

Five-axis intelligent dispensing machine control system

QZ-NC05A (Portable Box Version) V9 Operation Instruction Manual

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1. Product Introduction

1.1 Product Overview

QZ-NC05A is the control system of intelligent dispenser with low cost, high concentration and high degree of integration specialized for the industry of dispenser by professional CNC team of our company

1.2 Description of Function

1. 480*272 HD colored screen and Chinese operation interface are collocated to bring convenience to learning and usage.
2. With graphic elements such as drawing point, straight line, polyline, 3 D arc (space arc), circle, and rectangle; rich manual teaching function and graphic preview function.
3. It has the conditional jump function, and the function of double MARK point rotation and needle alignment.
4. With the skipping function, it can select multiple discontinuous instructions at the same time.
5. With the function of instruction movement, it can move the edited instructions to the target position.
6. It has the function of breakpoint executive function, can be executed from the specified point.
7. It has the function of area array replication, migration operation, batch edit, single-step operation, I/O input and output.
6. It has the automatic execution, automatic reset, output setting, processing time timer.
7. It has four kinds of wire drawing process as options, which can solve the problem of drawing process.
- 10、 After editing the action parameters, the action parameters are downloaded to the controller through the serial port, and they can be run offline independently. Action parameters can also be saved to the handheld box for easy calling; and the graphics can be copied and saved between the devices.
- 11、 Handheldboxcanstorehundredsofprocessedfiles,andeachfilecansupport5,000instructions,whichcanbe called out when used.
- 12、 The hardware has 4 glue gun channels, 14 road input, 12 road output, control point glue time accuracy of 1ms
- 13、 Each action instruction has an independent glue opening delay, glue closing delay, gun return height, independent advance glue closing function, flexible batch modification function can improve the editing efficiency, but also can solve the problem of glue stacking.

1.3 Features

1.3.1 Controller hardware characteristics

The number of shaft of the motor: 5 shafts (XYZAB)

Pulse frequency: 1M

IO port number: 8 dedicated inputs (XYZ origin point, start/pause, pause, reset/emergency stop button), 4 special glue gun outputs (4 glue gun switch controls, direct drive solenoid valve, driving current of 2A). 4 general I/O outputs, 8 I/O inputa, 12 high-speed "NPN open collector circuit" 5-24VDC outputs, rated current of 0.5A.

IO input type: optocoupler input.

Storage capacity: 64M

Interface mode: DB44 interface

Working voltage: 24V DC,

Working temperature: 70 °C

Storage temperature: -40 °C -70 °C

Working humidity: 40%-80%

Storage humidity: 0%-95%

1.3.2 Hardware features of portable box

Interface model: USB interface and serial port are collocated; USB interface is connected with computer—This function is temporarily reserved. The serial port is connected with the portable box.

the

Save model: Flash chip.

Display screen: 480*272, 4.3'' colored LCD.

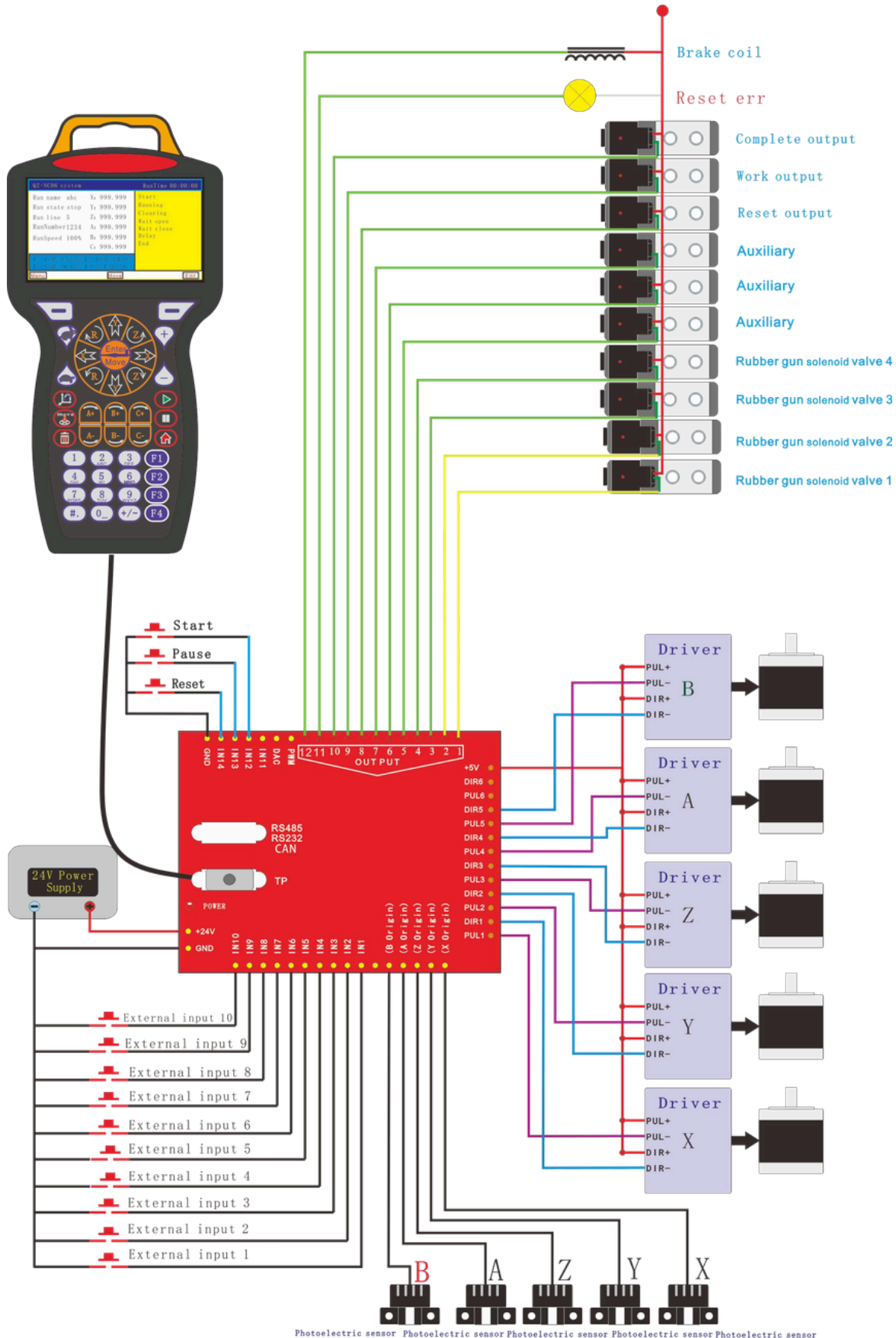
1.4 List of Products

Name of fittings	Category	Qty'	Introduction
Portable box	Necessary	1	Operation instruction box
Controller	Necessary	1	Operation controller
Data line	Necessary	1	Connection line
Lengthened line	Necessary	1	Lengthened line of controller serial port

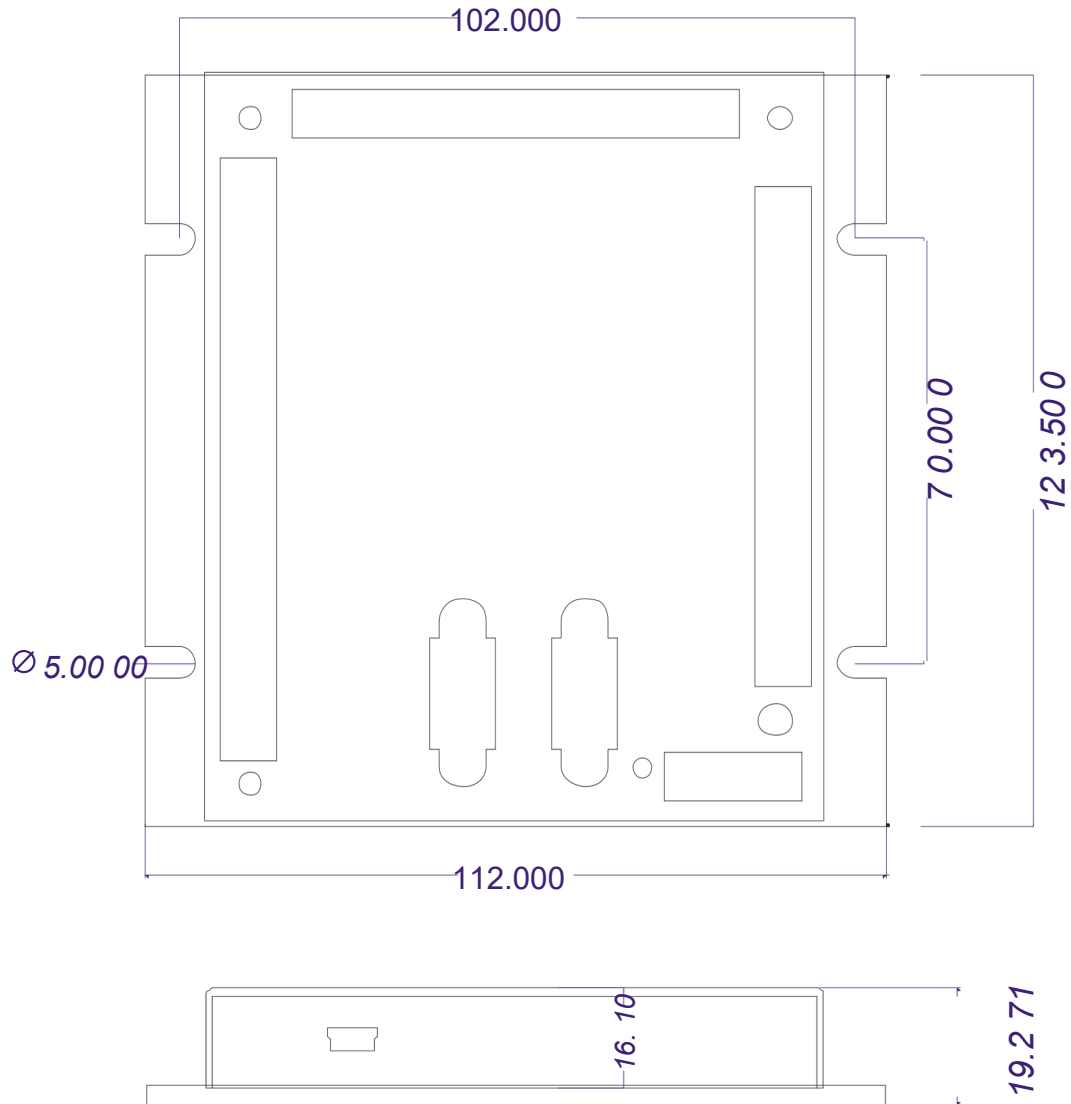
2. Wiring Diagram

2.1 Wire Schematic Diagram of Control System

Connection schematic diagram of system **+24V**



2.2 Installation Dimensions











3. Specification of Keys

3.1 Key Diagram of Portable Box



3.2 Key Specification of Portable Box

Graph of keys	Name	Functions
	Function key	Different screens display different operation keys.
	Confirmation key	It aims to revise and save data and parameters.
	Direction key	<p>XYZABC direction key controls the forward, backward, upward and downward and rotational operation of four axis.</p> <p><MOVE> locating key: It aims to manually find the point and detect needle of the equipment.</p>
	Figure and letter key	Letters, numbers, and point input."#" Switch over the input method.+/-Input as a negative value
	Operating speed adjustment key	<p> Working speed percentage increases</p> <p> Working speed percentage decreases</p>

	Start/download key	It aims to download action command in the controller and start the equipment.
	Pause key	It aims to pause the operation of machine.
	Reset key	It aims to reset equipment to the original point.
	Multi-functional key	Different screens have different functions.
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	Multi-functional key	Different screens have different functions.
	Multi-functional key	Different screens have different functions.
	Joint coordinate system bond	Operation of the joint coordinate system used for the robotic system.
	navigation key	Coordinates used for locating the instructions.
	Delete key	It aims to delete revised error parameters and values; delete files and commands; clear production volume into 0.

Warning

when operating the handheld box, you must insert and extract the serial port connecting wire under the circumstance of power failure, in order to avoid its burning controllers and handheld box.

4. Operation Specification of Portable Box

4.1 Introduction to Start Screen

Upon electrification, the portable box automatically skips to the start screen—existing working screen as below:

5 Axis dispensing System Run Time 00:00.00				
Run Name	123	X	0.000	mm
Run State	Stop	Y	0.000	mm
Run Line	29	Z	0.000	mm
RunNumber	327	A	0.000	。
RunSpeed	100%	B	0.000	。
F1:POTR ENABLE		Axis reset...		
F2:PORT RINSE		reset end		
F3:PORT OUTPUT		System Reset		
F4:CLEARING		Initialize:true		
menu		Move		Edit

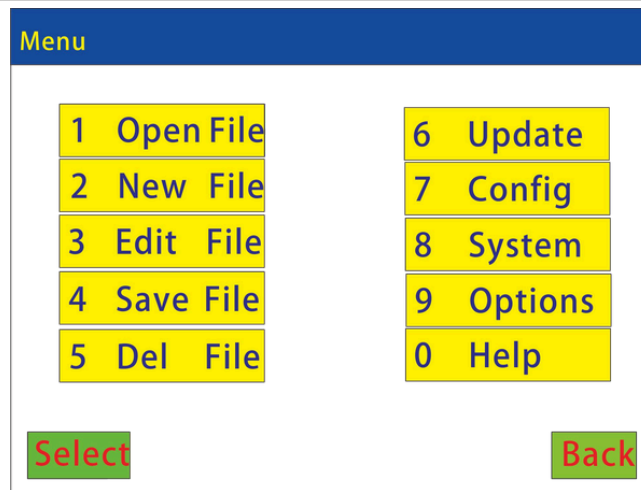
Processing file: Name of processing file.

Working status: Existing working status of the machine, including operation, pause and shutdown.

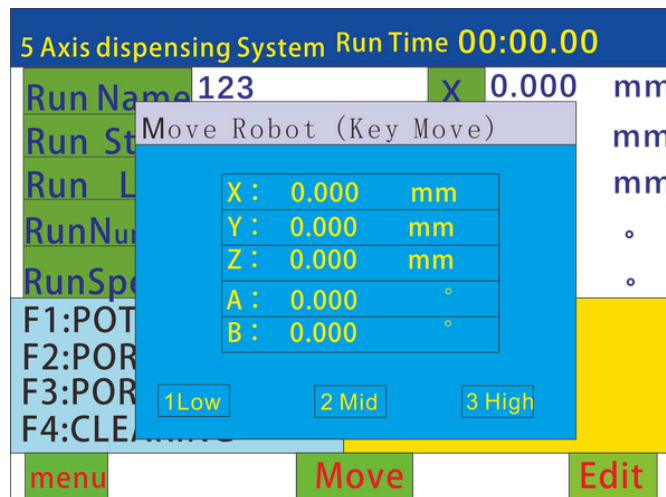
Directive line number: The line to which the machine is currently executing to the program;

Processing quantity: Fulfilled production volume of the machine. If the processing quantity = set production volume, the machine has fulfilled the processing quantity and is shut down.

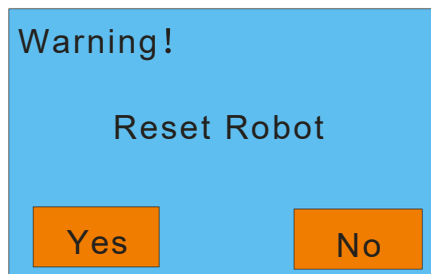
Working speed: Operation speed of the equipment: gumming trace speed. It refers to the speed percent in the edition of command within a scope of 0—100%; under this screen, the operator presses the direction key “Y” to increase or reduce the working speed percent; presses “Z” key to increase or reduce the working speed percent at a unit of 10. However, it is forbidden to make a real-time revision to the working speed; upon revision of the speed, the second operation becomes valid. X: Existing coordinate of X-axis. Y: Existing coordinate of Y-axis. Z: Existing coordinate of Z-axis. A: Existing coordinate of A-axis. B: Existing coordinate of B-axis. F1 ~ F4: Swift operation. Press “menu” and enter into the “main menu” screen. Please refer to Article 4.2 in detail.



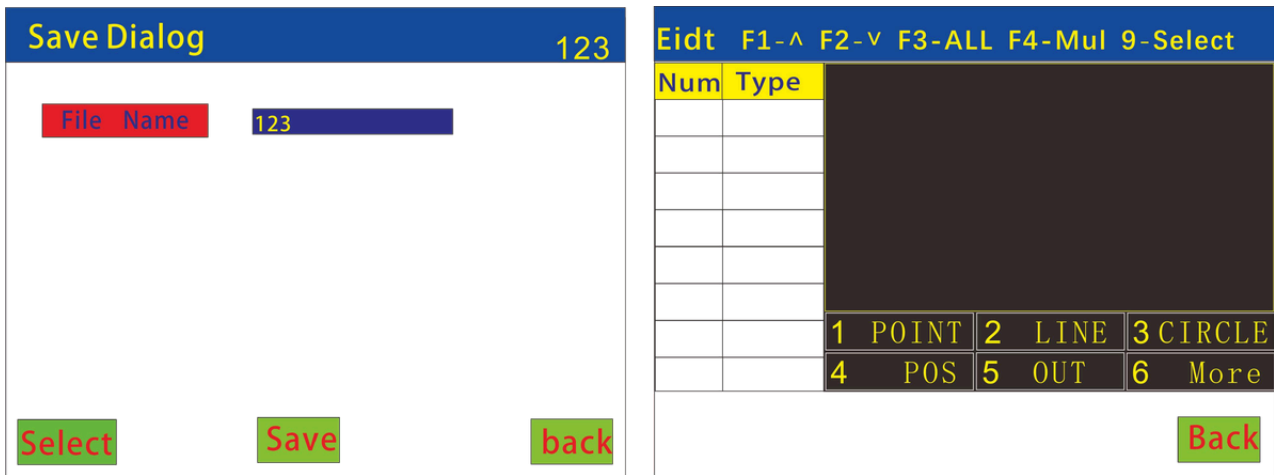
Press “move” and directly move the equipment as below:



Press “edit” and enter into the dialog box of command instruction (remark: 1. In case of no file in the portable box, press “edit” and create a file—The operation methods are same as file creating; 2. In case of certain files in the portable box, press “edit” and enter into the dialog box of command list and search for and edit the command).



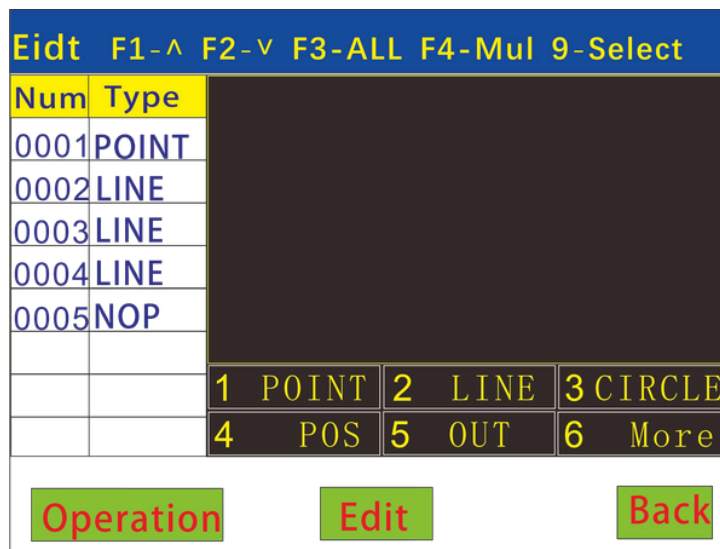
“Left functional key” means Yes and “right functional key” means No; upon selection, the system automatically springs out the dialog box of file saving; input the file name and press “save” and enter into the edition dialog box of command instruction (“#” key refers to transfer key of figures and letters); automatically save instructed command in this screen into the input file as below:



In the dialog box of command list, press figure key 1—5 and edit corresponding graph elements in the figure; press figure key 6 and select more graphs.

Please refer to the following figure in detail:

In case of certain files in the controller, press “edit” and enter into the dialog box of command list and revise and edit the parameter as below



Press left key “X” and skip to the first command of the list; press right key “X” and skip to the last command of the list.

Press upper key “Y” key and move the existing command upward; press lower key “Y” and move the existing command downward; in case of multiple selection, press “Y” key and select the command direction.

Press upper key “Z” and turn to the previous page of command list; press lower key “Z” and turn to the next page of command list.

Press upper key “R” and magnify the graphic file; press lower key “R” and zoom the graphic file.

Press “” key and remove command selected in the list.

Press “MOVE” key and directly edit and revise the selected command coordinate (refuse to automatically locate the selected command coordinate).

Press “#” key and detect needle of selected point; execute offset to all the commands of edited file.

In this picture:

Press “F1” is a single step function, step by step up;

Press “F2” is a single step function, step by step down;

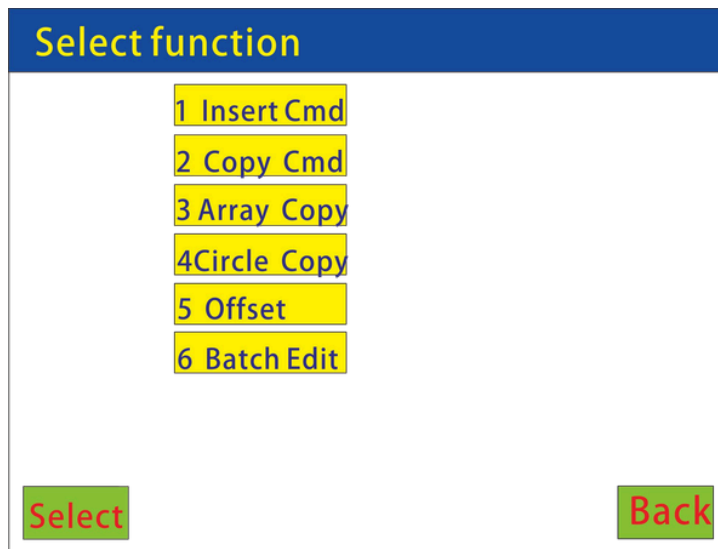
Press “F3” and select all the commands (total selection).

Press “F4” and select a certain section command (multiple selection); prompt by cursor.

"9" is the skip function, you can select discontinuous instructions (intermittent instructions) for parameter editing.

Then press “operation” key and copy the selected command, copy the array, execute off, revise in batch and automatic filleting.

1. Copy command: Copy selected command.
2. Copy of array: Array copy selected command.
3. Operation of offset: Offset selected action command and offset coordinate according to the designated value.
4. Batch revision: Make a batch revision of a certain parameter and thus upgrade the edition efficiency.
5. Batch revision of category: Make batch revision to the same command category under one file.



If the cursor selects only one command in this screen, press “edit parameter” and enter into the following dialog box and thus revise the parameters of existing command; upon change of any or several parameters, “save” key is sprung automatically; upon saving, parameter revision becomes successful as below:

Eidt F4: "+/-"				
Num	Type			
		01/09	open:	default
0001	POINT	02/09	close:	default
		03/09	uplift:	default
		04/09	port:	default
		05/09	X:	200. 90
		06/09	Y:	95. 221
		07/09	Z:	25. 707
		08/09	A:	30. 58
		09/09	B:	0

Back

Eidt F4: "+/-"				
Num	Type			
		01/09	open:	0.5
0001	POINT	02/09	close:	0.1
		03/09	uplift:	0.1
		04/09	port:	1
		05/09	X:	200. 90
		06/09	Y:	95. 221
		07/09	Z:	25. 707
		08/09	A:	30. 58
		09/09	B:	0

Save **Back**

4.2 Functional Introduction to Main Menu

Press menu key and enter into the "main menu" screen as below:

Menu	
1 Open File	6 Update
2 New File	7 Config
3 Edit File	8 System
4 Save File	9 Options
5 Del File	0 Help

Select **Back**

4.2.1 "Open file" menu

Open existing action files in SD card; press "select or confirm" key and open the existing file list as below:

Select CMD type	
01/19	POINT
02/19	LINE
03/19	CIRCLE1
04/19	SWITCH
05/19	POS
06/19	OUT
07/19	WAIT
08/19	MARK
09/19	DELAY
10/19	PAUSE
11/19	ARC
12/19	PICK
13/19	PLACE
14/19	CIRCLE2
15/19	CIRCLE3
16/19	FILE
17/19	NOP
18/19	AXIS_C
19/19	AXIS_R

Select Back

4.2.3 “Edit file” menu

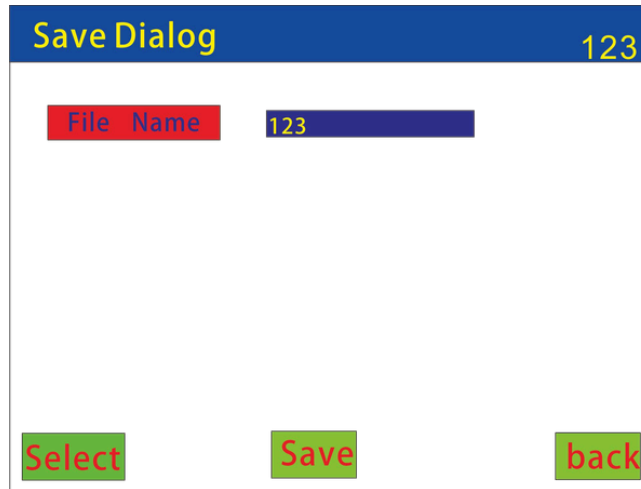
Edit the open file in the controller as shown in Article 4.1. Please refer to the figure below:

Eidt F1-^ F2-v F3-ALL F4-Mul 9-Select					
Num	Type				
0001	POINT				
0002	LINE				
0003	LINE				
0004	LINE				
0005	NOP				
		1 POINT	2 LINE	3 CIRCLE	
		4 POS	5 OUT	6 More	

Operation Edit Back

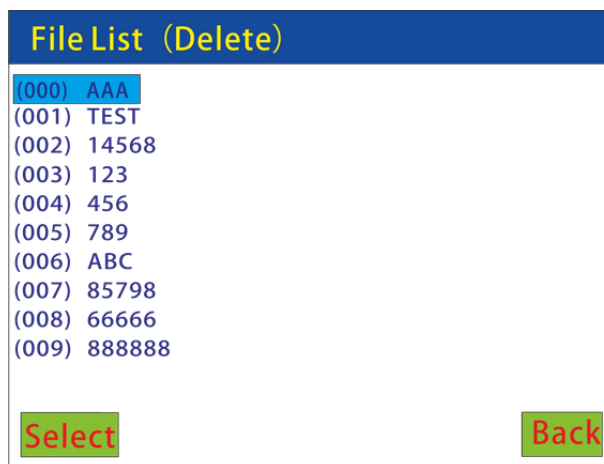
4.2.4 “Save as” menu

Save open file as another file; input the file name, press “confirm” key and successfully save the file; edit the file name into figures and English letters; press “#” key and transfer the input method as below:



4.2.5 “Delete file” menu

Delete existing file name; press “select” or “confirm” key and delete the file name as below: select the file name and press “select” or “confirm” key.

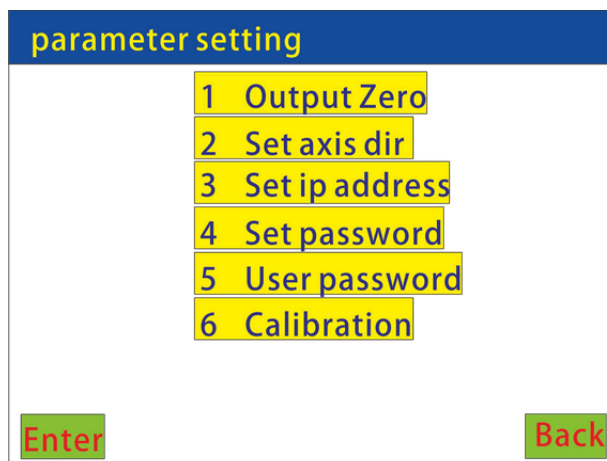


4.2.6“Update”menu

To upgrade the update system program to the controller of the device;

4.2.7“Configuration”menu

Refers to the parameter setting of the user;



4.2.8 “System” menu

Refers to the equipment parameters;

It includes: Axis pulse、 Axis min range、 Axis max range、 Axis max speed、 Axis max acc、 Axis lim、 Reset step、 Reset speed、 Track speed、 Track acc speed、 Manual low、 Manual mid、 Manual high、 **Please refer to Article 4.10 in detail.**

4.2.9 “Option” menu

Adjustment model of machine

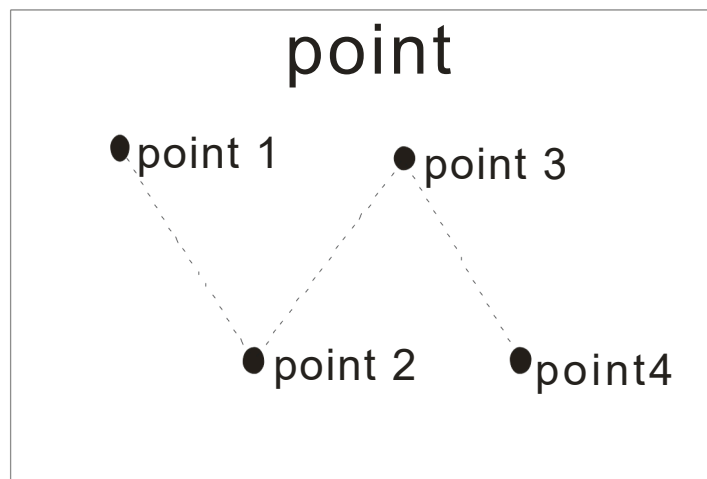
include: Default、 Runmode 、 Stop pos、 Yield Cleaning、 Function、 Pipeline、 Pick、 Bar Code、 MES; See 4.11-4.20 for details.

4.2.10 “Assist” menu

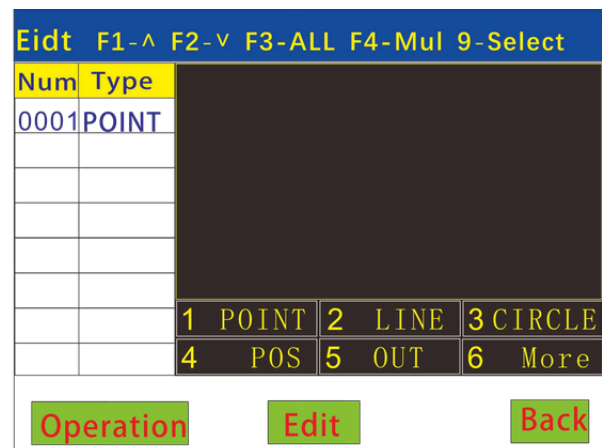
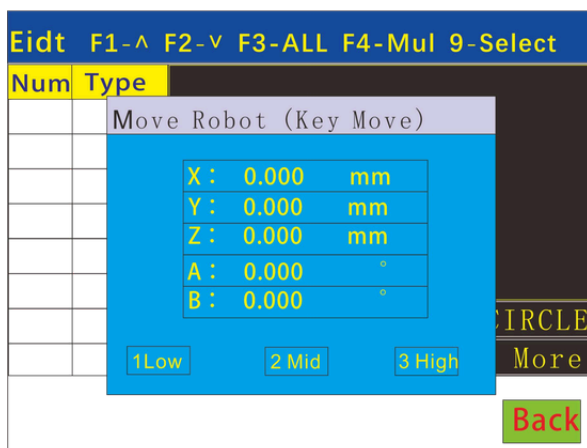
It refers to the version and model of controller; it aims to inspect I/O port status of controller and resume the setup of default parameters.

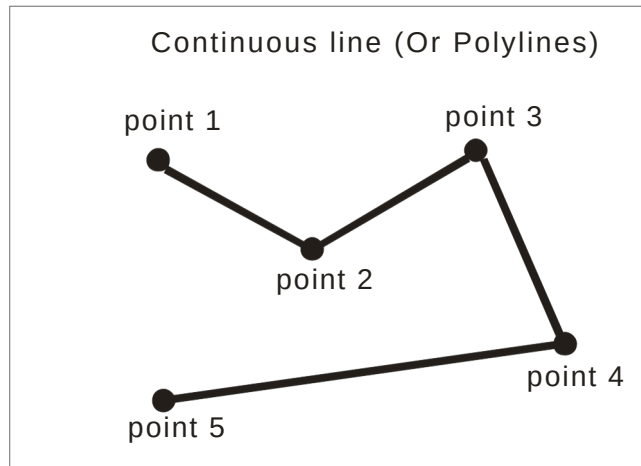
4.3 Operation of New Functions

4.3.1 Example: Add “point”



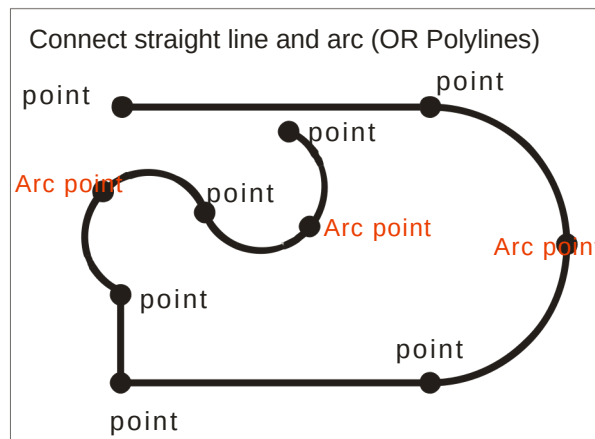
Press figure key 1 and directly instruct the point coordinate; move the point coordinate by direction key: “left X key” move X axis to the left; “right X key” move X axis to the right; “upper Y key” move Y axis upward; “lower Y key” move Y axis downward; “upper Z key” move Z axis upward; “lower Z key” move X axis downward. “R key” move the angle of R axis. Press “confirm” key and add command successfully. Exit the instruction screen and directly press “return” key as below:





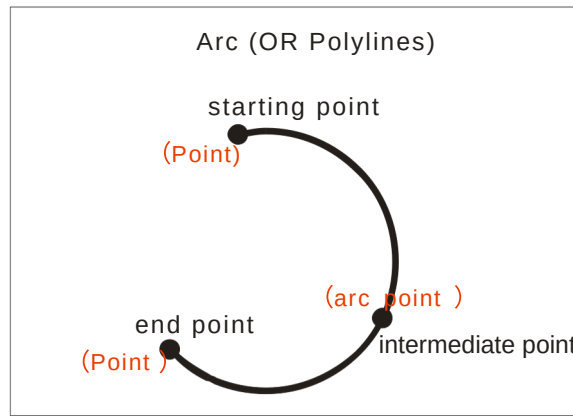
The continuous line (multiple line segments) is to use the straight line to connect the points together, therefore editing of continuous line (multiple line segments) is editing of a series of point coordinates, press the number key 2 to enter editing of multiple line segments, after specifying each endpoint coordinate, press "OK" button or the number key "4", you add this point, after editing all points, click "finish" button to finish the acquisition of endpoint.

Example II:



Any combination for “straight line” and “circle”,
Press the number key 2 to enter the editing of multiple line segments command, collect the endpoint or arc point to complete editing of multiple line segments. After specifying each endpoint coordinate, press "OK" button or press number key "4", you can add this endpoint; after specifying each arc point coordinate, press the number key "6", you can add the arc point. **(The middle point on the arc is the arc point, and the points on two ends of the arc are the endpoint).**

4.3.4 New cases of "three-point circle", also known as "whole circle", namely three-dimensional circle



First, edit the starting coordinates of the arc, then edit the middle point coordinates of the arc, and finally edit the end coordinates of the arc. The editing method is the same as editing "XY Arc". Edit Start-Middle Point-End Point is OK.

4.3.4 Example: Add “WAIT”

"Wait": it waits for the program to go down after the specified port becomes a low level; there are two port and status options Port refers to which port it is waiting for, and you can customize the input; State is input 1 and 0 two numbers 1 represent waiting for this signal 0 means not waiting;

4.3.5 Example: Add “OUT”

"Output": means the program goes down after output the low level signal. Port refers to the output of which port, you can customize the input corresponding port number; Status is input 1 and 0 Two numbers 1 represent open port 0 represents closed port

4.3.7 Example: Add “NOP”

“nop” Used for disconnection between polyline and polyline. After the multiline editing ends, the system will automatically add empty instructions.

4.3.6 Example: Add “POS”

Route point: All the axis execute until the designated point.

4.3.8 Example: Add “DELAY”

“Time delay” refers to added time delay function between commands.

4.3.7 Example: Add “pause”

It refers to pause function between commands; upon pause, press stat key and re-execute.

4.3.9 Example: Add “Axis CLR”

Sars the coordinates of a specified axis.


4.3.10 Example: Add “Axis RST”

It means to reset a specified axis.

4.4 Insert instructions

"Insert instruction" is the previous line inserted into the selected instruction. The method is the same as the new instruction.

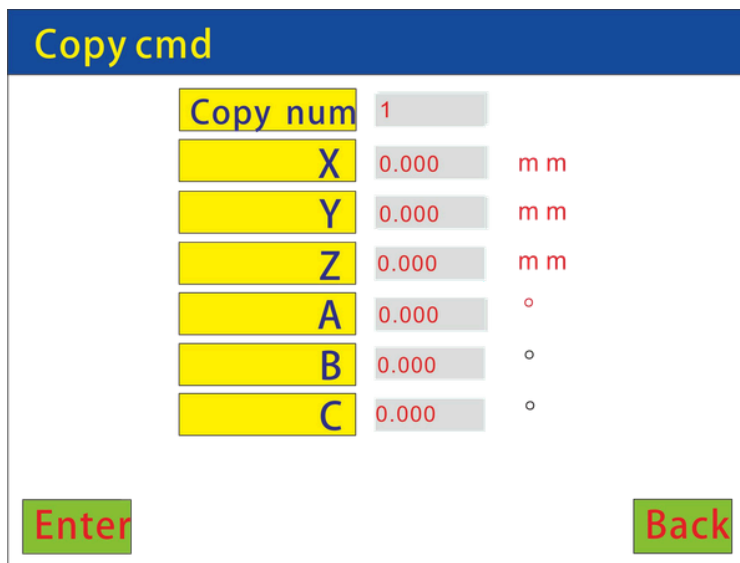
4.5 Operation of Deletion Command

In the dialog box of "command list", direct press "  ", key in the keyboard and delete selected existing command; press F4 and delete numerous commands at the same time.

4.6 Operation of Copy Command

"Copy command" aims to copy selected command: Generally, it is adopted in the array copy. Press Y key and select single command; **press F3 and select all the commands; press F4 and select numerous commands.**

Select the command, press "operate" and enter into the dialog box of "copy command" as below:



Copy num	1		
X	0.000	m m	
Y	0.000	m m	
Z	0.000	m m	
A	0.000	°	
B	0.000	°	
C	0.000	°	

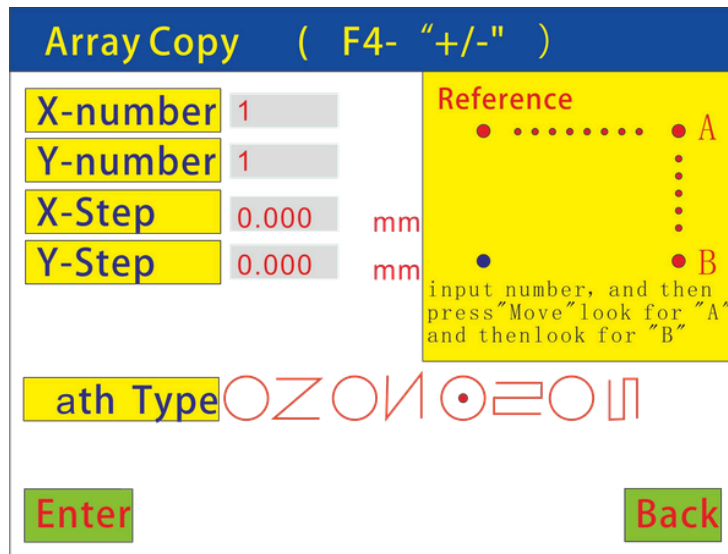
Enter Back

Method I: Input copy quantity; if distance between copied command coordinates is clearly known, directly input coordinate distance of "X" "Y" "Z" (distance between coordinates); press "confirm" key and complete the copy.

Method II: Input copy quantity; if distance between copied command coordinates is not clearly known, do not input coordinate distance of "X" "Y" "Z"; then press "locating" key; press direction key and move equipment to the starting point of last copied graph; press "confirm" key and system calculates the distribution interval according to the interval and copy quantity.

4.7 Operation of Array Copy (Copy of Three-dimensional Array)

Press direction key Y and select single command; press F3 to select all the commands and F4 to select numerous commands. Upon selecting the command, press “operate” and enter into the dialog box of “array copy” as below.



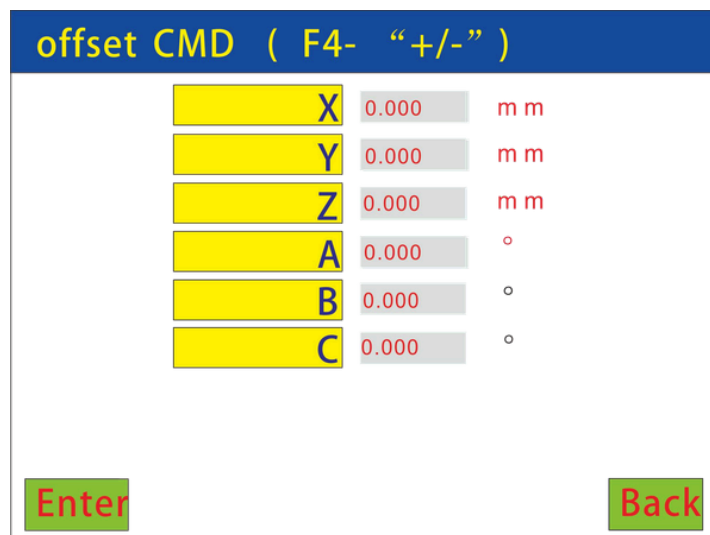
Method I: Input the quantity of array copy in X direction and Y direction; then press “MOVE” key and move to the last point of X direction (point A in the figure) and press “confirm”; then move to the last point of Y direction (point B in the figure) and press “confirm”; automatically calculate the distance. First input the copy quantity. Route method: selection of operation trace.

Method II: Input the quantity of array copy in X direction and Y direction; then input the distance of array copy in X direction and Y direction; select the route method; ultimately, press “confirm” key and complete the array copy.

4.8 Operation of Offset

“Operation of offset” aims to offset the selected action command and offset the coordinate according to the designated value.

Press Y key and select single command; **press F3 and select all the commands and press F4 and select numerous commands**. Upon selecting the offset command, press “operate” and enter into the dialog box of “operation of offset” as below:



Method I: Input specific offset data and press “confirm” key and complete the offset.

Method II: If it is not clear about specific offset data, press “locating” key and move offset data. Press “locating” key; press direction key and move equipment to the offset coordinate; then press “confirm” key and complete the offset.

4.9 Batch Revision

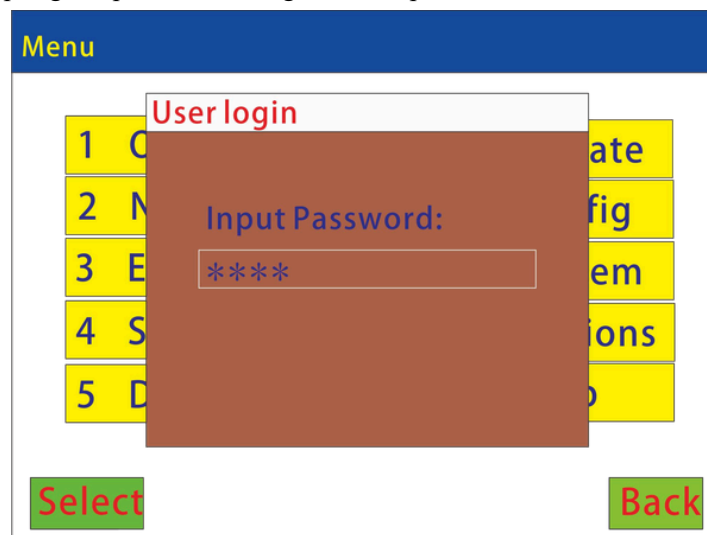
“Batch revision” aims to make a batch revision to a certain parameter and thus upgrade the edition efficiency. The operation methods are as follows: **press F3 and select all the commands and press F4 and select numerous commands**. Press “batch revision” key and enter into the following dialog box:

Select the parameters and revise one by one; upon revision, press “confirm” key and complete revision.

4.10 System

“Equipment parameter” aims to set up the pulse equivalent parameters of equipment axis, such as stroke scope, return speed to original point and acceleration.

Press “system” key and spring out password dialog box. The password is 1234 as below:



4.10.1 Equipment parameters

Input password and enter into the dialog box of equipment parameters as below:

System F4: "+/-"			
01/53	Axis1 pulse:	0.009375	
02/53	Axis2 pulse:	0.009375	
03/53	Axis3 pulse:	0.009375	
04/53	Axis4 pulse:	0.015	
05/53	Axis5 pulse:	0.009375	
06/53	Axis6 pulse:	0.005872	
07/53	Axis1 min range:	0	
08/53	Axis2 min range:	0	
Save		Back	

System F4: "+/-"			
09/53	Axis3 min range:	0	
10/53	Axis4 min range:	-360	
11/53	Axis5 min range:	0	
12/53	Axis6 min range:	-9999	
13/53	Axis1 max range:	595	
14/53	Axis2 max range:	295	
15/53	Axis3 max range:	95	
16/53	Axis4 max range:	360	
Save		Back	

System F4: "+/-"			
17/53	Axis5 max range:	1000	
18/53	Axis6 max range:	1000	
19/53	Axis1 max speed:	500	
20/53	Axis2 max speed:	500	
21/53	Axis3 max speed:	500	
22/53	Axis4 max speed:	500	
23/53	Axis5 max speed:	500	
24/53	Axis6 max speed:	500	
Save		Back	

System F4: "+/-"			
25/53	Axis1 max acc:	5000	
26/53	Axis2 max acc:	5000	
27/53	Axis3 max acc:	5000	
28/53	Axis4 max acc:	5000	
29/53	Axis5 max acc:	5000	
30/53	Axis6 max acc:	5000	
31/53	Axis1 lim:	0	
32/53	Axis2 lim:	0	
Save		Back	

System F4: "+/-"			
33/53	Axis3 lim:	0	
34/53	Axis4 lim:	0	
35/53	Axis5 lim:	0	
36/53	Axis6 lim:	0	
37/53	Reset step 1:	3	
38/53	Reset step 2:	12	
39/53	Reset step 3:	45	
40/53	Reset step 4:	0	
Save		Back	

System F4: "+/-"			
41/53	Reset step 5:	0	
42/53	Reset step 6:	0	
43/53	Reset speed 1:	30	
44/53	Reset speed 2:	30	
45/53	Reset speed 3:	30	
46/53	Reset speed 4:	30	
47/53	Reset speed 5:	30	
48/53	Reset speed 6:	30	
Save		Back	

System F4: “+/-”		
49/53	Track speed:	1000
50/53	Track acc speed:	8000
51/53	Manual low:	1
52/53	Manual mid:	10
53/53	Manual high:	30
Save		Back

Note: Axis 1 represents X axis, axis 2 represents Y axis, axis 3 represents Z axis, axis 4 represents R axis, axis 5 represents Y2 axis, and axis 6 represents C axis;

"Axis 1 pulse equivalent" refers to the distance of axis X, in mm;

"Axis 2 pulse equivalent" refers to the distance of axis Y, in mm;

"Axis 3 pulse equivalent" refers to the distance of axis Z, in mm;

"Axis 4 pulse equivalent" refers to the distance of axis A, in mm;

"Axis 5 pulse equivalent" refers to the distance of axis B, in mm;

"Axis 6 pulse equivalent" refers to the distance of axis C, in mm;

"Axis 1 min range" refers to the minimum coordinate position of the X-axis. If you set a negative value, you can go to the negative coordinates, in mm;

"Axis 2 min range" refers to the minimum coordinate position of Y axis. If set negative value, you can go negative coordinates, in mm;

"Axis 3 min range" refers to the minimum coordinate position of the Z axis. If the negative value is set, you can take the negative coordinates, in mm;

"Axis 4 min range" refers to the minimum coordinate position that axis A can reach. If you set a negative value, you can go to the negative coordinates, in mm;

"Axis 5 min range" refers to the minimum coordinate position of axis B. If you set a negative value, you can go to the negative coordinates, in mm;

"Axis 6 min range" refers to the minimum coordinate position of axis C. If you set a negative value, you can take the negative coordinates, in mm;

"Axis 1 max range" refers to the coordinate position of X axis, in mm;

"Axis 2 max range" refers to the coordinate position of Y axis, in mm;

"Axis 3 max range" refers to the coordinate position of Z axis, in mm;

"Axis 4 max range" refers to the coordinate position of A axis, in mm;

"Axis 5 max range" refers to the coordinate position of B axis, in mm;

"Axis 6 max range" refers to the coordinate position of C axis, in mm;

- "Axis 1 max speed": means the X axis limit device maximum operating speed, press the digital key input, usually 500 in mm/s
- "Axis 2 max speed": it means that the Y-axis limits the maximum operating speed of the device, and press the digital key for input, usually 500, in mm/s
- "Axis 3 max speed": means the Z axis limit equipment maximum operating speed, press the digital key input, usually 500 in mm/s
- "Axis 4 max speed": means that axis A limit the device maximum operating speed, input by pressing the digital key, usually 500 in mm/s
- "Axis 5 max speed": means that axis B limits the maximum operating speed of the device, press the digital key for input, usually 500 in mm/s
- "Axis 6 max speed": means the C axis limit equipment maximum operating speed, input by pressing the digital key, usually 500 in mm/s
- "Axis 1 max acc": refers to the X-axis acceleration size, press the number key for input, usually around 5,000, the unit is in mm/s².
- "Axis 2 max acc": refers to the Y-axis acceleration size, press the number key input, usually around 5000, the unit is in mm/s².
- "Axis 3 max acc": refers to the Z-axis acceleration size, press the number key for input, usually around 5,000, the unit is in mm/s².
- "Axis 4 max acc": refers to the A-axis acceleration size, press the number key input, usually around 5,000, the unit is in mm/s².
- "Axis 5 max acc": refers to the acceleration size of axis B, press the number key for input, usually around 5,000, the unit is in mm/s².
- "Axis 6 max acc": refers to the C-axis acceleration size, press the number key for input, usually around 5,000, the unit is in mm/s².
- "Axis 1 left and right limit" refers to the left and right limit of the X-axis, set to 0, the limit is invalid, set to 1, LIM-valid, set to 2, LIM + valid Set to 3, both LIM-LIM + are valid;
- "Axis 2 left and right limit" refers to the left and right limit of the Y-axis, set to 0, the limit is invalid, set to 1, LIM-valid, set to 2, LIM + valid Set to 3, both LIM-LIM + are valid;
- "Axis 3 left and right limit" refers to the left and right limit of the Z-axis, set to 0, the limit is invalid, set to 1, LIM-valid, set to 2, LIM + valid Set to 3, both LIM-LIM + are valid;
- "Axis 4 left and right limit" refers to the left and right limit of the A-axis, set to 0, the limit is invalid, set to 1, LIM-valid, set to 2, LIM + valid Set to 3, both LIM-LIM + are valid;
- "Axis 5 left and right limit" refers to the left and right limit of the B-axis, set to 0, the limit is invalid, set to 1, LIM-valid, set to 2, LIM + valid Set to 3, both LIM-LIM + are valid;
- "Axis 6 left and right limit" refers to the left and right limit of the C-axis, set to 0, the limit is invalid, set to 1, LIM-valid, set to 2, LIM + valid Set to 3, both LIM-LIM + are valid;
- "Reset step 1" means which axes are the first reset, and 1 2 3 4 5 6 represents the X Y Z A B C axis respectively.
For example, the Z axis is reset first and set to 3;
- "Reset step 2" means which axes the second reset, 1 2 3 4 5 6 represents the X Y Z A B C axis, such as the XY axis reset is set to 12;
- "Reset step 3" indicates which axes the third reset, 1 2 3 4 5 6 represents the X Y Z A B C axis;
- "Reset step 4" indicates which axes the third reset, 1 2 3 4 5 6 represents the X Y Z A B C axis;
- "Reset step 5" indicates which axes the third reset, 1 2 3 4 5 6 represents the X Y Z A B C axis;

"Reset step 6" indicates which axes the third reset, 1 2 3 4 5 6 represents the X Y Z A B C axis;

"Reduction speed 1": refers to the speed of the axis reset in the reset order 1, which is a percentage, relative to the highest speed of the corresponding axis;

"Reduction speed 2": refers to the speed of the axis reset in the reset order 2, which is a percentage, relative to the highest speed of the corresponding axis;

"Reduction speed 3": refers to the speed of the axis reset in the reset order 3, which is a percentage, relative to the highest speed of the corresponding axis;

"Reduction speed 4": refers to the speed of the axis reset in the reset order 4, which is a percentage, relative to the highest speed of the corresponding axis;

"Reduction speed 5": refers to the speed of the axis reset in the reset order 5, which is a percentage, relative to the highest speed of the corresponding axis;

"Reduction speed 6": refers to the speed of the axis reset in the reset order 6, which is a percentage, relative to the highest speed of the corresponding axis;

"Track speed": the running speed used by the robot to control;

"Track acc speed": Running acceleration used for robot control;

"Manual Low speed" Low speed of the manual mobile device, which is a percentage, relative to the maximum speed of the corresponding shaft;

"Manual mid speed" The medium speed of the manual mobile device, which is a percentage, relative to the maximum speed of the corresponding shaft;

"Manual high speed" High speed of the manual mobile device, which is a percentage, relative to the maximum speed of the corresponding shaft;

4.11 Options--Default

"Default" The default parameters were used to set some action instructions. When the "add" and "insert" actions, we only determined the coordinate data, while the other parameters came from the default parameters

"XY speed" XY running speed without the glue.

"Z speed" Z running speed without glue.

"Rot speed" No glue out is the speed at which the rotation axis operates.

Tcp speed" The speed in the default polyline, arc, circle, and other commands.

Channel" It refers to the default control channel of the glue gun. 1 represents 1 channel. If you want to open multiple channels at the same time, input 12 by default, channel 1 and 2 of the glue gun channels 1,2, and 3 and 4 by default.

"Uplift" Position of the default gun.

"Opening dly" Delays the glue opening time after opening the glue gun by default.

Close dly" Refers to the default time after gun closing delay.

Turnoff" For linesegment, arc, circle and other instructions, refer to the distance close to the end of the map in advance to prevent local glue stacking.

"Raisedraw" It means whether the drawing function is turned on, ON means OFF means off.

"Lengthdaw" The length of the pull.

Heightdaw" It is the height raised when drawing.

- “Speeddraw” It refers to the speed of the drawing.
- “Run draw” It is the Angle of the gun, which determines the Angle of the gun.
- “Gun range” It means how many distances you enter the gun.
- “Gun Speed” It means how fast you enter the gun.
- “Init angle” It is the initial angle of the pointer head. After setting the angle, the gun can be entered from different directions.
- “Frequency” Setting frequency of the injection valve dispensing glue.
- “Duty cycle” Set the duty cycle of the injection valve dispensing glue.
- “Layer spac” For multi-layer products, the Z axis automatically goes according to the spacing.

Option F4: “+/-”			
1 Default	01/20	XY speed:	1000
2 Run mode	02/20	Z speed:	1000
3 Stop pos	03/20	Rot speed:	720
4 Yield	04/20	TCP speed:	300
5 Cleaning	05/20	Channel:	1
6 Function	06/20	Uplift:	10
7 Pipeline	07/20	Openng dly:	0.02
8 Pick	08/20	Close dly:	0
9 Bar Code	09/20	Turn off:	0
10 MES	10/20	Raise draw:	ON
	11/20	Length draw:	0
	12/20	Height draw:	0
	13/20	Speed draw:	50
	14/20	Run angle:	30
	15/20	Gun range:	15
	16/20	Gun Speed:	100
	17/20	Init angle:	0
	18/20	Frequency:	100
	19/20	Duty cycle :	50
	20/20	Layer spac:	0

Select
Back

4.12 Options--Run mode

- “ Automatic”It refers to whether the machine performs automatic cycle work, ON represents automatic cycle work, and OFF represents manual operation work.
- “Dual key ”Double Y mode is only used mode, ON represents open, OFF represents not open;

“START/STOP”Refers to whether the "START" foot input has the "start / pause" function in the single Y mode,

- ON representative has the "start / pause" function, OFF represents only a separate "start" function;
- “Return gun”It refers to whether the rubber gun is retreated to the origin of the Z axis and starting the operation before executing the first instruction;
- “A to zero”It refers to the reset of the A axis first turn back to the 0 coordinate point according to the original road, and then reset;
- “B to zero”It refers to the reset of the B axis first turn back to the 0 coordinate point according to the original road, and then reset;
- “Bevel mode”Is pointing glue can set an Angle, the distance into the gun, ON represents open, OFF represents closed;
- “Distance”It refers to the manual positioning or needle Z axis first positioning to the set safe distance, and then wait for whether to drop;
- “Interval(s)”Refers to the delay of the specified time;
- N reset”How many times after the work;

Option F4: “+/-”			
1 Default	01/10	Automatic:	ON <input type="checkbox"/>
2 Run mode	02/10	Dual key:	ON <input type="checkbox"/>
3 Stop pos	03/10	START/STOP:	ON <input type="checkbox"/>
4 Yield	04/10	Return gun:	ON <input type="checkbox"/>
5 Cleaning	05/10	A to zero:	ON <input type="checkbox"/>
6 Function	06/10	B to zero:	ON <input type="checkbox"/>
7 Pipeline	07/10	Bevel mode:	ON <input type="checkbox"/>
8 Pick	08/10	Distance:	0 <input type="text"/>
9 Bar Code	09/10	Interval(s):	0.1 <input type="text"/>
10 MES	10/10	N reset:	0 <input type="text"/>

Select
Back

4.13 Options--Stop pos

Used to set the shutdown position after the equipment is running.

- “ Stoppos”Therearetwooptions,"ON"and"OFF"ON,whichrepresentthecoordinatepositionsetbelowbythe open shutdown position coordinate; The OFF represents the stop at the last point of the file;
- “X”： Refers to the X coordinate of the shutdown position;
- “Y”： Refers to the Y coordinate of the shutdown position;
- “Z”： Refers to the Z coordinate of the shutdown position;
- “A”： Refers to the A coordinate of the shutdown position;
- “B”： Refers to the B coordinate of the shutdown position;
- “C”： Refers to the C coordinate of the shutdown position;

Option F4: “+/-”			
1 Default	01/07	Stop pos:	ON <input type="checkbox"/>
2 Run mode	02/07	X:	100.579
3 Stop pos	03/07	Y:	50.568
4 Yield	04/07	Z:	35.269
5 Cleaning	05/07	A:	0.000
6 Function	06/07	B:	0.000
7 Pipeline	07/07	C:	0.000
8 Pick			
9 Bar Code			
10 MES			

4.14 Options--Yield

Is to set a pre-set production quantity, reach the output after the alarm.

“Quantity”: Set a pre-production value of a processing quantity;

Multiple”: It refers to a tray, if there are N products in the tray, each product has to count the output once, and then enter the corresponding number on the line, and the next output will increase according to the count doubling rate;

Option F4: “+/-”			
1 Default	01/02	Quantity:	1000
2 Run mode	02/02	Multiple:	1
3 Stop pos			
4 Yield			
5 Cleaning			
6 Function			
7 Pipeline			
8 Pick			
9 Bar Code			
10 MES			

4.15 Options--Cleaning

It means that when the equipment does not work for a long time, the glue solidification may block the needle. After the parameters are set, it can automatically drop the glue, so as to prevent the glue from solidification and blocking the needle.

“Dropport” : Referstothechannelofautomaticdripglue,0meansnotopen,iftheinput1represents,theoutput OUT 1 is the drip port channel, 2 represents the output OUT 2 is the automatic drip port channel, and so on....;

“Blowport” : Referstothechannelopenedafterautomaticblowingcleaning.Ifinput1represents,theoutput OUT 1 is the blowing port channel, 2 represents the output OUT 2 is the blowing port channel, and so on....;

“Dropcycle(s)” : Referstothetimeperiodofautomaticglue;

“Dropdly(s)” : Referstotheamountofglueoutofeachtime;

“Blow time(s)” : Refto the time of the port blowing;

“X” : ReferstotheXcoordinateofautomaticglue;

“Y” : ReferstotheYcoordinateofautomaticglue;

“Z” : ReferstotheZcoordinateofautomaticglue;

“A” : ReferstotheAcoordinateofautomaticglue;

“B” : ReferstotheBcoordinateofautomaticglue;

“C” : ReferstotheCcoordinateofautomaticglue;

Option F4: “+/-”			
1 Default	01/11	Drop port:	0
2 Run mode	02/11	Blow port:	0
3 Stop pos	03/11	Drop cycle(s):	5
4 Yield	04/11	Drop dly(s):	0.5
5 Cleaning	05/11	Blow time(s):	0
6 Function	06/11	X:	100.79
7 Pipeline	07/11	Y:	0.000
8 Pick	08/11	Z:	49.567
9 Bar Code	09/11	A:	0.000
10 MES	10/11	B:	0.000
	11/11	C:	0.000

Select
Back

4.16 Options--Function

“Reset port”It refers to the output port channel after the reset, will always be output, the default is OUT8 channel;

“ Work port”Refers to the port channel output during the process of work, the default is the OUT9 channel;

“ Complete port”refers to the port channel output after the work is completed, the default is OUT10 channel;

“ Alarm port”It refers to the port channel after reset fault, the default is OUT11 channel;

“ Outputtime” Itreferstotheoutputtimeoftheoutputchannelportaftertheworkiscompleted,andthe default is 0.5s;

“Brake port”It refers to the signal output of the brake motor, which will be opened before being reset. The default is the OUT12 channel;

Note: All the output signals are low-level signals;

Option F4: “+/-”			
1 Default	01/06	Reset port:	8
2 Run mode	02/06	Work port:	9
3 Stop pos	03/06	Complete port:	10
4 Yield	04/06	Alarm port:	11
5 Cleaning	05/06	Output time:	0.5
6 Function	06/06	Brake port:	12
7 Pipeline			
8 Pick			
9 Bar Code			
10 MES			
<div style="display: flex; justify-content: space-around; width: 100%;"> Select Back </div>			

4.17 Options--Pipeline

“ Pipeline” It means whether the pipeline control function is on; ON is on and OFF is off;

“Incoming In”The feed of the pipeline control scheme detects the port input signal, which means that after the product comes from the pipeline, and then performs the next step, the default port is IN8;

“Block Out”Refers to the product pipeline comes over after there is an incoming material block cylinder block, such as detecting the incoming material detection signal input will open the cylinder to let the product then flow down to perform the next step, the default port is OUT5;

“Block dly”It refers to the time that blocks the cylinder after opening and causes the product to flow down,

and then blocks the cylinder from closing for a period of time after detecting the input signal of the incoming material;

“Workpiece In”Refers to the product assembly line over after detecting the incoming material detection signal flow down, encountered the workpiece block cylinder began to detect the workpiece detection input signal, detected and then perform the next step, the default is IN9;

“WorkpieceOut”Referstotheproductinplacetoblockthecylindersignal,andthendetectedtheworkpiece detection input began to work, after the work is completed, the workpiece to block the cylinder to open the product outflow, such as the product after the workpiece to leave the signal to close, the default port is the output of 46channels;;

“Workpiece Dly” Refers to the workpiece detected the input signal delay for a period of time in the nextstep;

“Workpiece”It is meant to block the cylinder to open the product to flow down after the workpiece to leave the detection input signal to block the cylinder to close, and then perform the next step, the role is mainly to judge whether the product work is completed or not left the signal. Default input IN10;

Option F4: “+/-”			
1 Default	01/08	Pipeline:	ON <input type="checkbox"/>
2 Run mode	02/08	Incoming In:	2 <input type="text"/>
3 Stop pos	03/08	Block Out:	3 <input type="text"/>
4 Yield	04/08	Block dly:	0.8 <input type="text"/>
5 Cleaning	05/08	Workpiece In:	3 <input type="text"/>
6 Function	06/08	Workpiece Out:	4 <input type="text"/>
7 Pipeline	07/08	Workpiece dly:	0.8 <input type="text"/>
8 Pick	08/08	Workpiece:	4 <input type="text"/>
9 Bar Code			
10 MES			
<div style="display: flex; justify-content: space-around; margin-top: 20px;"> Select Back </div>			

4.18 Options--Pick

Pattletizing function is a function of taking up and discharging materials for products

- “ Vacuumport ”
- “ Vacuum port2”
- “ Test port”
- Pick test”
- Place test”

Option F4: “+/-”			
1 Default	01/05	Vacuum port:	1
2 Run mode	02/05	Vacuum port2:	2
3 Stop pos	03/05	Test port:	0
4 Yield	04/05	Pick test:	0
5 Cleaning	05/05	Place test:	0
6 Function			
7 Pipeline			
8 Pick			
9 Bar Code			
10 MES			

Select
Back

4.19 Options--Bar Code

“Bar code”It is meant to open the bar code identification start function, first input the program into the corresponding bar code, and then directly scan the code according to the corresponding bar code to automatically identify the corresponding program, ON representative open, OFF representative closed;

“Bar Start”Refers to the fixed position to scan the code, the coordinates can be set below, ON represents open, OFF represents closed;

“Codebit”Referstosetabarcodeeffectivenumberofdigits,taketheseeffectivebitsforidentification,generally default 13 bits;

- “X”: Is the X coordinate of the specified bit scanning code location;
- “Y”: Is the Y coordinate of the specified bit scanning code location;
- “Z”: Is the Z coordinate of the specified bit scanning code location;
- “A”: Is the A coordinate of the specified bit scanning code location;
- “B” : Is the B coordinate of the specified bit scanning code location;
- “C”: Is the C coordinate of the specified bit scanning code location;

Option F4: “+/-”			
1 Default	01/09	Bar code:	ON <input type="checkbox"/>
2 Run mode	02/09	Bar Start:	ON <input type="checkbox"/>
3 Stop pos	03/09	Code bit:	13 <input type="text"/>
4 Yield	04/09	X:	0 <input type="text"/>
5 Cleaning	05/09	Y:	0 <input type="text"/>
6 Function	06/09	Z:	0 <input type="text"/>
7 Pipeline	07/09	A:	0 <input type="text"/>
8 Pick	08/09	B:	0 <input type="text"/>
9 Bar Code	09/09	C:	0 <input type="text"/>
10 MES			

4.20 Options--MES

“Bar upload”After uploading the bar code or QR code data to the server, the server receives the data after sampling feedback signal to the controller for the corresponding program operation; ON is on and OFF is off;

“Pos Scan Code”Is the specified bit to a certain position for scan code operation; the positioning coordinates can be set below, ON represents on, OFF represents off;

“ StartUpload Itmeansthatthescancodedataisuploadedtotheserverwhenstartup,ONon,andOFFoff;

“ EndUpload Itmeansthatthedataofscanningthecodeisuploadedtotheserverafterthecompletion,

“ IP1,IP2 IR3 IP4,”TheIPaddressoftheserver;

“ Port” Portnumberoftheserver;

“”:X IstheXcoordinateofthespecifiedbitscanningcodelocation;

“”:Y IstheYcoordinateofthespecifiedbitscanningcodelocation;

“”: IstheZcoordinateofthespecifiedbitscanningcodelocation;

“”:A IstheAcoordinateofthespecifiedbitscanningcodelocation;

“”: IstheBcoordinateofthespecifiedbitscanningcodelocation;

“B IstheCcoordinateofthespecifiedbitscanningcodelocation;

C

Option F4: "+/-"			
1 Default	01/15	Bar upload:	ON <input type="checkbox"/>
2 Run mode	02/15	Pos Scan Code:	ON <input type="checkbox"/>
3 Stop pos	03/15	Start Upload:	ON <input type="checkbox"/>
4 Yield	04/15	End Upload:	ON <input type="checkbox"/>
5 Cleaning	05/15	IP1:	120
6 Function	06/15	IP2:	79
7 Pipeline	07/15	IP3:	62
8 Pick	08/15	IP4:	226
9 Bar Code	09/15	Port:	7777
10 MES	10/15	X:	0
	11/15	Y:	0
	12/15	Z:	0
	13/15	A:	0
	14/15	B:	0
	15/15	C:	0

Select Back

4.21 Help

“IP”Refers to the IP address of the native machine;

“Serial number”The serial number of the native machine;

“Version”Refers to the version number of the local teaching device and the device number of the controller;

“Input IO”Refers to the controller's input signal IO table, a total of three rows of the first row IN 1-8, the second row IN 9-16;

“ORG IO”Refers to the origin sensor signal of the controller;

“Out IO”Refers to the controller output signal IO table of a total of two rows of the first row OUT 1-8, the second row OUY 9-16;

About IP: 192.168.1.149	
Serial number:	20472599
Version: QZ-NC05A	Version: 5.3.8
	1 2 3 4 5 6 7 8
Input IO:	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Input IO:	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
ORG IO:	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
OUT1:	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
OUT2:	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

Back

4.22 Counterpoint Operation (Without MARK Point)

Counterpoint function (It is mainly adopted to offset the coordinate and make alignment upon replacement of iron tip or tools):

- ① **Counterpoint based on 1st command:** In the start screen, directly press “MOVE” key and press direction key for counterpoint; upon counterpoint of welding gun, press confirm key and complete the counterpoint. Therefore, all the commands realize offset.
- ② **Counterpoint based on any command:** In “command list—graph browse” screen, select the counterpoint command and press “#” key for counterpoint; upon counterpoint of welding gun, press confirm key and complete the counterpoint. Therefore, all the commands realize offset.

4.23 Operation of MARK Point Matching

① Locating of single MARK point:

The locating point must be 1st command of the command list. Press figure key 6 in the dialog box of command list and add more MARK points.

Edit the point coordinate for locating; download the procedure and refuse to execute the operation. Press “MOVE” key under the “start screen” status; the welding gun automatically points to 1st command (in the marking point).

② Locating of double MARK point:

Add two MARK points in the command list; select two obvious marking points remote from tools as MARK points; they will automatically display in 1st and 2nd positions of the command list (before or after edition of command, add two MARK points); press “6 more” in the dialog box of command list and add MARK point.

Edit the coordinate of two points for locating; download the procedure and refuse to execute the operation. Press “MOVE” key under the “start screen” status; the welding gun automatically points to 1st MARK point and spring out “whether descend Z axis”; select according to the actual demand; upon locating coordinate, press confirm key and welding gun automatically points to 2nd MARK point. The operation methods are same as 1st MARK point.

The locating function of double MARK point can revise the error caused by angle and position deviation of work piece.

③ **Three MARK point positioning:**

Three MARK points should be added to the instruction list, and try to select three obvious marked points on the rig as the MARK points. The two MARK points will be automatically displayed in the first and second and third positions of the instruction list (add the three MARK points before editing or after editing the instruction), and the MARK points will press "6 more" to join the MARK points in the instruction list dialog box. Eiting the coordinates of these three points is only for the location operation and is not performed after downloading the program. In the state of "boot screen" press "#" key, the torch will automatically point to the first MARK point, and pop up "Z axis down", please choose according to the actual need, locate the coordinates, the torch will automatically point to the second MARK point, and pop up "Z axis down", please choose according to the actual need, locate the coordinates, the torch will automatically point to the third MARK point, and the operation is the same as the second MARK point operation method. It will be automatically downloaded and saved in. Three MARK point positioning can correct the error caused by the Angle and position deviation of the work piece in the spatial range. Within the scope of the space, the products can be placed arbitrarily, which can be directly corrected through the three MARK points.

5. Notice

5.1 Installation

1. Inspect the controller for completeness.
2. Connect hardware according to the wiring diagram; before electrification, inspect the power voltage: It is not above 24V.
3. Upon electrification, first reset the equipment in sequence:
 - ① Move Z axis to the original point direction; in case of reverse movement direction (in case of step system, exchange any group of A,A- or B,B- in the motor wires; in case of servo system, change the direction of servo driver), stop Z axis if original point switch of Z axis is sensed.
 - ② Move X and Y axis at the same time and towards the original point direction; in case of reverse movement direction (same settlement as reverse direction of Z axis), stop related axis if original point switch is sensed in a certain axis.
 - ③ Complete the reset if all the axis sense the sensor.
4. Make use of the portable box and set up the equipment original point as follows: In the menu, press “option” -> “equipment original point”; enter into the “position of equipment original point” dialog box; set up according to the position of equipment original point. The parameter is saved in the portable box.
This is the end of equipment installation. In the real test, an integrated commissioning is made by connecting the gas route system.

5.2 Specification of Frequent Problems and Removal of Faults

Specification of frequent problems	Solution
1. The system fails to reset	a) Inspect the power supply for normal status. b) Inspect the driver for normal status. c) Inspect the sensor for normal status. a) Inspect the connective wire of serial port for any damage.
2. The communication is abnormal	b) Inspect the equipment for reset. c) In the normal operation of equipment, only respond to some commands such as “reset” and “pause.”
3. The equipment can not be started	a) First, inspect the production volume for completeness; connect with the portable box and search for the production volume; upon completion, clear the production volume. b) Inspect the start button for normal status; control the equipment start by portable box and thus remove the fault. c) If the portable box can not be started, upload command from the controller and inspect the controller for any action command. d) Inspect the equipment for authorization or not; in the connection with portable box, press “start” button and screen springs out registration dialog box— It means no authorization of the equipment.