen saver when using pictures screen savers, screen saver display otherwise closed .

4) Y hand wheel back line : Set under the direction of rotation of the programming interface is down the line when the Y-axis hand wheel moves alone , one should pour lines, 0 does not fall lines.

5) Send bobbin drive : specifies whether the last drive cylinder output point to send planes, one for the driver , 0 for no driver . Note: In this parameter is set to 1:00 when the banks do not use programming fourth cylinder .

6) run -ray detection : Indicates whether to run line detection , select 1:00 detection function using the run line , then the last one probe (probe 4) do run line input signal is detected

7) X -axis offset: offset location to set the X axis , that is looking at the X-axis to the zero position switch and then the angle of rotation purpose is to facilitate the X-axis arbitrarily set the zero position (only for three-axis system more effective) (unit: degree) .

8) Z -axis offset: Setting the Z-axis offset , ie the Z axis to zero switch and then find the angle of rotation purpose is to facilitate the Z-axis arbitrarily set the zero position (only for three-axis system more effective) (unit: degree) .

9) Each batch Yield: Set a number value of production, when production volume reaches the

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set value , stop waiting.

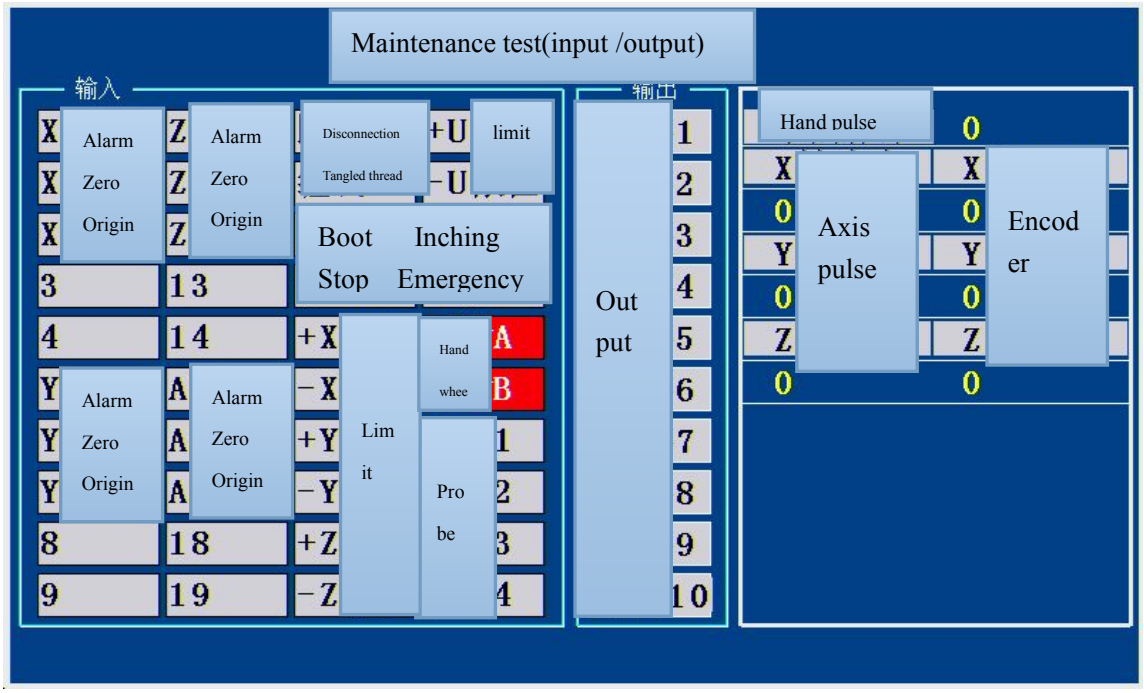
10) Probe mode: Set the probe function is valid , 1 probe function effectively , 0 probe function is invalid

Press [Save] key : Save the data for the current changes and exit the screen, press the [Cancel] button, you can discard the data current changes and exit this screen .

Note: The system parameters is necessary to ensure the system is running , under normal circumstances do not easily change . For the Z -axis is set to retain temporarily unused .

8. Input and Output Testing Interface

Press "4 " to enter the input and output interface as detected



1) With a white rectangle on the left input port, the input port corresponding to the input signal has changed to the rectangular frame and with a full color display font , otherwise it is a rectangular frame with the font display , the probe to the probe 1 to 4 when the signal detection of these signals in conjunction with certain signals to a digital representation of the front while the color display , if only there is a change in front of and behind the digital signal probe signal does not change is the need to replace the control card control card issue .

2) The intermediate 10 as an output port 0-9 , 0-9 can be output by the digital signal 0-9 , the output occurs when the system is a full-color display and there is a corresponding font display , the display or the system shown in FIG. .

Press [Cancel] key to quit the screen.

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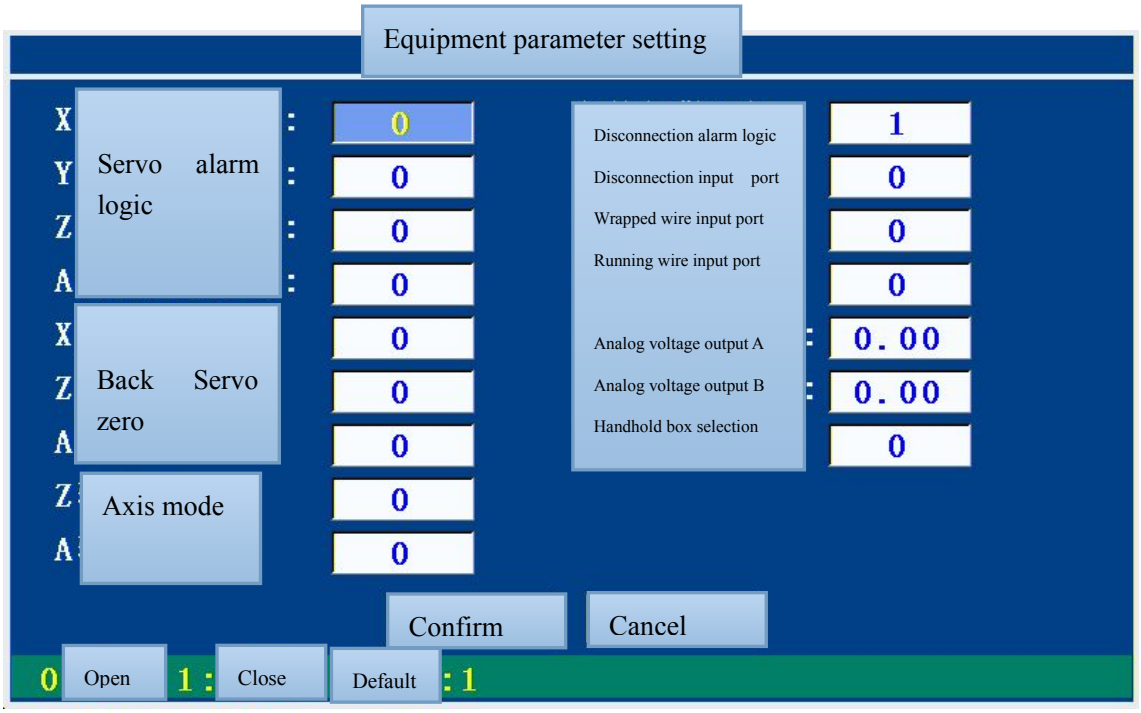
Service phone：05783176527

9. Equipment Parameters Screen



This interface parameters can be set according to the actual situation in the field of mechanical :(customer -configurable)

1) X, Y, Z, A servo alarm logic : Set each axis servo alarm logic (0: normally open, 1: NC)

2) X, Z, A servo back to zero : After setting each axis back to the mechanical origin , whether you need to find the origin of servo operation (0 : no return servo zero , one : the need to return to the servo zero)

3) Z, A -axis mode: Set the axis operating mode (0: screw, displacement 1: Indicates gears, angle)

4) Break Alarm logic : Set break alarm logic (0: Normally Open, 1: Normally close)

5) disconnection input port : Set the input signal port break alarm , 0 is the default value IN20.

6) wrapped around the line input port : Set the wrapped wire alarm input signal port , 0 is the default value IN21.

7) run line input port : Set the alarm input signal port to run the line , 0 is the default value IN33;

8) analog voltage output A, B: preparatory function.

9) handhold box selected: preparatory function.

10. Button Detection Interface

Press "5"to enter key detection screen shown :

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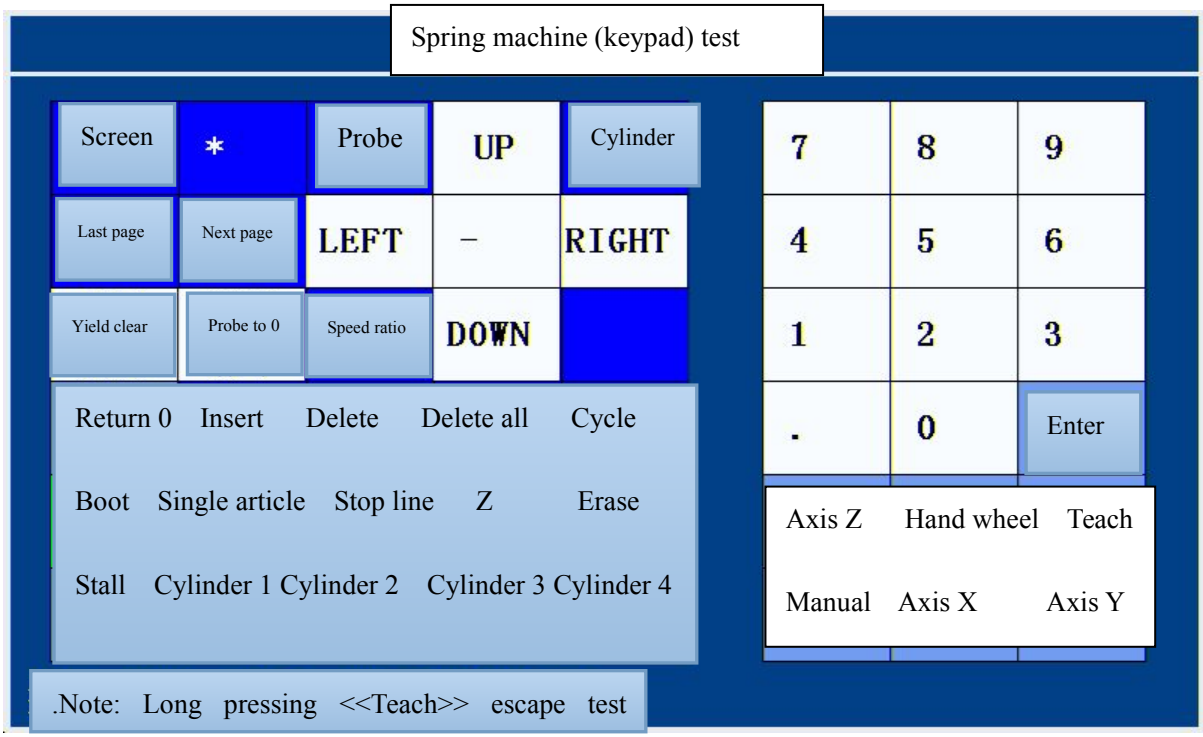

Each key function tests performed in this screen, press [teach] key to exit this screen.

3. Program Command And Examples Description

3.1 Command Definition And Description

1）YF Command：Speed Command

Command Format:

N	Start	Stop	Wire Feed	Speed Ratio	Probe	Cylinder
Line number	YF	X speed	Y Speed			

Description : Used to set the base rate movement axis motion before the period of instruction will set it back motion commands with its speed interpolation speed ratio obtained by multiplying the current instruction movement.

YF: indicates the speed setting command.

X Speed : Indicates when the X-axis movement , speed X -axis movement of the Y -axis movements do follow. Unit : r / min.

Y speed : that no action , Y -axis movement speed X -axis . Unit: m / min.

Other items in YF instruction is invalid .

2）Motion Command：

Command format：

N	Start	Stop	Wire feed	Speed ratio	Probe	Cylinder
Line number	YF	X Speed	Y Speed			

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Line number	X Start angle	X End angle	Y length	Speed ratio	Probe Number	Cylinder status

Description : motion commands , X -axis movement to the first corner after the start of the implementation of the cylinder action X , then X -axis and Y- axis synchronization come the end of the probe signal process X and Y-axis feed horn length is detected in the set .

X Start Point : X -axis uni-axial first walked angle.

X End angle : X -axis angle end .

Y Length : X went to the end of the corner , Y -axis simultaneous delivery line length.

Speed ratio: speed command movement of YF instruction set speed multiplied ratio. The default is 1 when the ratio is not set .

Probe number : Set the X-axis and Y-axis simultaneous examination towards the end of the angle and length of the wire probe number.

Cylinder : Set the X -axis angle shot went after starting cylinder number.

3）Loop Command:

N	Start	Stop	Feed	Ratio	Probe	Cylinder
Line Number	YF	X Speed	Y Speed			
Line Number	X Start angel	X Stop angel	Y length	Speed ratio	Probe number	Cylinder status
Line Number	X Start angel	X Stop angel	Y length	Speed ratio	Probe number	Cylinder status
Line Number	X Start angel	X Stop angel	Y length	Speed ratio	Probe number	Cylinder status
Line Number	N1	3 times	Feed on/off			

Description : There are two kinds of loop instruction cycle mode (delivery line open , sending line off)

N1: N for loop instruction signs, starting line number 1 indicates the loop.

Times 3 : is the number of times the loop flag , 3 represents 3 cycles .

Delivery line On / Off: cycle mode setting .

Has been on the table, for example , the cycle starting line number 1 , the end of the line number three , three times the number of cycles

Feed line Indicates 321-123-321-123-321-123

Off feeding line represents 123-123-123

2. Command Examples Description

Line Number	20	30	20			01	X to reach 20 degrees, and then withdraw the 1st cylinder , extending the 2nd cylinder , the 3rd , the 4th cylinder status

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Service phone：05783176527

							quo , and then again with the Y-axis linkage. Y axis is the speed of tracking speed . Y -axis feed line 20 mm
Line Number	45		100			1011	After X to reach 45 degrees, to recover the 2nd cylinder extending the 1st , the 3rd , the 4th cylinder , then the Y-axis feed line 100 mm wire feed speed is set by the S command to send spool speed
Line Number	30	50	100	0.2	1	1	At a rate of speed after X YF set of 30 × 0.2d of first -degree , out of the 1st cylinder and linkage with the Y -axis , Y speed of tracking speed , X -axis rotation to 50 degrees , while the Y -axis feed line 100 mm , and the 1st touch probe detected during operation if the touch probe signal the program automatically stops the current line processing and recovery cylinder , otherwise go to the next line to continue to recover after the implementation of the cylinder and then transferred proceed to the next line .
Line Number	360						X is rotated to 360 degrees

3. Program Examples Description

N	Start	Stop	Feed	Ratio	Probe	Cylinder
000	YF	60	50			
001	10	20	20			0001
002	30		100			
003	45	75	50	0.3	1	1
004	120	150	30		2	01
005	180	200	10			
006	360					0000
007	N1	3 times	Feed off			

4. Statement Explanation

000：Set the X -axis speed of 60 revolutions per minute , Y -axis feed line speed was 50 meters per minute.

001： X firstly rotates to 10 degrees, and then recover the 1,2,3 cylinder , fourth cylinder extends , and then after the X -axis is rotated to the 20 ° position , while Y tracking feed line 20 mm.

002：X firstly rotates to 30 degrees, and then Y -axis feed line 100mm, wire feed speed command is set to YF 50 m / min.

003：X at a speed of rotation of 60 × 0.3 to 45 degrees , out of the 1st cylinder , then X -axis at a speed

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of 60 × 0.3 to 75 degrees of rotation position while tracking feed line Y 50 mm , and the 1st touch probe touch detection, if the probe signal is detected , the program automatically stops the current line program , and to recover the 1st cylinder , direct implementation of the program the next line , otherwise execute the program after Bank finished down .

004：X rotation speed of 60 to 120 degrees , extending the 2nd cylinder 60 after the X -axis at a speed of rotation of 150 degrees to the position while the feed line 30 mm track Y , and probe 2 touch detection, if probe signal is detected , the program automatically stops the current line program , and to recover the 2nd cylinder , direct implementation of the program the next line , otherwise the execution of the program after Bank finished down .

Note: The probe must be used with cylinder -one correspondence , the 1st probe corresponds to only use the 1st cylinder , the 2nd probe can only be used once on the 2nd cylinder analogy , in which the cylinder : The first column represents the 1st cylinder , The second column represents the 2nd cylinder , and so on , you can use a total of four cylinders. Which represents the system after the arrival as a starting angle of the line indicates the number of cylinders extend , change the number 0 indicates the cylinder retracted, a null value (no data) that the cylinder remains unchanged .

005: X firstly rotated to 180 degrees , then rotate up to 200 degrees , Y tracking delivery line 10mm.
006: X -axis runs to 360 degrees position , back to zero . Meanwhile recover all cylinders.
007 : Program execution cycle , the cycle starts at 1 , 6 end of three cycles , cycle mode for 123456-123456-123456
Note: When you edit the data , try not to make a small angle X -axis and Y -axis and give a very long line , so may cause feed spool too fast , leaving the motor alarm . When the input data is invalid or wrong will be prompted to send the word line is too long or the like.

4.System Parameter Recovery

In actual operation which is likely due to improper operation or a sudden power failure or system parameter data on your hard drive is destroyed , cause the system to run a serious error , the above situation generally does not appear , the system has a default parameter correction function, if the above situation occurs , the system will appear

"Please update your profile……. press any key to continue ... "

The statement , then you can choose to enter the system after the system parameter editing interface to manually edit the parameters , then save and exit , and then restart the controller can, at this time , or if an error , please contact the company to seek a solution.

PS: spring machine program is constantly being upgraded , manual synchronization update we try to do , but also to update the situation is not at the same time. If you have something unknown or questions for operation under the manual, please feel free to contact our company. Thanks for understanding in case of any inconvenience!

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Chapter Four Precautions And Maintenance

1. Precautions

Safety Notes:

1. Without permission, do not open the cabinet.
2. When the controller a long time, turn off the power .
3. Special attention not to let the dust , iron powder into the controller.
4. Handle with care , do not pay attention not to cause damage to the controller.

Note the correct usage:
Incorrect use can lead to abnormal functioning , the worst case even damage the controller , so please observe the following precautions correct use of the controller .
1. Check the connected power supply meets the requirements , to eliminate the controller burned.
2. The controller 's life have a great relationship with the ambient temperature , if the temperature is too high processing site , install a cooling fan. The controller allows the working ambient temperature range between 0 ℃ -60 ℃ .
3. Avoid hot, humid , dusty or corrosive gas environments.
4. In a strong shock where the rubber shock pad should be added to buffer .

2. Repair And Maintenance

Maintenance and inspection notes

1. To disconnect the power first and then the main loop for maintenance controller.
2. The operator should make sure the power supply has been disconnected , to prevent accidents .

Periodic inspection items

Under normal usage conditions (ambient conditions: daily average 30 ℃, load factor 80% , run rate 12 hours a day) , make daily checks and periodic inspections by the following items.

Daily inspection	Daily	● Check the ambient temperature, the temperature , dust, foreign matter ● If any abnormal vibration , sound ● The ventilation holes plugged by yarn
Periodic inspection	One year	● Rugged components loose or not ● Terminal block damage or not

Appendix A: Common Fault Analysis

1) The " control card can not be found ! ", Then the board is probably a bad contact or DIP switch position errors, please re- open the case off the card or Bobo code switch to full ON position when the system starts , if fault can not be ruled out , please contact your supplier .

2) The system has been started, but all or part of the keys unresponsive , probably due to a problem with the keyboard keypad please contact your supplier .

3) The system has been started, but on the screen to cycle through the X or Y warning alarm , but this time on the servo drive is no alarm display , and you should check the system wiring, the wiring is

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Service phone：05783176527

no problem if you should change servo parameters such that the anti- servo alarm output phase servo to servo control system can not be changed alarm logic device parameter setting interface to set the alarm logic so that it is inverted.

4) The system of hand movement after starting each axis is only one direction, sometimes in another direction at this time should be set once the vibration control mode drive control pulse + direction .

5) The system of hand movement after starting each axis are normal, but can not start the machining operation , then first of all make sure you have the correct zero , followed by checking whether there is broken, send wire rack for some signal should not provide short break pick disconnection of the input signal , since it is a normally closed contact. It should also check whether the number of processing exceeds the target amount .

6) The system starts normally, press zero immediately after the show zero fault , and you should check the " emergency stop " button is pressed. After a period of time if the display is zero/home switch detects a fault , you should check whether the input signal is valid or electronic gear to check whether the servo set number of pulses per revolution and the system to match.

7) can not extend the cylinder , make sure the wiring is correct solenoid valve , solenoid valve should also be guaranteed a drive current of less than 500 mA.
8) probes always fails , make sure the probe delay time set is large enough , in addition to the machine itself and the controller should ensure that common ground .
9) After the system starts an alarm (Controller long beep) appears , then the number of springs may be processed exceeds the number of goal setting , you can press the " Count cleared " or resetting the parameter setting interface number of targets can be.
After power controller does not send a pulse but the motor sports , then the filter parameters , check wiring, check the connection to the ground , and the setting of the servo

Appendix B: Common servo parameter setting

All parameters are referring Sanyo Q series drives , for other models, please select the appropriate option .

1.System Parameter (ru)

Page	Parameters definition	Factory default	Set point	Remark
00	Input power supply type(Three/Single phase)	00	01	00：Three phase 01：Single phase
01	Encoder type	00	00	00: Incremental type 01 : Absolute type
02	Incremental encoder setting	00	00	
03	Incremental encoder revolutions	------	2000	The number of pulses per revolution of the motor feedback to see Description of the motor , usually 2000
08	Working mode	------	02	00: Torque mode 01: Speed mode 02: position mode 03: Speed - torque mode

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				04: Location - torque mode 05: Location - speed mode The system uses the position control mode
09	Encoder position mode selection	00	00	00：Internal encoder 01-02：External encoder
0B	Braking resistor choice	------	00	00: No brake resistor 01: Internal braking resistor 02 : External braking resistor

二、Basic Parameter（PA）

Group0

Page	Parameters definition	Factory default	Set point	Remark
00	Position loop gain	30	60	Rigidity select an option, set this value can be increased to increase the rigidity of the system put in place to reduce the time
00	Speed loop gain	50	70	Rigidity select an option, set this value can be increased to increase the rigidity of the system put in place to reduce the time
0A	Feed forward gain	0	50	Rigidity select an option, set this value can be increased to increase the rigidity of the system put in place to reduce the time
0C	Acceleration and deceleration time	0（ms）	0	

Group1

Page	Parameters definition	Factory default	Set point	Remark
04	Electronic gear ratio	1/1	1/1	1/1 8000 pulses / revolution (2000 lines for motors, we must first determine the set number of pulses per revolution of the motor feedback before using this value , while the first system parameters to keep the number of pulses corresponding to each axis)

Group3

Page	Parameters definition	Factory default	Set point	Remark
00	Pulse filter	00	02	00：800ns（1.25MHz） 01：200ns （5MHz） 02：400ns （2.5MHz） 03：1.6us （625KHz） 04：3.2us（312.5 KHz） 05：6.4us （156KHz） 06：100ns （10MHz） 07：66.7ns （15MHz）
02	Forward and reverse choice	??	00 or 40	

Group4

Page	Parameter	Factory	Set point	Remark

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	Definition	default		
00	Pulse choice	00	20	00：Pulse/Pulse 10：Quadrature pulse 20：Pulse/Direction The system supports pulse / direction mode and pulse / pulse mode

Group8

Page	Parameter Definition	Factory default	Set point	Remark
00	Servo ON signal setting	02	01	Always effective
04	Forward limit	0D	0C	CONT6 Normal open
05	Reverse limit	0B	0A	OONT5 Normal open

Parameter Group9

Page	Parameter Definition	Factory default	Set point	Remark
07	Servo alarm setting	39	38	Servo alarm switch setting

Common Alarm

Alarm	Description	Solution
41	Overload, UVW connection error or drive not matching the motor	Reduce the load, change the UVW wiring or change the drive motor model
43	Braking resistor error	Check braking resistor setting and wiring
61	Power supply	Check the power supply
85	Encoder error	Check the encoder cable
D2	Positioning command pulse frequency error	Check the third group 00 page for pulse filter parameter setting

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