ADT-DK300A/400A

Engraving Machine Control System

Manufacturer's Manual





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Remark:

We have collated and checked this Manual strictly, but we can't ensure that there are no error and omission in this Manual. Due to constant improvement of product functions and service quality, any products and software described in this manual and the content of the manual are subject to changes without prior notice.

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Foreword

DK300A/400A numerical control system is developed by Adtech (Shenzhen) Technology Co., Ltd. for engraving industry, where DK300A is three axes motion controller.

Instructions and reading convention of the Manual

Before using this CNC system, please read this Manual carefully to operate properly.

Terminology note and reading convention in this Manual:

DK300A and DK400A are control systems with different axes and same hardware functions. Different software has different functions and masks.

"CNC system", "NC controller" and "DK300A" mentioned in this Manual all refer to DK300A/DK400A;

The articles marked with "Caution" prompt users to pay special attention for operation or setting, or else this operation may fail or certain action can't be performed.

1. Overview

1.1 System function

1.1.1. Self-diagnosis

Diagnose CPU, memory, LCD, I/O interface, parameter state, coordinates and processing program comprehensively every time the system is started or reset; diagnose power supply, principal axis, limit and I/O ports in real-time during operating.

1.1.2. Compensation

Automatic reverse clearance compensation

Automatic tool length compensation

Automatic tool radius compensation

Automatic tool radius biasing and automatic tool tip transition

1.1.3. Abundant instruction system

Scaling instruction

Mirror processing instruction

Tool biasing instructions

Program cycle, program skip, program shift, program transfer, different end processing modes, macro

definition and program management instructions

Fixed-point instructions: starting point, setting point, etc.

Linear, arc and spiral interpolation instructions

Six workpiece coordinate systems, nine extension coordinate systems and one reference point

1.1.4. Full Chinese menu operation & full screen edit

DK system uses cascading menu structure and full Chinese operation to ensure simple operation and visibility.

1.1.5. Abundant error-correction functions

Point out the nature and correct the errors in operation.

1.1.6. Program exchange between CNC system and PC

Perform CAD/CAM/CAPP auxiliary programming with abundant software in PC, and then transmit CNC program to the system through communication interface (USB disk, RS232 interface), or transmit the programs from the system to PC.

1.1.7. System operating condition

Operating voltage	24V DC (with filter)
Operating temperature	0°C∼ 45°C
Optimum operating temperature	5°C∼ 40°C
Operating humidity	10%~90% (no condensing)
Optimum operating humidity	20%~85%
Storage temperature	0°C~50°C
Storage humidity	10%~90%
Operating environment	No excessive dust, acid, alkali, corrosive and explosive gases, no strong electromagnetic interference

2. Operating panel

2.1 LCD/keypad



Fig. 3.1 DK300A Operating Panel Diagram

Caution:

Press the submenu buttons to perform the operations of submenus.

Manual axis moving and edit & input are composite. It has different definitions according to the modes.

System working mode switch section is used to switch working modes, which can improve the security and system performance. Handwheel and single step mode are switched with Repeat button.



Screen	info		Work	ing mo	ode			Sys	tem i	main m	nenu	
				·					1			
	Absolut	te positior	Manual			Monitor	Edi	t	Parameter	s Coordinate	s Diagnosis	
	X Y Z	+0(+0(+0()00.)00.)00.	000 000 000		1	000 240 File nam	05 09 33 11 01 00	X manua Y manua Z manua A manua Manual n Main axis	I speed I speed I speed I speed nagnification s magnificat NC Prog	400 400 200 100% ion 100%))) 6 1
	GO1 G40 G49 System	G17 G9 :D00 = :H00 =	0 G54 000. 000. 15:50	680 000 000 :42		%	;	,				
	Stopped											
	<<<	Positi	on Trad	x 🗌	MDI	Auxiliary	function	Macro	variables	CAM	>>>	
					S	ubme	enus					

Caution:

Screen info shows the information of current window

Working mode info shows currently selected working mode

System main screen shows current main screen.

The submenu options are used to switch submenus with left triangle, F1~F6 and right triangle. The right

arrow is used to turn pages, and the left arrow is used to close the submenus in next level and previous menu.

2.2 System menus

DK300A system uses cascading menu structure. You can press the following keys to operate the menus.



Press a key to show the corresponding content in the bottom of the LCD.







Function test submenu



2.3 Operating keys

The keys of DK300A system are defined below:

Кеу	Figure	Purpose
[复位/RESET]	复位 RESET	Cancel alarm, reset CNC
Address/number keys	0 * 1 , 9)	Enter letters, numbers, etc.
	A G B Z K	
[EOB], [取消/CAN]	EOB 取消 CAN	Confirm or cancel operation
[EOB], [取消/CAN], [删除/DEL]	EOB 取消 删除 CAN DEL	Program edit (insert, delete, modify)
Mode switch key	自动 手动 录入 AUTO JOG ED I T	Select operating mode
	手轮 MPG STEP 单步 HOME	

Кеу	Figure	Purpose
Cursor moving key		Four keys are available: Up/Down: adjust ration, move cursor between subsections; Left/Right: move cursor to left/right
Page key	PAGE PAGE	Up/Down: Turn pages
Menu keys	运转 MONITOR 编辑 PROG SYSTEM YSTEM 全标 COORD GNOS	Select the menus
Principal axis positive rotation		Press it to rotate the principal axis positively, and press it again to stop rotating
Principal axis reverse rotation		Press it to rotate the principal axis reversely, and press it again to stop rotating
Coolant		Coolant on/off
Lubricant	9	Lubricant on/off
[跳选/BDT]	跳 选 BDT	Block delete on/off
[单段/SBK]	单段 ЅВК	Single block function on/off
[暂停/PAUSE]	暂 停 PAUSE	Pause automatic running

Кеу	Figure	Purpose
[启动/START]	启动 START	Start automatic running

3. Manual operation

3.1 Returning to reference point manually

The engraving machine tool has specific mechanical position, which is called as reference point and for tool exchange and coordinates setting. Generally, when the power supply is connected, the tool should be moved to the reference point. This operation is also called as home operation, which will make the CNC system confirm the origin of machine tool.

The home operation includes program and mechanical mode:

For program home, the action completes when the coordinates of machine tool are 0, and won't check whether origin switch is in position;

For mechanical home, the external home sensor switch is used to locate the origin of the machine tool; two checking modes are available:

With the external sensor switch, the home operation completes when the sensing is successfully repeatedly.

The external sensor switch is used as deceleration switch, and the servo home is enabled as home signal after sensing and then the sensing stops.

You can set the "Home mode" in [Parameter] [General parameter], and move to comprehensive home mode (36# parameter) EOB to select. You can also press [SBK] key in home mode to switch among "Mechanical – Program – Mechanical..." quickly. This method doesn't conflict with parameter setting. You can select accordingly. To use servo home as the home signal, you need to set "Axis phase Z home enable" to "1" in [Parameter] [Axis Configuration] in mechanical home mode, and the setting will take effect in next home checking.

Several methods are available for tool returning to reference point and the steps follow:

(1) Each axis returns to reference point separately



Note

The tool also can return to reference point according to program instruction, i.e. returning to reference point automatically.

Caution:

Generally, the system will perform home operation after connecting the power supply. If the power fails while the machine tool is moving, the system also will return to reference point when the power supply is connected again. Return to Z axis to prevent tool and workpiece from colliding, and damaging tool, workpiece and clamp.

]; [8 /], [2 #]; [7 (], [3 =];]

3.2 Continuous feeding manually

Press the keys on the operation panel or handwheel to move the tool along every axis.

4

The operation follows:

] to select manual operation; (1) Press the mode switch key [

6 _{SP}

(2) Press composite keys

in numbers area to move the tool along selected axis.



5] key can be used to switch the manual speed and rapid traverse speed. The In manual mode, rapid traverse speed of every axis depends on General parameter 009-012 (rapid traverse speed setting). After switching to rapid traverse speed, the manual speed of the position interface will be highlighted, while the actual speed of the position interface is sampled from the moving speed of current axis. This value can truly reflect the moving speed of current axis (unit: mm/min);

Note:

Only single axis motion is available in manual mode.

3.3 Single step feeding

Single step mode is similar to manual mode, the operations are same, but only moves a specified pulse increment every time press the key.

The specific operation follows:

(1) Press the mode switch key [(this key is composite, and you can press it repeatedly to switch

the modes) to select the single step operation;

(2) Press composite keys [

[1,] in numbers area to move the tool for a fixed distance along the selected axis. This distance is controlled by four rates (1.000, 0.100, 0.010, 0.001) (unit: mm). To select pulse increment, press

 $\begin{array}{c} x_{+} \rightarrow \\ 6_{\text{SP}}, 4_{[]}; 8_{/}, 2_{\#}; 7_{(]}, 3_{=}; 9_{)} \end{array}$



key in the [Position] interface.

3.4 Handwheel feeding

In handwheel mode, rotate the handwheel to make the machine perform single step or continuous motion. Determine the feed by testing the handwheel signal of the handheld box. In handwheel mode, the feeding axis and feeding unit are determined by the axis selection signal of the handheld box.

The handwheel feeding step follows:



(1) Press the mode switch key [【 单步] to select handwheel operation;

(2) Rotate the dip switch on the handwheel to select handwheel axis (X, Y, Z, A);

(3) Rotate the increment dip switch on the handwheel to select the moving amount (0.1, 0.01, 0.001);

(4) Rotate the handwheel to move the machine tool. The tool moves certain distance every time you rotate the handwheel for a scale. (For example, if you select X axis in step (2) and select 0.01 in step (3), the tool moves 0.01mm every scale). Rotate the handle continuously to move the machine tool on this axis continuously.

Note:

The handwheel feeding mode controls only one coordinate axis every time; the faster the handwheel rotates, the faster the machine tool moves.

3.5 Manual auxiliary function operation

Coolant on/off

H.

In handwheel/single step/manual mode, press this key to switch on/off the coolant.

Key indicator: No matter in what mode, the key indicator is on if only the coolant is on, or else the indicator is off.

Lubricant on/off

In handwheel/single step/manual mode, press this key to switch on/off the lubricant.

Key indicator: No matter in what mode, the key indicator is on if only the lubricant is on, or else the indicator is off.

Principal axis positive rotation/stop

In handwheel/single step/manual mode, press this key to rotate the principal axis positively and press it again to stop the axis.

Key indicator: No matter in what mode, the key indicator is on if only the principal axis is positive rotating, or else the indicator is off.

Principal axis reverse rotation/stop

In handwheel/single step/manual mode, press this key to rotate the principal axis reversely and press it again to stop the axis.

Key indicator: No matter in what mode, the key indicator is on if only the principal axis is reverse rotating, or else the indicator is off.

General instructions for manual operation keys



When the principal axis is rotating, press the reverse rotation key, the principal axis will stop first, and rotate in reverse direction after pressing it again.

When auxiliary output is on, if the system is switched to other modes, the output is unchanged; you need to press "Reset" key to switch it off, execute the corresponding M code in automatic mode or execute the corresponding M code in MDI interface to turn off the output;

When the principal axis is positive/reverse rotating and executes M04/M03 directly, the system first stops positive/reverse rotating and then executes M04/M03 instruction;

Positive/reverse rotating of principal is stopped while emergency stop and other outputs can be set according to system parameters.

3.6 Working coordinate system settings (tool setting)

Tool setting is the main operation and important skill during CNC processing. Under certain conditions, tool setting precision can determine the processing precision of parts, and the tool setting efficiency also affects the CNC processing efficiency directly. DK300A and DK400A realize tool setting through G54-G59 coordinate system.

Workpiece coordinate system setting method

坐标

3.6.1. Enter current position to specified coordinate system directly (all axes)

4

COORD to enter the coordinate system interface. The background of select coordinate system is 1. Press white.

Coordinate system	Reset	Monitor	Edit	Parameters Coordinates	Diagnosis
Absolute position	Coordinate system	Compensation			
X +0000.000 +0000.000	G54		G 5 5		
z +0000.000	X +	0.000	X +	0.000	
	Y +	0.000	Y +	0.000	
Mechanical nosition	Z +	0.000	Z +	0.000	
× +0000.000	A +	0.000	A +	0.000	
Y +0000.000	<u>G5</u> 6		<u>G5</u> 7		
Z +0000.000	X +	0.000	X +	0.000	
	7 +	0.000	Y +	0.000	
Relative position		0.000		0.000	
¥ +0000.000	- ·	0.000	a .	0.000	
¥ +0000.000					
			_		_
<<< Coordinate settings	Compensation				>>>

2. Then, press

to select the coordinate system, e.g. G54.



to show a dialog box, and press "EOB" to set current coordinates as the zero point of

the program.

4. Press

Coordinate system	Reset	t Monitor	Edit	Parameters Coordinates	Diagnosis
Absolute position X +0000, 968 Y -0001, 662	Coordinate syste G 5 4	n Compensation G	55		
Coort. 002 2 -0001.968 Mechanical position 4 +0000.968 -0001.662 2 -0001.968 4 +0000.968 0 +0000.968 -0001.662 +0000.968 -0001.662 -0001.968 -0001.968 -0001.968	X Y Z A G ; X Y Z A	Set machine tool coordinates to curr coordinate system OK Can	ent ?	0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000	
<<< Coordinate settings	Compensation				>>>

5. After setting the coordinate system, copy the mechanical position values to the axis value in the dotted box as shown in the figure below.

Coordinate system	n Rese	et Moni	itor 🚺 Edit	Parameters Coordinate	s Diagnosis
Absolute position	Coordinate syst	em Compensatio	m		
X +0000.000 Y +0000.000	<u>654</u>		<u>G5</u> 5		
Z +0000.000	X +	0.968	X +	0.000	
		1.968	$\frac{1}{Z}$ +	0.000	
Mechanical position	Λ +	0.000	A +	0.000	
Y -0001.662	G56		G 5 7		
Z -0001.968	X +	0.000	X +	0.000	
		0.000	Y +	0.000	
Relative position +0000, 000	A +	0.000	A +	0.000	
¥ +0000.000					
Stopped					
<<< Coordinale settin	gs Compensation				>>>

3.6.2. Coordinate axis settings

坐标 1. Press to enter the coordinate system interface.

2. Then, press

to select the coordinate system, e.g. G55.

Coordinate system	Edit	Monitor	Edit	Parameters Coordinates	Diagnosis
Absolute position	Coordinate syste	m Compensation			
X +0000.968 X -0001.662	G 5 4		G 5 5		
Z -0001.968	X +	0.000	X +	0.000	
	Y +	0.000	Y +	0.000	
Mechanical posit	Z +	0.000	Z +	0.000	
¥ +0000.968	A +	0.000	A +	0.000	
Y -0001.662 7 -0001.968	G56		G 5 7		
2 0001.300	X +	0.000	X +	0.000	
	7 +	0.000	7 +	0.000	
Relative position +0000, 968	A +	0.000	A +	0.000	
V -0001.662			_		
₩ -0001.968					
Stopped					
<<< Coordinale settings	Compensation				>>>

录入 3. Press

to select the edit mode.

Absolute position X +0000, 968 Y -0001, 662 Z -0001, 968 Mechanical posit +0000, 968	rdinate system G 5 4 X + Y + Z +	Compensation 0.000 0.000 0.000	G 5 5 X + Y +	0.000	
-0001.662 -0001.968 Relative positior +0000.968 -0001.662 -0001.968	A + G56 X + Y + Z + A +	0.000 0.000 0.000 0.000 0.000	Z + A + G57 X + Y + Z + A +	0.000 0.000 0.000 0.000 0.000 0.000	
Stopped	Concensation .				>>>

to select axis X, press 22, the coordinates of corresponding axis number will be shown, and prompt the values to be inserted.

5. Press "EOB" key to finish the setting of currently selected coordinate system, as axis Y in the figure

below

Coordinate syst	em Edit		lonitor [Edit	Parameters Coordin	ates Diagnosis
Absolute position	Coordinate sys	tem Compensi	ation			
X +0000.968	G 5 4		G 5	5		
Z -0001.968	X +	0.00	0 X	+	0.000	
	Y +	0.00	0 Y	-	1.662	
	Z +	0.00	0 <u>Z</u>	+	0.000	
Mechanical position	¹ Λ +	0.00	Ο Λ	+	0.000	
Y -0001, 662	656		G 5	7		
Z -0001.968	X +	0.00	0 X	ĺ + .	0.000	
	Y +	0.00	0 Y	+	0.000	
Poletko position	Z +	0.00	0 Z	+	0.000	
U +0000, 968	Λ +	0.00	0 A	+	0.000	
V -0001.662						
-0001.968						
				_		
Stopped						
<<< Coordinates	tings Compensation					>>>

3.6.3. Modify coordinate value

In addition to above two methods, you can also press the keypad to set the coordinate system in the following steps:



and then press to enter -10.5 to Z axis coordinate system, as shown in Fig. 4B.

Coordinate system	Edit	Honito	or Edit	Parameters Coordinate	Diagnosis
Absolute position	Coordinate syste	m Compensation			
X +0000.968 Y -0001.662	G54		G 5 5		
Z -0001.968	X +	0.000	X +	0.000	
	Y +	0.000	Y -	1.662	
Mechanical nostion	Z +	0.000	Z +	0.000	
X +0000.968	A +	0.000	A +	0.000	
Y -0001.662	G56		G 5 7		
Z -0001.968	X +	0.000	X +	0.000	
	Y +	0.000	Y +	0.000	
Relative position	Z +	0.000	Z +	0.000	
U +0000. 968	A +	0.000	A +	0.000	
V -0001.662 W -0001.968					
Stopped					
<<< Coordinale setting	Compensation				>>>

Fig. 4A

Coordinate system	Edit	Monito	r Edit	Parameters Coordinate	Diagnosis
Absolute position	Coordinate syst	en Compensation			
X +0000.968 Y -0001.662	G54		G 5 5		
Z -0001.968	X +	0.000	X +	0.000	
	Y +	0.000	Y -	1.662	
Mechanical position		0.000		0.000	
¥ +0000.968		0.000	A +	0.000	
7 -0001.662 7 -0001.968	G56	0.000	G 5 7	0 000	
	X +	0.000	X +	0.000	
Part days and they	z -	10,500	z +	0.000	
U +0000, 968	A +	0.000	A +	0.000	
V -0001.662					
. 0001.300					
Stopped					
<<< Coordinate setting	Compensation				>>>

Fig. 4B

Edit other axes in the same method.

3.7 Data settings

3.7.1. Tool compensation data setting

The tool compensation parameters can be set as follow:

♀ Press
↓ DIT to select the edit mode;

※ In the main menu, press [COORD], and then press submenu [Compensation] to enter tool compensation parameter

setting interface;

Coordinate system	n Edit	Monitor Edi	t Parameters Coordinate	Diagnosis
Absolute position	Coordinate system	Compensation		
+0000.968	Compensation No.	Length compensation	Radius compensation	
z -0001.968	1	+0000.000	+0000.000	
	2	+0000.000	+0000.000	
	3	+0000.000	+0000.000	
Mechanical position	4	+0000.000	+0000.000	
Y -0001.662	5	+0000.000	+0000.000	
Z -0001.968	6	+0000.000	+0000.000	
	7	+0000.000	+0000.000	
	8	+0000.000	+0000.000	
. Relative.position +0000_968	9	+0000.000	+0000.000	
-0001.662	10	+0000.000	+0000.000	
-0001.968				
Stooned				_
<<< Coordinale settin	us Compensation			>>>

🏋 Press

to select the parameter, e.g. compensation No. 1, enter -11.2 and press

to modify

EOB

the parameters where the cursor is located, as shown in the figure below

Coordinate system	Edit	Monitor Edit	Parameters Coordinates Diagnosis
Absolute position	Coordinate system	compensation	
X +0000.968 Y -0001.662	Compensation No.	Length compensation	Radius compensation
Z -0001.968	1	-0011.200	+0000.000
	2	+0000.000	+0000.000
Mechanical position	4	+0000.000	+0000.000
X +0000.968 Y -0001.662	5	+0000.000	+0000.000
Z -0001.968	6	+0000.000	+0000.000
	7	+0000.000	+0000.000
. Relative.position	9	+0000.000	+0000.000
U +0000.968 V -0001.662	10	+0000.000	+0000.000
u -0001.968			
Finned			
Stoppen			
<<< Coordinale settings	Compensation		>>>

Ζ

K,

and then press

lpha Enter tool length compensation quickly: select compensation number, press

to insert Z

EOB

axis coordinates into length compensation, as shown in the figure below

Coordina	ate system	Edit		lonitor 📔 Edi	t Paramet	ers Coordinates	Diagnosis
Absolute	position	Coordinate syst	en Compens	ation			
X +0000 Y -0001	. 968	Compensatio	on No. Length	compensation	Radius com	pensation	
Z -0001	. 968	1	-0011	. 600	+0000	. 000	
		2	-0001	. 968	+0000	. 000	
Mechanica	al position	- 3	+0000	. 000	+0000	. 000	
X +0000	. 968	5	+0000	. 000	+0000	. 000	
z -0001	. 968	6	+0000	. 000	+0000	. 000	
		7	+0000	. 000	+0000	. 000	
. Relative p	osition	8	+0000	. 000	+0000	. 000	
U +0000	. 968	10	+0000	. 000	+0000	. 000	
-0001	. 968						
_							
Stopped							
<<<	Coordinate settings	Compensation					>>>

Caution

- The value entry dialog box has two input methods, i.e. direct assignment and increment assignment. For direct assignment, the entered value is assigned to specified parameter directly; for increment assignment, the entered value is added to specified parameter and then assigned to the parameter;
- The increment input box and direct input box have a prompt symbol in the left respectively, '=' indicates direct input, '+' indicates increment input, and the default mode is direct assignment.
 To change to increment assignment, press the "UP/DOWN" key
- The increment input is shown above, 1# compensation is -11.2, to add -0.4, the operation



to select the

mode, "+" is to add the new value to original value, and "=" is to replace with the new value



to finish the modification of the compensation, as shown below.

Coordinate system	Edit	Monitor Edi	t Paramete	Coordinates	Diagnosis
Absolute position	Coordinate system	Compensation			
¥ +0000.968 Y -0001.662	Compensation No.	Length compensation	Radius comp	ensation	
Z -0001.968	2	+0000.000	+0000	. 000	
Mechanical position	3	+0000.000	+0000	. 000	
X +0000.968 Y -0001.662	5	+0000.000	+0000	000	
Z -0001.968	6	+0000.000	+0000.	. 000 . 000	
Relative position	8	+0000.000	+0000	.000	
U +0000.968 V -0001.662	10	+0000.000	+0000	. 000	
■ -0001.968					
Stopped					
<<< Coordinale settings	Compensation				>>>

3.7.2. System parameter setting

The system parameters can be modified as follow:



3.8 Fast system operation

The value entry dialog box has two input methods, i.e. direct assignment and increment assignment. For direct assignment, the entered value is assigned to specified parameter directly; for increment assignment, the entered value is added to specified parameter and then assigned to the parameter; the increment input box and direct input box have a prompt symbol in the left respectively, '=' indicates direct input, '+' indicates increment input, and the default mode is direct assignment. To change to

increment assignment, press the "



In [Monitor] interface, press in the [Position] menu to call out G code O program number box to

switch to O program block directly. Press



取消 to confirm, or press

to return.

In [Monitor] interface, press for the main axis rotation; press and hold the key accumulate the rotation value directly. Note: This function can be operated only after the main axis is opened, and the current speed of the main axis shouldn't be 0; if the speed is 0, set a non-zero rotation in MDI mode, and then perform the operation.

In [Monitor] interface, press in the [Position] menu in manual mode to adjust the manual magnification. In automatic mode, the automatic magnification is adjusted. Note: if additional panel is enabled, this operation will be covered by the magnification of the additional panel automatically, that is, this operation is invalid.

The machine tool moving according to prepared program is called as automatic operation. The automatic operation modes of DK300A system follow:

Memory operation, MDI operation, USB disk DNC operation

4. Automatic operation

4.1 Automatic operation

The machine tool can operate according to the program in DK300A memory, which is called as memory operation.

The program is prestored in the memory. Select and load a program with the operation panel and press

again to resume the operation, and press "**FESET**" during operation to stop the program immediately.

The step of memory operation follows:

- (2) Save the program in the memory (see section 8.1 for details);
- (3) Select [Edit], [File] in the menu or press [File] on the panel to enter file operation interface;

File manag	ement	Edit		lonitor	Edit	Paramet	er Coordinates	Diagnosis
My device								
								_
Loc	al Disk (C:)	Cocal C	lisk (D:)	Local Dis	ik (E:)			
Local Disk	(D -1				_			
Local Disk ((D:)							
Stopped								
Close	Device	New	Сору	Paste		Cut	Connect to PC	>>>

Disk C is YAFS file system disk, which is dedicated system disk. Disk D is FAT data disk, which saves processing files and system settings as well as PC interactive data. Removable USB disk saves external user data.



and load the file into the work area; as shown in the figure below

File manag	ement	Edit		Nonitor 📕 E	dit Parame	ter Coordinates	Diagnosis	
DINPROGN								
1	·第1.CHC	🔛 0000.CH	Local Disk (E			E:) 副 弥勒佛1.NC		
副 具.NC		Loading code				<mark>ۇ</mark> ئ.нс		
		7.5%						
70%								
File size: 8.67 M(9086991B) DISK Space: 112.9 MB Free Space: 14.0 MB								
Stopped								
Close	Device	New	Сору	Paste	Cut	Connect to PC	>>>	

(5) Press mode selection key [AUTO] to switch to automatic mode;



(6) Press the [START] key to run the program, and the indicator is on.

4.2 MDI operation

In [Monitor] interface, switch to [MDI], enter the program with keypad and make the machine tool operate according to the program. The program block isn't saved in system memory, and can't be preserved upon power failure. This is called as MDI operation and the step follows:

- (1) Press mode selection key [Edit];
- (3) Select [Monitor], [MDI] in the menu to enter MDI interface;
- (4) Enter program block instruction manually;

MDI running	9	Edit		Nonitor	Edit Parame	ter Coordinates	Diagnosis
Absolut X +00 Y -00 Z -00	e position 00.968 01.662 01.968	G17G9 G01X2 G02X3 M30 %	0G00G54 0Z30 0Z40R10	4 D			_
Mechanical position X +0000.968 Y -0001.662 Z -0001.968 File size:							
Stopped							
<<<	Position	Track	MDI	Auxiliary function	n Macro variables	CAM	>>>

(5) Press [Start], [EOB] to start executing the program block, as shown below.

File manage	ement	Edit		Nonitor 📕 E	dit Paran	eter Coordinates	Diagnosis
Absolute position X +0000.968 Y -0001.662 Z -0001.968		G17G9 G01X2	0G00G5 0Z30	4			
		GC M3 %	MDI pro Continu	gram will be si e?	arted.		
Mechanical position X +0000.968 Y -0001.662 Z -0001.968			ок	Cancel			
File size:							
Stopped							
<<<	Position	Track	MDI	Auxiliary function	Macro variable	CAM	>>>

4.3 USB disk DNC

The program read from external USB disk can operate the machine tool without saving in CNC memory.

This operation is called as USB disk DNC operation.

The step of USB disk DNC operation follows:

- (1) Insert the USB disk;
- (2) Select [Monitor], [File] in the menu to enter file operation interface;

- (3) Select USB disk and press [EOB] to enter;
- (4) Move cursor to select a file in the disk;
- (5) Press [EOB] to load the file into work area (system buffer);
- (6) Press mode selection key [Auto];
- (7) Press the [Start] key to run the program, and the indicator is on.

Caution

The system won't record the USD disk path. If power failure occurs during DNC processing, the program info will be lost when the power supply is connected again.

4.4 Speed rate adjustment

Feeding rate

+% key in [Position] interface to adjust the feeding rate; Press In automatic mode, press

the key once to increase or decrease by 10% (10%-150%).

Manual rate

In manual mode, press



key in [Position] interface to adjust the manual rate; Press the



5] key and key to increase or decrease by 10% (10%-150%). If you press the you can adjust the fast forward rate by 10% (10%-150%).

Principal axis rotation

In automatic or manual mode, press the



key to adjust the principal axis rotation by

100r/min. The maximum rotation is set by the principal axis parameters in the system and the minimum rotation is 16r/min. If you press and hold the key for three seconds, the value will be increased or decreased quickly.
4.5 SBK function



executing; press [START] again and next block stops after executing. The SBK mode allows checking the program block by block.



(1) In G28-G30, single block also can be stopped at the center point;

(2) The stop points of single block in fixed circle are (1), (2), (6) in the figure below; when the single blocks of (1), (2) stops, the feeding pauses and the pause indicator is on.



4.6 BDT function

In automatic mode, press [跳选 BDT] to start the BDT function, which will make the block instructions in the line after '/' in the program invalid.

4.7 Stopping automatic operating

Two methods are available to stop automatic operating, i.e. enter stop command where the program will



stop (M00, M01) and press the **RESET** key on the operation panel to stop the machine tool.

Program stops

After executing the block with M00 or M01, the automatic operating stops, which is same to single block stop, and all mode information is saved. Start with CNC and the automatic operation can be started again.

After processing a part, the automatic operation stops.

Program ends

After executing the block with M30, the automatic operating stops, changes into reset state, and returns to program start.

Feeding pause

暂停 During automatic operation, press the [PAUSE] key on the operation panel, the automatic operation

pauses and the indicator is on; press [START] again to continue operating the machine tool and the pause indicator is on.

Reset

During automatic operation, press the [RESET] key on the operation panel and the system stops

复位 immediately. Here, [^{RESET}] has the same function as emergency stop button.

5. Safe operation

5.1 Emergency stop

Press the emergency stop button on the machine tool, which will stop immediately, and all outputs such as principal axis rotation and coolant are turned off. Rotate the button clockwise to cancel emergency stop, but all outputs must be restarted.

€[™] Caution:

The power supply isn't always cut off upon emergency stop. Please refer to the electrical configuration description of the machine tool manufacturer for details;

Before releasing emergency stop, please eliminate the problems of the machine tool.

5.2 Hard limit over travel

The system alarms if the tool touches travel switch during operation. The axis in corresponding direction can't move, and only moves in reverse direction. Before the alarm is released, the system can't enter

5.3 Soft limit over travel

If the tool enters the restriction area regulated by the parameter (travel limit), the system alarms over travel, and the tool decelerates and stops. At this moment, you can move the tool to safe direction in manual

mode, and then press [^{民長SET}] to release the alarm.

●[™] Caution:

During automatic operation, when the tool touches an axial travel switch, the tool decelerates and stops all axial motions, and only displays one over travel alarm.

During manual operation, when the tool touches an axial travel switch, the tool only decelerates and stops motion on current axis, and still moves along other axes.

When the tool is in safe position, press [Reset] to clear the alarm. Please refer to the manual of the machine tool for details.

Both limit alarm and soft limit alarm have a deceleration stop, and therefore the sensing range of the limit should have sufficient space, or else the limit protection will be disabled due to over travel.

6. Alarm and self- diagnosis function

The system has several levels, and the alarm numbers also have different type, as follow:

0~1023: G code program running alarm info

1024~2048: System environment alarm info

6.1 NC program execution alarm

0000	:	Reset
0001	:	Prog No End

0004	:	M6Tx Abort
0005	:	Tool Invalid
0006	:	G Program Repeat Error
0007	:	G Program Number Error
0008	:	G7X8X Instruction Run Error
0009	:	Program Abend
0010	:	Appointed M01 Instruction Stop
0011	:	M98 Format Error
0012	:	Motion Run Error
0013	:	Current Program No Repair
0014	:	G Program Format Error
0015	:	M99 Instruction Abort
0016	:	Motion Abort
0017	:	Illegal char
0018	:	Noneffective Exegesis Character
0019	:	Illegal G Code
0020	:	GCode RadialOffset Num Err
0021	:	Noneffective GCode RadialOffset
0022	:	Arc Appointed Error
0023	:	Appointed Noneffective Plane
0024	:	M98 Instruction Abort

0025	:	Spindle Appointed Number Error
0026	:	MCode Instruction Abort
0027	:	Spi Appointed Err
0028	:	Motion Repeat Request
0029]:	Appointed Arc Nonentity
0030	:	Missing X Code Error
0031	:	Missing X Code Error
0032	:	Missing X Code Error
0033	:	Missing X Code Error
0034	:	Missing X Code Error
0035	:	Missing X Code Error
0036	:	Missing X Code Error
0037	:	Missing X Code Error
0038	:	Missing X Code Error
0039	:	Missing X Code Error
0040	:	Missing X Code Error
0041	:	Missing X Code Error
0042	:	Missing X Code Error
0043	:	Missing X Code Error
0044	:	Missing X Code Error
0045	:	Missing X Code Error

	-	
0046	:	Missing X Code Error
0047	:	Missing X Code Error
0048	:	Screw Value Repeat Error
0049	:	System Abort
0050	:	Factitious return
0051	:	no parameter input
0052	:	no store address for Gcode pro num form

6.2 System environment alarm

1024	

:

no \"return zero\

1. The system doesn't perform home action after started

1025	:	4 - direction program limit
1026	:	4 + direction program limit
1027	:	Z - direction program limit
1028	:	Z + direction program limit
1029	:	Y - direction program limit
1030	:	Y + direction program limit
1031	:	X - direction program limit
1032	:	X+ direction program limit
1033	:	4 - direction machine limit
1034	:	4 + direction machine limit

BZ001M056A ADT-DK300A/400A Engraving Machine

	_	
1035	:	Z - direction machine limit
1036	:	Z + direction machine limit
1037	:	Y - direction machine limit
1038	:	Y + direction machine limit
1039	:	X - direction machine limit
1040	:	X+ direction machine limit

The system has corresponding limit alarm. Please check corresponding limit sensor point or parameters.

If hard limit occurs, and the appearance of the sensor point doesn't has any problem, enter the diagnosis mode in manual mode and check the state of the input port in diagnosis mode. If the state is valid, please eliminate in sequence. Pull out the input IO cable and check whether the sense disappears. If yes, please check the circuit. If the problem still exists, the internal optocoupler is broken. Please contact the supplier.

1041

Emergency stop

Emergency stop button of the handheld box interface is valid.

External emergency stop 2 input is valid; check whether IO assignment has conflict or interference.

Search for corresponding function ports in IO configuration, and then check in input diagnosis.

1042	:	X Sevor driver alarm
1043	:	Y Sevor driver alarm
1044	:	Z Sevor driver alarm
1045		A Sevor driver alarm
1045	•	

Servo alarm; if the servo doesn't alarm, parameter P2.001~004 setting and actual servo alarm level may be reverse. Please modify the parameters.

The corresponding function ports are IN34~37, which can be checked in input diagnosis.

1046

:

Axis's physical line redefine

1047 : spi no to home 1048 : workpiece no lock 1049 : safe signal can't detect 1051 : air no enough 1052 : chuck signal alarm detect

Interface axis No. set by parameter P2.45~P2.49 is specified repeatedly

6.3 Alarm processing

If alarm occurs, please refer to the alarm code to confirm the failure reason.

When alarm occurs, if the system isn't reset, the alarm will constantly prompt no matter whether the alarm still exists, so as to avoid the conditions that false alarm causes system suspended, but can't find the reason.

If the error is caused by data setting, modify the data, and then press [Reset] to clear the alarm info.

When alarm occurs, please remove the alarm reason. Please note that several alarms may occur at the same time. Please refer to the alarm info in the Diagnosis menu for details. When the alarms are eliminated, please press [Reset] to clear the alarm ring.

6.4 Self-diagnosis function

The CNC system may stop even when there is no alarm info, this may be because the system is executing certain processes. Please check with the self-diagnosis function.

The step of self-diagnosis follows:

(1) In the main menu, press [Diagnosis] to enter the diagnosis interface;

(2) Select [Input] to enter the input diagnosis interface, or select [Output] to enter the output diagnosis interface;

(3) Output diagnosis: In edit mode, press the direction keys to select the output port, and press [EOB] to switch the output level of corresponding output port;

(4) Input diagnosis: When certain input signal is valid, the corresponding area on the screen flashes.

7. Program saving & editing

7.1 Saving the program in the memory

7.1.1. Keypad input (new program)

Create new program in the memory with the keypad, and the step follows:

In the main menu, press [Edit] to enter program edit interface;

Press [File] to enter file operation interface;

Select [New] to create a new file;

Enter the file name and press [EOB] to confirm and create a new program in current directory in the memory, and load into the system by default;

Select [Close] to exit [Edit] interface;

In edit mode, enter the program content;

After editing all programs, press [Reset] to save the edited programs into the system memory.

7.1.2. PC serial port input

The step of transmitting files to controller through PC follows:

Set system baud rate and ID No.;

Connect to PC and run Adtech serial communication software;

Set the baud rate same as controller, and scan ID device;

Select the [Upload file to NC] button in the communication software;

Select CNC file in the popup dialog box and press [Open] button.

7.1.3. Copying processing files from USB disk

The step of copying CNC processing file to system memory through USB disk follows:

In the main menu, press [Edit] to enter program edit interface;

Press [File] to enter file operation interface;

Select USB disk and press [EOB] to enter;

Move the cursor to select a CNC file and then select [Copy];

Return to the root directory, locate the PROG directory in disk D, enter the directory, and select [Paste] to complete copying.

7.2 Reading programs into work area

7.2.1. Reading programs from controller into work area

The step of loading files from system memory into work area follows:

Press [File] to enter file operation interface;

Select desired program, which is in PROG directory in disk D by default, press [EOB] to enter subdirectory, or press [Cancel] to exit;

Move cursor to select desired program, press [EOB] to confirm and load the program.

7.2.2. Reading programs from USB disk into work area

The step of loading files from USB disk into work area follows:

Insert the USB disk;

Press [File] to enter file operation interface;

Select USB disk, move cursor to select a file in the disk, and press [EOB] to load the file.

7.3 Editing & modifying programs

The program in CNC memory can be edited with NC keypad. In the main menu, press [Edit] to enter program edit interface and edit the program in current work area (for loading program into work area, refer to section 8.2). The edit mode is similar to notepad in Windows. Move the cursor directly to locate, press keys to enter, press [EOB] to change line, and press [Delete] to delete the character where the cursor locates.



After all operations, press Reset to save the files, and the functions base on edit mode;

DK300A uses new file mapping technology, and allows loading processing files that exceed its memory. Therefore, to ensure the system efficiency, you can only search and process, but can't edit the processing files that exceed 2MB.

7.4 Deleting files

7.4.1. Deleting files in memory

Follow the step below to delete the programs in system memory:

Press [File] to enter file operation interface;

Follow the prompt on the screen, select the file and press [Delete] to confirm and delete the file.

Caution

If the program has been loaded into work area, you need to restart the system to delete the program, or else the system will report error.

The programs loaded into the work area can't be deleted, or else the system will report error.

8. Main interfaces of the system

8.1. Position interface

The position interface shows current machine tool coordinates, including absolute position, relative position and comprehensive position. In the main interface, press [Monitor] to enter the position interface.

To enter position interface:



8.1.1. Absolute position

The position of current machine tool coordinates relative to the origin of workpiece coordinate system.

The absolute position interface follows:

Absolute	position	Αι	ıto 🖌	loritor E	dit Paramet	ter Coordinates	Diagnosis
X Y Z	+003 -000 +004	0.00 1.66 0.00	0 2 0	M T 00 S240 File re S24000 81 70	05 Program 09 Actual 33 Feedin 11 Proces 001 Shiftim 000 Main as me: 弥勒佛	nming rate rate g rate sing pieces agnification ds magnification 11.CNC <mark>Progra</mark>	3000 0 100% 0 100% 100%
G01 G1 G40 :I G49 :H Culling Ime	17 G90 000 = 0 100 = 0 0	G54 G8 00.000 00.000 0:00:00	0	60 X29 Z1. ; 61 Z0. Z=2. 5 X29. 43	9.5 Y-29.5 F500 ; 39 F1000 ;	:	_
<<<	Position	Track	MDI	Auxiliary function	Macro variables	CAM	>>>

Absolute Position Interface

8.1.2. Relative position

In manual mode, reset current coordinates to check the relative motion distance of any displacement, and thus it is called as relative position.

This interface is usually used for early tool setting. Considering that some operators have been used to manual calculation, this function is preserved. With the more and more powerful of automatic centered function, it is used less.

The operation follows:

Enter [Position] interface;Switch to [Relative] interface;Then, enter manual mode;Press a coordinate axis No., e.g., 'X', and the X coordinate flashes; Press "Cancel" to reset X coordinate to 0;The relative position interface follows:

Absolute	position	Au	ito 🖌	Noritor Edit	Parameter Coordinates	Diagnosis
U V W	+003 -000 +004	0.00 1.66 0.00	0 2 0	M 0 0 3 1 T 000 S2400 File name	5 Programming rate 9 Actual rate 3 Feeding rate 1 Processing places 1 Shift magnification 0 Main axis magnification 2 苏勒佛1.CNC Prog	3000 0 100% 0 100% 100%
G01 G1 G40 : [G49 :] Culling Ime	17 G90 000 = 0 100 = 0 00	G54 G8 00.000 00.000 0:00:00	0	S24000M3 61 Z10. 60 X29.5 Z1. ; 61 Z0. F Z-2.5 ; X29.439	3 ; ; 5 Y-29.5 ; 500 ; F1000 ;	
stopped						
<<<	Close	Absolute	Relative	Comprehensive		>>>

Relative Position Interface

8.1.3. Comprehensive coordinates

The interface displayed by absolute coordinates and machine tool coordinates.

Comprehensive position interface is shown below:



Comprehensive Position Interface

8.2. Edit interface

The edit interface shows the program info in current work area. In the main interface, press [PROG] to enter the program interface.

编辑

To enter program edit interface:



8.3. Program edit

The program edit interface shows the NC program currently processed; in edit mode, you can edit the NC program (see section 8.3 for details).

prog edit	: El	DIT	/	Run 📕	dit Para	am Coor	d Test
1 0000 2 M3S2 3 G50 4 G96 5 M3 6 G01 7 G97 8 S100 9 G96 10 S20 11 G50 12 G01 13 G01 14 % 15	1 00 G01 X20 S8000 S200 X1000 F100 G01X500 0 X100 G01X50 0 S1000 X500 X500 X500	00					00001 00092
Stopped	UU. UNC	Line	. 100		gram size: 14	40 1	
Stopped							-
<<<	Edit	Syntax checking			File		>>>

Program Edit Interface

8.4. System Info Interface

The system info is a summary of the program blocks in current processing area, and calculates the resource usage in current work area. The upper right of the program directory interface shows the version info of current controller software. If our engineering personnel ask to confirm the software version of the controller on site, please provide this version info.

To enter system info interface:



System info interface is shown below:

sys info	E	TIC		Run 🛛 E	dit Para	m Coord	Test
Syster BuildD FPGA DLIB GLIB Currer Currer NOs c used s prepro	n VER: 0 ata: 11-1 VER: 1.5 /ER: 103 /ER: 2f nt NC File nt Prog: 0 of saved p space cessing L	.6.02 0-20 0 1.7 34 : \PROG 00001 0 KBleft .ib Ver:11	0.6.09 16 108 00000.CN 2 left 1048575	12-07-09 17:1: C 998 5 KB 13	2:18		
Stop							
<<<	alert	input	output	DA	sys info		>>>

System Info Interface

8.5. MDI interface

MDI mode is mainly used for the execution of single G code in certain occasions.

To enter MDI interface:



In MDI interface, enter complete NC code instruction in edit mode, press the [Start] key in the edit mode and confirm to execute directly.

To restore the default settings quickly, press and hold the [Reset] key for three seconds and choose to reset or not.

MDI interaction interface is shown below:

MDI runn	ning ED	лт		Run E	dit Para	m Coord	Test
abs X +00 Y +00 Z +00	pos 00.000 00.000 00.000	SDG17	<mark>G90G00</mark>	G 5 4			
mac X +00 Y +00 Z +00	thine pos 00.000 00.000 00.000						
Stop							
<<<	pos	path	MDI	aid	macro		>>>

MDI Interface

8.6. File management

In the file management interface, you can manage the system files.

To enter file management interface:



File management mainly has the following functions:

Connect the UBS disk, and copy the files between USB disk and electronic disk;

Upgrade system software: Copy the upgrade file to system memory in either method above to upgrade the software;

Restart the controller. In [File Management] interface, press the Reset key to restart the controller. This method is different from restarting due to power failure. In certain occasions, you can restart the controller quickly in this method to make certain function take effect.

Connect to PC with the USB cable, and exchange the data between USB disk and PC.

File operation interface is shown below:

file mana	file manager JOG Run Edit Param Coord Test									
my equip										
	al diek(e)		lick(d)	data trav	(olor/LI)					
\sim ideal disk(d) \sim data traveler(d)										
local disk(c)										
Stop										
close	equip	new	сору	paste	cut	to pc	>>>			

File Operation Interface

8.7. Graphic simulation

[Track] function is to simulate NC processing program.

To enter graphic simulation interface:

[MONITOR]		
	[Track]	

Enter track interface to enable real-time track display automatically. During automatic running of the system, the motion track is displayed in real-time. In standby mode, you can also press Preview to prescan the processing file.

The shortcuts of adjusting position:





Graphic simulation interface is shown below:



Graphic Simulation Interface

8.8. Parameter interface

The parameter interface shows system parameter info, including comprehensive, axis parameter, management, tool magazine, principal axis, port, etc. In the main interface, press [parameter] to enter the interface.

Parameter has the following menus:



General parameters

General parameters are a set of functions that aren't classified in details, e.g. home mode, manual speed,

etc.

General parameter interface is shown below:

general	JC	G		Run 🛛 E	dit Para	m Coord	Test
001 X Gear Numerator			1	013,XStartupSpeed(mm/min)			100
002 X Gear Denominator			1	014,YStart	tupSpeed(n	nm/min)	100
003 Y Gea	ar Numerat	or	1	015,ZStart	upSpeed(m	m/min)	100
004 Y Gear Denominator			1	016,4Start	upSpeed(m	im/min)	100
005 Z Gea	r Numerat	or	1	017,X Acce	eleration(Kp	ops)	1000
006,Z Gear Denominator			1	018,Y Acce	eleration(K	ops)	1000
007,4 Gear Numerator			1	019,Z Acceleration(Kpps)			1000
008,4 Gear Denominator			1	020,4 Acce	eleration(Kp	ops)	1000
009,X Fas	tSpeed(mm	n/min)	3000	021,X Soft	mm) +	9999.999	
010,Y Fas	tSpeed(mn	n/min)	3000	022,X Soft PosLimit-(mm) - 9999.99			
011,Z Fas	tSpeed(mm	n/min)	3000	023,Y Soft	PosLimit+(mm) +	9999.999
012,4 Fas	tSpeed(mm	n/min)	3000	024, Y Soft	PosLimit-(r	mm) –	9999.999
		·					
Stop							
<<<	genl	axis	manage	tools	spindle	port	>>>

General parameter Interface

Axis parameters

Axis parameters are parameter set of interface characteristics of control position axis. Please refer to the parameter

description for details.

Axis parameter interface is shown below:

axis	JC)G		Run 🛛 E	dit Para	m Coord	Test		
004 1/ 0 -				040 7 50	7.1.1				
001,X_Se	rvoAlarmin	ELevel	<u> </u>	013,2_EC	2 Home Ena	able	0		
002,Y_Se	rvoAlarmIn	ELevel	0	014,Z_EC2	Z Home ELe	evel	0		
003,Z_Ser	voAlarmIn	ELevel	0	015,4_EC2	Z Home Ena	ıble	0		
004,A_Se	rvoAlarmIn	ELevel	0	016,4_EC2	Z Home ELe	vel	0		
005,X_Se	rvoResetOu	ut ELeve	1	017,X Limi	it+ Enable<	>	0		
006,Y_ServoResetOut ELeve			1	018,X Limi	it- Enable<•	>	0		
007,Z_Ser	rvoResetOu	It ELeve	1	019,X Limi	>	0			
008,A_ServoResetOut ELeve			1	020,Y Lim	it+ Enable<	•>	0		
009,X_EC	Z Home En	able	0	021,Y Limit- Enable<•>			0		
010,X_EC	Z Home EL	evel	0	022,Y Lim	>	0			
011,Y_EC	Z Home En	able	0	023,Z Limi	t+ Enable<	>	0		
012,Y_EC	Z Home EL	evel	0	024,Z Limit- Enable<•>					
		^							
Stop									
<<<	genl	axis	manage	tools	spindle	port	>>>		

Axis Parameter interface

Management parameters

This is a function set that confirms identity and initialize the system.

Management parameter interface is shown below:

manage	JC	G		Run 📔 E	dit Para	m Coor	d Test	
001,Select	t SupMode		Superuser	013,lead in	onfig			
002,AlterSuperuserPasswor			*****	014, startu	<mark>ip display</mark> m	odule	Rel	
003,Alter l	Jser Passw	/ord	****	015,sys lar	nguage bag		English	
004,Initialize				016,macro	key word v	alid En	0FF	
005,Initiali	ze IO Confi	g		017,startu	o <mark>picture d</mark> is	splay	1s	
006,all para reset<•>			======	018,sys dis	s <mark>play a</mark> xis s	etting	XYZ	
007,para backup			=======	019,sys de	ON			
008,para recover =====			======	020,axis co	ontrol comp	osite key	ON	
009,gener	ate cryptog	ram	======	021,additio	nable	0FF		
010,menu	click way		======	022,Select I	gram <•>	MFUNC (M)		
011,clear	add up wor	k num		023,Select T macro program <.> TFUN				
012,clear	current wor	'k num	=======	024,Select F	LC macro pr	ogram <•>	PLC (M)	
1								
Stop								
<<<	genl	axis	manage	tools	spindle	port	>>>	

Management Parameter Interface

Tool magazine parameters

Tool magazine parameters collect the parameters that the tool magazine requires. The specific meaning of the parameters should be determined by the tool magazine of the machine tool, and therefore should refer to the instructions provided by the machine tool manufacturer.

Principal axis parameters

Principal axis parameters are the set of electrical characteristics of servo and common principal axes. The specific application also depends on the principal axis selection of the machine tool manufacturer. The servo parameters and axis parameters have the same meaning, and therefore please refer to the description of axis parameters.

Principal axis parameter interface is shown below:

spindle	JC)G		Run 🚺 E	dit Para	m Coord	Test		
						_			
001,Spi.Al	arm ELeve		1	013,Spi.Encode bits(p)			0		
002,Spi.Reset ELevel			1	014,Spi.Ze	roOffset(p)		0		
003,Spi.E0	CZ Home E	nable	1	015,Spi.Pu	IseLogic Le	vel	0		
004,Spi.ECZ Elevel			0	016,Spi.Ro	lling Display	y Usa <mark>ge</mark>	0		
005,Spi. Limit+ Enable			0	017,Spi.Ma	ax Acc(Kpp	s)	2000		
006,Spi. Limit- Enable			0	018,Spi.Ex	t HomeDir		0		
007,Spi.Limit Elevel			0	019,Spi.Servo HomeDir			0		
008,Spi.Pulse Mode			1	020,Spi.Max Speed(rpm)			24000		
009,Spi.Pu	ulse Logic N	lode	1	021,Spi.Home Speed(rpm)			1000		
010,Spi.H	omeDect El	_evel	0	022,Spi.Gear Numerator			1		
011,Spi.E>	dHome Che	eck En	1	023,Spi.Gear Denominator			1		
012,Spi.R	ound Setting	g	0	024,Spi.En	Dir	0			
						_			
Stop	Stop								
<<<	genl	axis	manage	tools	spindle	port	>>>		

Principal Axis Parameter interface

IO configuration parameters

IO configuration parameters are the assignment of hardware interfaces. This parameter set is the IO pin sequence specified by the system's IO function numbers, which will improve the system flexibility. Please refer to System Parameters for the specific meaning of the parameters.

IO configuration parameter interface is shown below:

IO para	JC)G		Run 🚺 E	dit Parai	n Coord	d Test	
001,Whee	10.1		24	013,Z Aları	m		36	
002,Whee	10.01		26	014,4 Aları	n		37	
003,Whee	10.001		28	015, IN0	wire No:	(1-24)	1	
004,X Wheel			25	016, IN1	wire No:	(1-24)	2	
005,Y Wh	eel		27	017, IN2	wire No:	(1-24)	3	
006,Z Whe	el		29	018, IN3wire No:(1-24)				
007,A Whe	eel		31	019, IN4	wire No:	(1-24)	5	
008,SCRA	008,SCRAM 33				wire No:	(1-24)	6	
009,STOP			32	021, IN6wire No:(1-24)				
010,STAR	TUP		30	022, IN7wire No:(1-24)			8	
011,X Alar	m		34	023, IN8wire No:(1-24) 9			9	
012,Y Alar	'm		35	024, IN9wire No:(1-24) 10				
						_		
Stop								
<<<	genl	axis	manage	tools	spindle	port	>>>	

IO Configuration Parameters Interface

8.9. Compensation interface

Tool compensation interface shows tool compensation info of the system, including tool length compensation, tool radius compensation and other input variables. The compensation method is described below.

To enter tool compensation interface:



M series tool compensation interface has two compensation variables, i.e. tool length compensation and tool radius compensation; corresponding to G43, G44 and G41, G42; enter compensation value to corresponding compensation number, and transfer the compensation number in NC program to realize the compensation. Tool compensation numbers have 36 variables.

Tool compensation interface is shown below:

Coord	El	TIC		Run 🚺 E	dit Para	m Coord	Test
abs pos		Coord	Ехр	Set +	lalve 🔪 T	Cut	st
X +0000 Y +0000	. 000 . 000	offset	No length	offset	R offs	et	
z +0000	. 000	1	+0000	. 000	+0000	. 000	
		2	+0000	. 000	+0000	. 000	
machine	Dos	3	+0000	. 000	+0000	. 000	
X +0000	. 000	4	+0000	. 000	+0000	. 000	
Y +0000	. 000	<u> </u>	+0000	. 000	+0000	000	
∠ +0000	. 000	7	+0000	. 000	+0000	. 000	
		8	+0000	. 000	+0000	. 000	
	000	9	+0000	. 000	+0000	. 000	
Y +0000	. 000	10	+0000	. 000	+0000	. 000	
Z +0000	. 000						
Stop							
Stop							
<<<	Coord	Expiate	Set	HALVE	TCheck	Measure	>>>

Tool Compensation Parameter Setting Interface

8.10. Workpiece coordinate system setting interface

The coordinates interface shows coordinate system info, including coordinate system and compensation. In the main interface, press [Coordinate] to enter coordinate system.

Workpiece coordinate system

Display workpiece coordinate system, i.e. the offset of workpiece home position and machine tool home position. Totally six basic workpiece coordinate systems (G54~G59) and nine extension coordinate systems (G591~G599) are available.

To enter workpiece coordinate system interface:



The workpiece coordinate system interface is shown below:

Coord	JC)G		Run 📔 E	dit Para	m Coord	Test
abs pos		Coord	Exp	Set	Halve 🔪 T	Cut Te	st
X +0000 Y +0000	. 000 . 000	G54		G 5 8	5		
Z +0000	. 000	X +	0.00	0 X	+ 0.	. 000	
		<u>Y</u> +	0.00	0 Y	+ 0.	. 000	
machine	Dos	<u>Z</u> +	0.00	0 Z	+ 0.	. 000	
X +0000	. 000	A +	0.00	U A	+ 0.	. 000	
Y +0000	. 000	G 56		G 5 1	7		
Z +0000	. 000	<u>X</u> +	0.00	0 X	+ 0.	. 000	
		Y +	0.00	0 Y	+ 0.	. 000	
rel pos			0.00		+ 0.	. 000	
X +0000 Y +0000	. 000 . 000	A T	0.00	UA	τ 0 .	. 000	
Z +0000	. 000						
Stop			_				
<<<	Coord	Expiate	Set	HALVE	TCheck	Measure	>>>

Workpiece Coordinate System Setting Interface

8.11. Controller diagnosis interface (diagnosis)

The diagnosis interface is used to display the hardware interfaces and system info, including alarm, input,

output, DA diagnosis; press [Diagnosis] to enter the diagnosis interface.

The diagnosis interface follows:

[Diagnosis/D	OGNOSI
	Alarm
	Output
	Function Test
	Svstem Info

Alarm interface

Display the alarm of the system after power on, including 15 alarm records.

Alarm info	5 /	Auto		Monitor E	dit Para	Coord	Diag
History ala	arm:						
1-<10/27/3	36> 1024 c	ontroller no	t reset				
Stopped							
<<<	Alarm	Input	Output	Function test	System Info		>>>

IO diagnosis interface

Input diag	nosis	Auto	Ň	Aonitor I	Edit Para	Coord	Diag			
X home	e 100 🥥	Y home I01	Z horr	ne 102	A home IO	3 🥝 IND4	4			
IN05		IN06	IN07		IN08)			
IN10		IN11	@IN12		IN13	IN14	۱			
IN15		X-limit I16	⊘ X+limi	t 117	Y-limit I18		nit I 19			
Z-limit I	nit I20 🛛 🖉 Z+limit I21		A-limit	122	A+limit I23	Hand	wheel1 124			
Handwheel	elX 125 🥥 i	Handwheel2 126	Handwi	neelY 127	Handwheel3 I	28 Handv	vheelZ 129			
Start I3	0 0	HandwheelA 13	1 @Pause	132	Stop 133	X ala	X alarm I34			
Y alarm	n 135 🥥	Z alarm 136	A alar	m 137	X Z phase I4	10 • YZ	phase I43			
@ Z Z phase I46 @ A Z phase I49 @ S Z phase I52										
Stopped	Stopped									
<<<	Alarm	Input	Output	Function tes	st System Info		>>>			

Input diag	nosis	Auto	Ň	Monitor E	dit Para	a Coord	Diag
Spindle	+ 00 🛛 📀 S	Spindle - 01	OUT	02	OUT03	@OU	T04
OUT0	5 00	DUT06	OUT	07 🧕	OUT08	@OU	Т09
OUT1	0 00	OUT11	OUT	12 🧕	OUT13	@OU	T14
OUT1	5 00	OUT16	OUT	17 🥥	OUT18	@OU	T19
OUT2	0 00	OUT21	OUT	22 0	OUT23	@X0	UT24
• YOUT	25 02	ZOUT26	AOU	T27			
Stopped							
<<<	Alarm	Input	Output	Function test	System Info		>>>

IO diagnosis allows entering at any moment. You can check current IO state of the system. In manual mode, press the direction keys to select corresponding IO, and press EOB to control the output manually.

Function test interface

Correct the output voltage of two lines DA voltage module for testing; press the direction keys to output corresponding voltage directly, input the actually measured voltage to corresponding gear position; when transferring control instructions of principal axis, the system will correct according to correction value.

Function	test /	Auto		Monitor E	Edit Para	a Coord	Diag
(1)0.0V	0.00	(1)0.5V	0.47	(1)1.0V	0.90	(1)1.5V	1.34
(1)2.0V	1.79	(1)2.5V	2.25	(1)3.0V	2.70	(1)3.5V	3.17
(1)4.0V	3.65	(1)4.5V	4, 13	(1)5.0V	4.62	(1)5.5V	5.12
(1)6.0V	5.62	(1)6.5V	6.14	(1)7.0V	6.66	(1)7.5V	7.19
(1)8.0V	7.73	(1)8.5V	8, 28	(1)9.0V	8,83	(1)9.5V	9.40
(1)10.0V	10.00						
(2)0.0V	0.00	(2)0.5V	0.47	(2)1.0V	0.90	(2)1.5V	1.34
(2)2.0V	1.79	(2)2.5V	2.25	(2)3.0V	2.70	(2)3.5V	3.17
(2)4.0V	3.65	(2)4.5V	4, 13	(2)5.0V	4.62	(2)5.5V	5.12
(2)6.0V	5.62	(2)6.5V	6, 14	(2)7.0V	6.66	(2)7.5V	7.19
(2)8.0V	7.73	(2)8.5V	8, 28	(2)9.0V	8, 83	(2)9.5V	9.40
(2)10.0V	10.00						
Stopped							
<<<	Alarm	Input	Output	Function test	System Info		>>>

The principal axis function is used for testing; the principal axis has encoder, which displays current state of the principal axis, e.g. actual speed of principal axis, encoder line setting, current principal axis angle, and current position of principal axis.

Function	test /	Auto		Monitor E	dit Para	Coord	Diag
Spindle p	arameter in	fo					
①Curren ②Spindle	t spindle sp encoder w	eed (0 Rpm 0				
③Curren	t spindle po	sition	0				
④Curren	t spindle an	gle (0.000				
When the s press "S" ke phase hom testing. Rot test.	ystem is pause by to pop up th e times and the ate the spindle	e state and ed le dialog box, en press OK t e manually firs	It mode, Input the Z o start t before				
Stopped							
<<<	Alarm	Input	Output	Function test	System Info		>>>

The system info shows basic information of current system, and is used to mark current software version, hardware version, upgrade info, etc. In this interface, you can follow the prompt to perform operations.

System info	o Au	ito	_	Monito <mark>r</mark> E	Edit Para	Coord	Diag		
System VER: 0.6.09									
BuildData: 12-07-09 17:12:18									
FPGA VEF	R.: 1.5								
BLIB VER.	" 108								
GLB VER.	: 34								
Current pro	ogram: O0	001							
Nos of ave	d prog 1	left: 9	99						
Used spac	e: 8874kb	left: 10	39701kb						
Preproces	sing Lib Ve	er: 11							
Stopped									
<<<	Alarm	Input	Output	Function test	System Info		>>>		

8.12. Macro variable view interface (macro variable)

This is the variable register view menu of macro function. In this menu, you can turn pages to view the

macro variables, or enter values to variable register directly in edit mode.

Macro var	iable	Auto	1	Ionitor	Edit Para	a Coord	Diag		
Absolute posi	tion User	#500	#600	#700 #	#800 #90	00 #100	Local		
X +0030 Y -0001	. 000 662 Macr	oName0		0.000	MacroName	1	0.000		
Z +0040	. 000 Macr	oName2		0.000	MacroName	3	0.000		
	Macr	oName4		0.000	MacroName	5	0.000		
Mechanical p	osition Macr	oName6		0.000	MacroName	7	0.000		
X +0030	. 000 Macr	oName8		0.000	MacroName	9	0.000		
z +0040	000 Macr	oName10		0.000	MacroName	11	0.000		
	01								
Relative posit	S2400	0.0M3							
X +0030	.000 60 X2	9.5 Y-29.5	ō						
z +0040	. 002 21. . 000 61 Z0). F500							
	Z-2.5								
Stopped									
Close	User	#500	#600	#700	#800	#900	>>>		

To enter macro variable view interface:

[MONITOR]
	Macro variable

The macro variable menu has eight levels, as below:

Local variable #100~#199 #500~#599 #600~#699 #700~#799 #800~#899 #900~#999 Process variable

M In the variable interfaces of different levels, you can check the corresponding variable number. Local variable has five

levels totally, and shows the variables of current working layer by default. To view a specific layer, please enter local

variable submenu, and then select according to layers.Process variables are to customize the names of 20 variables

(#100~#999) according to CSV configuration table, so that the variable names have visual meanings. In programs, the user customized variables are transferred with variable number. **Current mode instruction info** Display the G code mode info of current system;

In [Monitor] interface, you can check the running code info of current system:

Motion instruction:	(G00,G01	
Select plane:	G17,G	18,G19	
Coordinate logic:	0	G90,G91	
Workpiece coordinate system:			G54,G59,G591G599
Radius compensation:	(G40,G41,G4	42
Length compensation:	(G43,G44,G4	49
Compound instruction retracting	plane:		G98,G99
Principal axis rotation:	9	5	
Tool No.:	т		

As the information in the red dotted box in the figure below

Absolute	position	Au	ıto 🖌	loritor	Edit	Paramet	ter Coordinates	Diagnosis
X Y Z	+003 -000 +004	80.00 01.66 0.00	0 2 0	M T 0 S24 File r S240 21.7	05 09 33 11 001 000 ame:	Program Actual Feedin Proces Shirilm Nain 20	nming rate rate g rate sing places agnitication ds magnitication 11.CNC Progra	3000 0 100% 0 100% 100%
G01 G17 G90 G54 G80 G0 X29.5 Y=29.5 Y=29.5								
stopped				_				
<<<	Position	Track	MDI	Auxiliary function	n Macro	variables	CAM	>>>

9. System maintenance

9.1. Restart

After program update, you need to restart the system to make the settings take effect. Cold start and warm start are available. For cold start, turn off the power supply directly, and then turn on; for warm start, carry out the following operation when the system is running normally and the processing is stopped:

- 编辑 PROG] to enter the program interface; (1) In the main menu, press [
- (2) Press [File] to enter the file interface;
- 复位 (3) Press [RESET] and the system asks whether restart or not, as shown in Fig. 9-1;

File manag	ement	Auto		lonitor 📕 E	dit Parame	ter Coordinates	Diagnosis		
My device									
₩ Loc	al Disk (C:)	9	Resta	rt the syster	m?				
	OK Cancel								
Local Disk (D:)									
Stopped									
Close	Device	New	Сору	Paste	Cut	Connect to PC	>>>		

Fig. 9-1

EOB (4) Press [] to restart the system. 文件 In the file management interface, you can also press FILE on the panel to enter directly.

9.2. System upgrade

After system update, all parameters of the system will be initialized. To restore the original parameters after update, you can back up the parameters before update, and then restore the parameters after update. For parameter backup and restore, please refer to section 9.3 and 9.4.

Before update, press [Diagnosis] [System info] to view current version information of the software, in order to compare whether the update is successful, as shown in Fig. 9-2-1:

The system info window is shown below:

System in	ifo Au	uto		Monitor E	dit Para	Coord	Diag		
System VER: 0.6.09									
BuildData: 12-07-09 17:12:18									
FPGA VE	FPGA VER.: 1.5								
BLIB VEF	R." 108								
GLB VER	1.: 34								
Current p	rogram: O0	001							
Nos of av	ed prog 1	l left: 9	99						
Used spa	ce: 8874kb	left: 10	39701kb						
Preproce	ssing Lib Ve	er: 11							
Stopped					A				
<<<	Alarm	Input	Output	Function test	System Info		>>>		

Fig. 9-2-1

The step of copying upgrade program with USB disk follows:

(1) In the main menu, press [Edit] to enter the program interface;

(3) Press [File] to enter file management interface;

(3) Insert the USB disk, select the USB disk symbol in the root directory; after reading successfully, the system enters the USB directory automatically;

(5) Move cursor to the upgrade file ADTROM.BIN, select [Copy] to pop up a prompt window as shown in

Fig. 9-2-2, and press [EOB] to update; if there is no prompt window, please check the file name is valid.

(5) Select the second upgrade file NC_RES.NC; skip this step if the file doesn't exist. The operation is same as (4).

(6) After update, enter BIOS and then update the program: when the system is restarting, press [Cancel] to enter and show six options, which are 0: System Settings; 1: BIOS Settings ... 6: Language; select 1: BIOS Settings - 1 - Program, and press Y to confirm; after that, the system prompts that the programming is done.

(7) After update, enter system info of the Diagnosis menu to view the system version number and programming date, and confirm whether the update is successful, as shown in Fig. 9-2-1.

The system update window is shown below:

File manag	ement	Input		lonitor 📕 E	dit 🚺 1	Paramet	er Coordinates	Diagnosis
My device								_
€ Loc	al Disk (C:)	9	Syster	m will upda	ie?			
		_	ок	Cano	el			
File size:1.0	05M(11022448	B)						
Stopped								
Close	Device	New	Сору	Paste	CL	ut	Connect to PC	>>>

Fig. 9-2-2

9.3. Restore factory parameters

This operation will restore all system parameters will be reset to the default. After initialized, most of the parameters are valid. The user can edit the parameters according to equipment definition and requirements, or restore the backed parameters.

(1) Press [Edit] to switch to edit mode;



- (2) In the main menu, press [SYSTEM] to enter the parameter interface;
- (3) Press the [Management] key to enter the management parameter interface;
- (4) Move cursor to "006 Reset all parameters";



(5) Press the system asks whether clear all parameters, as shown in Fig. 9-3; press [EOB] again,

the system restores the default parameters and restarts automatically.

manage	JC	G	Run Edit Param Coord Test					
manage JOG Run Edit Param Coordination 001,Select SupMode Superuser 013,lead in CSV sys config 014, startup display module 002,Alter Superuser Password ********** 013,lead in CSV sys config 014, startup display module 003,Alter User Password ********** 015, sys language bag 015, sys language bag 004,Initialize This operation will macro key word valid En startup picture display 006,all para reset<•> Continue? sys display axis setting							Rel English OFF 1s XYZ	
007,para b 008,para r 009,genera 010,menu	oackup ecover ate cryptog click way	ram	OK Cancel		bug information ontrol comp onal panel e ol outlay ena	ation En osite key nable able	ON ON OFF OFF	
011,clear add up work num ======= 012,clear current work num =======								
Stop								
<<<	genl	axis	manage	tools	spindle	port	>>>	



9.4. Parameter backup and restore

This function can back up the modified parameters. When the system is updated or initialized, the parameters can be restored to avoid setting the parameters repeatedly. The backup files can be copied to other engraving system. Therefore, please back up the parameters after adjusting and restore the parameters directly in the new machine. The parameter backup and restore method is described below:

- (1) Select the edit mode;
- (2) In the main menu, press [Parameter] to enter the parameter interface;
- (3) Press the [Management] key to enter the management parameter interface;
- (4) Move cursor to 007 or 008, and select corresponding operation menu;
- (5) Press [EOB], the system confirms, and performs backup or restore operation;

(6) The backup operation will generate the SYSCONF.BAK file in the root directory of disk D. Please save this file for backup in the future.

(7) For restore operation, also save the SYSCONF.BAK file in the root directory of disk D. The system will recognize this file automatically in the process of restoring.

9.5. Entering BIOS

(1) If the system has irreversible error and can't be started, please enter BIOS to upgrade and maintain the program;

(2) To enter BIOS, press the [Cancel] key after the controller is electrified and before the application is started; after entering, a blue background interface pops up. If the BIOS requires password, a prompt pops up. Please type the password to enter the BIOS.

(3) Enter BIOS to perform operations such as format disk C, D, and copy files from USB disk to upgrade;

10. System parameters

According to occasions and functions, the parameters contain General parameters, IO configuration parameters, management parameters and coordinate setting parameters.

- General parameters are complete, and contain basic operation and usage settings of the controller, including principal axis, handwheel, home, tool magazine, etc.;
- X IO configuration parameters are mainly used for machine installation and test, adapting to the interface characteristics of machine tool and motor drive;
- st Coordinate setting parameters are tool setting configuration in [Coordinate] interface;

(1) It is required to confirm user identity to modify the parameter table. The controller has two levels of user authority, which are super user and operator; super user can modify all parameters and user passwords; while operator only can operate the parameters that require modification; in P3.1 of management parameters, the system enters the corresponding mode automatically according to the entered password.

(2) According to the application, the parameters will take effect immediately or after restarted; the parameters that require restart are marked with <●>.

(3) Certain parameters are set in binary system (parameter descriptor has bit symbol); the conversion between binary system and decimal system follows:

Bit0: Set to 1 to correspond to decimal 1;

Bit1: Set to 1 to correspond to decimal 2;

Bit2: Set to 1 to correspond to decimal 4;

Bit3: Set to 1 to correspond to decimal 8;

Bit4: Set to 1 to correspond to decimal 16;

Bit5: Set to 1 to correspond to decimal 32;

Bit6: Set to 1 to correspond to decimal 64;
Bit7: Set to 1 to correspond to decimal 128;

For more bits, multiply the decimal system corresponding to binary system of previous position by 2. If only the corresponding bit is 1, accumulate the numbers of corresponding decimal system according to the comparison table to get the setting value.

For example: set Bit0, Bit1 and Bit5 to 1, and the parameter will be 1+2+32=35.

(4) All modified parameters must be saved in [EDIT] mode and the system has stopped; for nonnumeric parameters, press the EOB key and select in the popup dialog box.

Parameter type	S/N	Description	Effective mode	Default value	Page
General parameter (P1.)	001	X Gear Numerator	Instant		
General parameter (P1.)	002	X Gear Denominator	Instant		
General parameter (P1.)	003	Y Gear Numerator	Instant		
General parameter (P1.)	004	Y Gear Denominator	Instant		
General parameter (P1.)	005	Z Gear Numerator	Instant		
General parameter (P1.)	006	Z Gear Denominator	Instant		
General parameter (P1.)	007	4 Gear Numerator	Instant		
General parameter (P1.)	008	4 Gear Denominator	Instant		
General parameter (P1.)	009	X FastSpeed(mm/min)	Instant		
General parameter (P1.)	010	Y FastSpeed(mm/min)	Instant		
General parameter (P1.)	011	Z FastSpeed(mm/min)	Instant		
General parameter (P1.)	012	4 FastSpeed(mm/min)	Instant		
General parameter (P1.)	013	XStartupSpeed(mm/min)	Instant		
General parameter (P1.)	014	YstartupSpeed(mm/min)	Instant		

10.1. Parameter index list

Parameter type	S/N	Description	Effective mode	Default value	Page
General parameter (P1.)	015	ZstartupSpeed(mm/min)	Instant		
General parameter (P1.)	016	4StartupSpeed(mm/min)	Instant		
General parameter (P1.)	017	X Acceleration(Kpps)	Instant		
General parameter (P1.)	018	Y Acceleration(Kpps)	Instant		
General parameter (P1.)	019	Z Acceleration(Kpps)	Instant		
General parameter (P1.)	020	4 Acceleration(Kpps)	Instant		
General parameter (P1.)	021	X Soft PosLimit+(mm)	Instant		
General parameter (P1.)	022	X Soft PosLimit-(mm)	Instant		
General parameter (P1.)	023	Y Soft PosLimit+(mm)	Instant		
General parameter (P1.)	024	Y Soft PosLimit-(mm)	Instant		
General parameter (P1.)	025	Z Soft PosLimit+(mm)	Instant		
General parameter (P1.)	026	Z Soft PosLimit-(mm)	Instant		
General parameter (P1.)	027	4 Soft PosLimit+(mm)	Instant		
General parameter (P1.)	028	4 Soft PosLimit-(mm)	Instant		
General parameter (P1.)	029	Inp Speed(mm/min)	Instant		
General parameter (P1.)	030	InpStartSpeed(mm/min)	Instant		
General parameter (P1.)	031	InpAcceleration(mm/sec)	Instant		
General parameter (P1.)	032	XBacklashExpiate(pulse)	Instant		
General parameter (P1.)	033	YBacklashExpiate(pulse)	Instant		
General parameter (P1.)	034	ZBacklashExpiate(pulse)	Instant		

Parameter type	S/N	Description	Effective mode	Default value	Page
General parameter (P1.)	035	4BacklashExpiate(pulse)	Instant		
General parameter (P1.)	036	ZeroReturn Mode	Instant		
General parameter (P1.)	037	IO FilterWave(1~8)	Instant		
General parameter (P1.)	038	Communication mode < \bullet >	Restart	2	
General parameter (P1.)	039	MaxFeedSpeed(mm/min)	Instant		
General parameter (P1.)	040	MaxMPGSpeed(mm/min)	Instant		
General parameter (P1.)	041	Wheel Coefficient	Instant		
General parameter (P1.)	042	M Code Delaytime(ms)	Instant		
General parameter (P1.)	043	X HOME Offset(pulse)	Instant		
General parameter (P1.)	044	Y HOME Offset(pulse)	Instant		
General parameter (P1.)	045	Z HOME Offset(pulse)	Instant		
General parameter (P1.)	046	4 HOME Offset(pulse)	Instant		
General parameter (P1.)	047	Line number	Instant	-	
General parameter (P1.)	048	System Baudrate <●>	Restart		
General parameter (P1.)	049	Controler ID<●>	Restart		
General parameter (P1.)	050	X HomeDir	Instant		
General parameter (P1.)	051	Y HomeDir	Instant		
General parameter (P1.)	052	Z HomeDir	Instant		
General parameter (P1.)	053	4 HomeDir	Instant		
General parameter (P1.)	054	Circle InpUnit(mm)	Instant		

Parameter type	S/N	Description	Effective mode	Default value	Page
General parameter (P1.)	055	G73(M)LoopObligate(mm)	Instant		
General parameter (P1.)	056	G83(M)LoopObligate(mm)	Instant		
General parameter (P1.)	057	ArcSpeedUpVal	Instant		
General parameter (P1.)	058	interpolation speed mode	Instant	2	
General parameter (P1.)	059	GCode pre-treatment	Instant		
General parameter (P1.)	060	'O'Pro Scan	Instant		
General parameter (P1.)	061	SpindleControlMode	Instant		
General parameter (P1.)	062	X ZeroReturn Speed	Instant	5	
General parameter (P1.)	063	Y ZeroReturn Speed	Instant		
General parameter (P1.)	064	Z ZeroReturn Speed	Instant		
General parameter (P1.)	065	4 ZeroReturn Speed	Instant		
General parameter (P1.)	066	Safe Signal ELevel	Instant		
General parameter (P1.)	067	Pressure Signal ELevel	Instant	-	
General parameter (P1.)	068	ChuckSignal ELevel	Instant		
General parameter (P1.)	069	OilPressure Open(min)	Instant		
General parameter (P1.)	070	OilPressure Keep(sec)	Instant		
General parameter (P1.)	071	OilPressureOut Freq(Hz)	Instant		
General parameter (P1.)	072	OilInspect ELevel	Instant		
General parameter (P1.)	073	SpindleAlarm ELevel	Instant		
General parameter (P1.)	074	TransduserAlarm ELevel	Instant		

Parameter type	S/N	Description	Effective mode	Default value	Page
General parameter (P1.)	075	ExScram ELevel	Instant		
General parameter (P1.)	076	BackHome ModeConf(bit)	Instant		
General parameter (P1.)	077	Arc Acc.for Radii	Instant		
General parameter (P1.)	078	Arc Acc.for Speed	Instant	2	
General parameter (P1.)	079	PretreatmentCode Set	Instant		
General parameter (P1.)	080	Inp AccSpeed Mode	Instant		
General parameter (P1.)	081	'S'Speed Acceleration	Instant		
General parameter (P1.)	082	ExStart ELevel	Instant	2	
General parameter (P1.)	083	ExPause ELevel	Instant		
General parameter (P1.)	084	HOME Check for alarm	Instant		
General parameter (P1.)	085	HOME Check Enable	Instant		
General parameter (P1.)	086	X diameter prog enable	Instant	Invalid	
General parameter (P1.)	087	default process plane	Instant		
General parameter (P1.)	088	T code form	Instant	Invalid	
General parameter (P1.)	089	IP address <●>	Restart		
General parameter (P1.)	090	subnet mask <●>	Restart		
General parameter (P1.)	091	default gateway <●>	Restart		
General parameter (P1.)	092	Pretreatment segments	Instant		
General parameter (P1.)	093	feed speed setting En	Instant		
General parameter (P1.)	094	enable of G00 Inp mode	Instant		

Parameter type	S/N	Description	Effective mode	Default value	Page
General parameter (P1.)	095	Abnormal memory location jump enable	Instant	OFF	
General parameter (P1.)	096	Pause Z to safe height enable	Instant	OFF	
General parameter (P1.)	097	Pause A to safe height enable	Instant	OFF	
General parameter (P1.)	098	Program reset reference point enable	Instant	OFF	
General parameter (P1.)	099	Mechanical reset reference point enable	Instant	OFF	
General parameter (P1.)	100	Clear coordinate system in reset mode	Instant	G54 Coord	
General parameter (P1.)	101	Z safe height (G54 coordinates)	Instant	0.000	
General parameter (P1.)	102	A safe height (G54 coordinates)	Instant	0.000	
General parameter (P1.)	103	Z feeding speed limit (mm/min)	Instant	0	
General parameter (P1.)	104	A feeding speed limit (mm/min)	Instant	0	
General parameter (P1.)	105	X manual speed (mm/min)	Instant	1000	
General parameter (P1.)	106	Y manual speed (mm/min)	Instant	1000	
General parameter (P1.)	107	Z manual speed (mm/min)	Instant	1000	
General parameter (P1.)	108	A manual speed (mm/min)	Instant	1000	
General parameter (P1.)	109	Thread cutting acceleration pitch P (mm)	Instant		
General parameter (P1.)	110	Thread cutting deceleration pitch D (mm)	Instant		
General parameter (P1.)	111	Thread cutting withdrawal V (mm)	Instant		<u>.</u>

Parameter type	S/N	Description	Effective mode	Default value	Page
General parameter (P1.)	112	X screw offset function enable	Instant	OFF	
General parameter (P1.)	113	Y screw offset function enable	Instant	OFF	
General parameter (P1.)	114	Z screw offset function enable	Instant	OFF	
General parameter (P1.)	115	A screw offset function enable	Instant	OFF	
General parameter (P1.)	116	X screw offset pitch (mm)	Instant	10.000	
General parameter (P1.)	117	Y screw offset pitch (mm)	Instant	10.000	
General parameter (P1.)	118	Z screw offset pitch (mm)	Instant	10.000	
General parameter (P1.)	119	A screw offset pitch (mm)	Instant	10.000	5
General parameter (P1.)	120	X screw offset start position (mm)	Instant	0.000	
General parameter (P1.)	121	Y screw offset start position (mm)	Instant	0.000	
General parameter (P1.)	122	Z screw offset start position (mm)	Instant	0.000	
General parameter (P1.)	123	A screw offset start position (mm)	Instant	0.000	
General parameter (P1.)	124	X screw offset end position (mm)	Instant	0.000	
General parameter (P1.)	125	Y screw offset end position (mm)	Instant	0.000	
General parameter (P1.)	126	Z screw offset end position (mm)	Instant	0.000	
General parameter (P1.)	127	A screw offset end position (mm)	Instant	0.000	
General parameter (P1.)	128	Go to M98 time/line enable	Instant	OFF	
General parameter (P1.)	129	System start reset	Instant	Not reset	
General parameter (P1.)	130	Cooler alarm effective level	Instant	0	
General parameter (P1.)	131	External reset effective level	Instant	0	

Parameter type	S/N	Description	Effective mode	Default value	Page
General parameter (P1.)	132	Lubricant level alarm effective level	Instant		
General parameter (P1.)	133	Spindle brake delay (ms)	Instant		
			2	2	
Axis parameter (P2.)	001	X_ServoAlarmIn ELevel	Instant		
Axis parameter (P2.)	002	Y_ServoAlarmIn ELevel	Instant		
Axis parameter (P2.)	003	Z_ServoAlarmIn ELevel	Instant		
Axis parameter (P2.)	004	A_ServoAlarmIn ELevel	Instant		
Axis parameter (P2.)	005	X_ServoResetOut ELeve	Instant		
Axis parameter (P2.)	006	Y_ServoResetOut ELeve	Instant		
Axis parameter (P2.)	007	Z_ServoResetOut ELeve	Instant		
Axis parameter (P2.)	008	A_ServoResetOut ELeve	Instant		
Axis parameter (P2.)	009	X_ECZ Home Enable	Instant		
Axis parameter (P2.)	010	X_ECZ Home ELevel	Instant		
Axis parameter (P2.)	011	Y_ECZ Home Enable	Instant		
Axis parameter (P2.)	012	Y_ECZ Home ELevel	Instant		
Axis parameter (P2.)	013	Z_ECZ Home Enable	Instant		
Axis parameter (P2.)	014	Z_ECZ Home ELevel	Instant		
Axis parameter (P2.)	015	4_ECZ Home Enable	Instant		
Axis parameter (P2.)	016	4_ECZ Home ELevel	Instant		

Parameter type	S/N	Description	Effective mode	Default value	Page
Axis parameter (P2.)	017	X Limit+ Enable<●>	Instant	Invalid	
Axis parameter (P2.)	018	X Limit- Enable<	Instant	Invalid	
Axis parameter (P2.)	019	X Limit ELevel<●>	Instant		
Axis parameter (P2.)	020	Y Limit+ Enable<●>	Instant	Invalid	
Axis parameter (P2.)	021	Y Limit- Enable<●>	Instant	Invalid	
Axis parameter (P2.)	022	Y Limit ELevel<●>	Instant		
Axis parameter (P2.)	023	Z Limit+ Enable<●>	Instant	Invalid	
Axis parameter (P2.)	024	Z Limit- Enable<●>	Instant	Invalid	
Axis parameter (P2.)	025	Z Limit ELevel<●>	Instant		
Axis parameter (P2.)	026	4 Limit+ Enable<●>	Instant	Invalid	
Axis parameter (P2.)	027	4 Limit- Enable<●>	Instant	Invalid	
Axis parameter (P2.)	028	4 Limit ELevel<●>	Instant		
Axis parameter (P2.)	029	X Pulse Mode<●>	Instant		
Axis parameter (P2.)	030	Y Pulse Mode<●>	Instant		
Axis parameter (P2.)	031	Z Pulse Mode<●>	Instant		
Axis parameter (P2.)	032	4 Pulse Mode<●>	Instant		
Axis parameter (P2.)	033	X Pulse Dir Mode<●>	Instant		
Axis parameter (P2.)	034	Y Pulse Dir Mode<●>	Instant		
Axis parameter (P2.)	035	Z Pulse Dir Mode<●>	Instant		
Axis parameter (P2.)	036	4 Pulse Dir Mode<●>	Instant		

Parameter type	S/N	Description	Effective mode	Default value	Page
Axis parameter (P2.)	037	X Ext Home ELevel	Instant		
Axis parameter (P2.)	038	Y Ext Home ELevel	Instant		
Axis parameter (P2.)	039	Z Ext Home ELevel	Instant		
Axis parameter (P2.)	040	4 Ext Home ELevel	Instant	2	
Axis parameter (P2.)	041	X Round Setting<●>	Instant		
Axis parameter (P2.)	042	Y Round Setting<●>	Instant		
Axis parameter (P2.)	043	Z Round Setting<●>	Instant		
Axis parameter (P2.)	044	4 Round Setting<●>	Instant	5	
Axis parameter (P2.)	045	X physial Assign Num<●>	Instant		
Axis parameter (P2.)	046	Y physial Assign Num<●>	Instant		
Axis parameter (P2.)	047	Z physial Assign Num<●>	Instant		
Axis parameter (P2.)	048	4 physial Assign Num<●>	Instant		
Axis parameter (P2.)	049	spindle physial Assign Num<●>	Instant	- -	7
Axis parameter (P2.)	050	X Encoder bit(p)	Instant		
Axis parameter (P2.)	051	Y Encoder bit(p)	Instant		
Axis parameter (P2.)	052	Z Encoder bit(p)	Instant		
Axis parameter (P2.)	053	4 Encoder bit(p)	Instant		
Axis parameter (P2.)	054	X Reset to 360	Instant		
Axis parameter (P2.)	055	Y Reset to 360	Instant		
Axis parameter (P2.)	056	Z Reset to 360	Instant		

Parameter type	S/N	Description	Effective mode	Default value	Page
Axis parameter (P2.)	057	4 Reset to 360	Instant		
Axis parameter (P2.)	058	X PulseLogic Level<	Instant		
Axis parameter (P2.)	059	Y PulseLogic Level<●>	Instant		
Axis parameter (P2.)	060	Z PulseLogic Level<●>	Instant		
Axis parameter (P2.)	061	4 PulseLogic Level<●>	Instant		
Axis parameter (P2.)	062	X feature(Rotate0 Line1)<●>	Instant		
Axis parameter (P2.)	063	Y feature(Rotate0 Line1)<●>	Instant		
Axis parameter (P2.)	064	Z feature(Rotate0 Line1)<●>	Instant		
Axis parameter (P2.)	065	4 feature(Rotate0 Line1)<●>	Instant		
Axis parameter (P2.)	066	X Rolling Display Usage	Instant		
Axis parameter (P2.)	067	Y Rolling Display Usage	Instant		
Axis parameter (P2.)	068	Z Rolling Display Usage	Instant		
Axis parameter (P2.)	069	4 Rolling Display Usage	Instant	- -	7
Axis parameter (P2.)	070	X Rolling Path Optimize	Instant		
Axis parameter (P2.)	071	Y Rolling Path Optimize	Instant		
Axis parameter (P2.)	072	Z Rolling Path Optimize	Instant		
Axis parameter (P2.)	073	4 Rolling Path Optimize	Instant		
Axis parameter (P2.)	074	Max Acc of X(Kpps)	Instant	š	
Axis parameter (P2.)	075	Max Acc of Y(Kpps)	Instant		
Axis parameter (P2.)	076	Max Acc of Z(Kpps)	Instant		

Parameter type	S/N	Description	Effective mode	Default value	Page
Axis parameter (P2.)	077	Max Acc of 4(Kpps)	Instant		
Axis parameter (P2.)	078	X Servo Home Dir	Instant		
Axis parameter (P2.)	079	Y Servo Home Dir	Instant		
Axis parameter (P2.)	080	Z Servo Home Dir	Instant	2	
Axis parameter (P2.)	081	A Servo Home Dir	Instant		
Axis parameter (P2.)	082	X Ext Home Eanble	Instant		
Axis parameter (P2.)	083	Y Ext Home Eanble	Instant		
Axis parameter (P2.)	084	Z Ext Home Eanble	Instant		
Axis parameter (P2.)	085	4 Ext Home Eanble	Instant		
Axis parameter (P2.)	086	X Encoder LogicDir<●>	Instant		
Axis parameter (P2.)	087	Y Encoder LogicDir<●>	Instant		
Axis parameter (P2.)	088	Z Encoder LogicDir<●>	Instant		
Axis parameter (P2.)	089	4 Encoder LogicDir<●>	Instant	- -	7
Axis parameter (P2.)	090	X Home Dec	Instant		
Axis parameter (P2.)	091	Y Home Dec	Instant		
Axis parameter (P2.)	092	Z Home Dec	Instant		
Axis parameter (P2.)	093	4 Home Dec	Instant		
Axis parameter (P2.)	094	X Home Scanning Speed	Instant	š	
Axis parameter (P2.)	095	Y Home Scanning Speed	Instant		
Axis parameter (P2.)	096	Z Home Scanning Speed	Instant		

Parameter type	S/N	Description	Effective mode	Default value	Page
Axis parameter (P2.)	097	4 Home Scanning Speed	Instant		
Axis parameter (P2.)	098	rotation axis opt feature	Instant		
Axis parameter (P2.)	099	4 axis max rotate speed	Instant		
Axis parameter (P2.)	100	hand wheel encoder dir	Instant	2	
Axis parameter (P2.)	101	X restrain acc (mm/s^2)	Instant		
Axis parameter (P2.)	102	Y restrain acc (mm/s^2)	Instant		
Axis parameter (P2.)	103	Z restrain acc (mm/s^2)	Instant		
Axis parameter (P2.)	104	4 restrain acc (mm/s^2)	Instant		-
Axis parameter (P2.)	105	X max restrain rate (mm/s)	Instant		
Axis parameter (P2.)	106	Y max restrain rate (mm/s)	Instant		
Axis parameter (P2.)	107	Z max restrain rate (mm/s)	Instant		
Axis parameter (P2.)	108	4 max restrain rate (mm/s)	Instant		
Axis parameter (P2.)	109	X lock brake signal enable	Instant	0	-
Axis parameter (P2.)	110	Y lock brake signal enable	Instant	0	
Axis parameter (P2.)	111	Z lock brake signal enable	Instant	0	
Axis parameter (P2.)	112	A lock brake signal enable	Instant	0	
Axis parameter (P2.)	113	X lock brake delay time	Instant	0	
Axis parameter (P2.)	114	Y lock brake delay time	Instant	0	
Axis parameter (P2.)	115	Z lock brake delay time	Instant	0	
Axis parameter (P2.)	116	A lock brake delay time	Instant	0	

Parameter type	S/N	Description	Effective mode	Default value	Page
Management parameter (P3.)	001	Select SupMode	Instant		
Management parameter (P3.)	002	AlterSuperuserPasswor	Instant		
Management parameter (P3.)	003	Alter User Password	Instant		-
Management parameter (P3.)	004	Initialize	Restart		
Management parameter (P3.)	005	Initialize IO Config	Restart		
Management parameter (P3.)	006	all para reset<●>	Restart		
Management parameter (P3.)	007	para backup	Instant		
Management parameter (P3.)	008	para recover	Restart		
Management parameter (P3.)	009	generate cryptogram	Instant		
Management parameter (P3.)	010	menu click way	Instant		
Management parameter (P3.)	011	clear add up work num	Instant		
Management parameter (P3.)	012	clear current work num	Instant	-	
Management parameter (P3.)	013	lead in CSV sys config<●>	Restart		
Management parameter (P3.)	014	startup display module<●>	Restart	Rel	
Management parameter (P3.)	015	sys language bag<●>	Restart	English	
Management parameter (P3.)	016	macro key word valid En	Instant		
Management parameter (P3.)	017	startup picture display	Instant	15	-
Management parameter (P3.)	018	sys display axis setting	Instant	XYZ	
Management parameter (P3.)	019	sys debug information En	Instant	OFF	

Parameter type	S/N	Description	Effective mode	Default value	Page
Management parameter (P3.)	020	axis control composite	Instant	ON	
Management parameter (P3.)	021	additional panel enable	Instant	OFF	
Management parameter (P3.)	022	M macro program selection<●>	Restart	MFUNC(M)	
Management parameter (P3.)	023	T macro program selection<●>	Restart	TFUNC(M)	
Management parameter (P3.)	024	PLC program selection<●>	Restart	PLC(M)	
Management parameter (P3.)	025	Screen saver on	Instant	0	
Management parameter (P4.)	001	Current tool number	Instant		
Management parameter (P4.)	002	System cutter	Instant		
Management parameter (P4.)	003	ATC reference position X (mm)	Instant		
Management parameter (P4.)	004	ATC reference position Y (mm)	Instant		
Management parameter (P4.)	005	ATC reference position Z (mm)	Instant		
Management parameter (P4.)	006	ATC safety height (mm)	Instant		-
Management parameter (P4.)	007	ATC high speed (mm/min)	Instant		
Management parameter (P4.)	008	ATC low speed (mm/min)	Instant		
Management parameter (P4.)	009	Quick decline position (mm)	Instant		
Management parameter (P4.)	010	Tool placing position (mm)	Instant		
Management parameter (P4.)	011	Tool cutting position (mm)	Instant		
Management parameter (P4.)	012	Spindle air blow hold time (ms)	Instant		
Management parameter (P4.)	013	X-safe position after tool change (mm)	Instant		

Parameter type	S/N	Description	Effective mode	Default value	Page
Management parameter (P4.)	014	Y-safe position after tool change (mm)	Instant		
Management parameter (P4.)	015	Tool spacing (mm)	Instant		
Management parameter (P4.)	016	Vertical-type position offset (mm)	Instant		
Principal axis parameter (P5.)	001	Spi.Alarm ELevel	Instant		
Principal axis parameter (P5.)	002	Spi.Reset ELevel	Instant		
Principal axis parameter (P5.)	003	Spi.ECZ Home Enable	Instant		
Principal axis parameter (P5.)	004	Spi.ECZ Elevel	Instant		
Principal axis parameter (P5.)	005	Spi. Limit+ Enable	Instant		
Principal axis parameter (P5.)	006	Spi. Limit- Enable	Instant		
Principal axis parameter (P5.)	007	Spi.Limit Elevel	Instant		
Principal axis parameter (P5.)	008	Spi.Pulse Mode	Instant		
Principal axis parameter (P5.)	009	Spi.Pulse Logic Mode	Instant		-
Principal axis parameter (P5.)	010	Spi.HomeDect ELevel	Instant		
Principal axis parameter (P5.)	011	Spi.ExtHome Check En	Instant		
Principal axis parameter (P5.)	012	Spi.Round Setting	Instant		
Principal axis parameter (P5.)	013	Spi.Encode bits(p)	Instant		
Principal axis parameter (P5.)	014	Spi.ZeroOffset(p)	Instant		
Principal axis parameter (P5.)	015	PulseLogic Level	Instant		
Principal axis parameter (P5.)	016	Rolling Display Usage	Instant		

Parameter type	S/N	Description	Effective mode	Default value	Page
Principal axis parameter (P5.)	017	Spi.Max Acc(Kpps)	Instant		
Principal axis parameter (P5.)	018	Spi.Ext HomeDir	Instant		
Principal axis parameter (P5.)	019	Spi.Servo HomeDir	Instant		
Principal axis parameter (P5.)	020	Spi.Max Speed(rpm)	Instant	5	5
Principal axis parameter (P5.)	021	Spi.Home Speed(rpm)	Instant		
Principal axis parameter (P5.)	022	Spi.Gear Numerator	Instant		
Principal axis parameter (P5.)	023	Spi.Gear Denominator	Instant		
Principal axis parameter (P5.)	024	Spi.Encoder Logic Dir	Instant		
Principal axis parameter (P5.)	025	Spi.OpenDelayTime(ms)	Instant		
Principal axis parameter (P5.)	026	Servo spindle ready level	Instant	0	
Principal axis parameter (P5.)	027	Servo spindle quasi stop in-place level	Instant	0	
Principal axis parameter (P5.)	028	Servo spindle zero speed in-place level	Instant	0	
Principal axis parameter (P5.)	029	Servo spindle speed arrival level	Instant	0	
Principal axis parameter (P5.)	030	System spindle speed	Instant	100	
Principal axis parameter (P5.)	031	If close spindle while executing M30	Instant	0	
Principal axis parameter (P5.)	032	Minimum spindle speed (rpm)	Instant		
Port parameter (P6.)	001	Wheel0.1	Instant	-	
Port parameter (P6.)	002	Wheel0.01	Instant		
Port parameter (P6.)	003	Wheel0.001	Instant		

Parameter type	S/N	Description	Effective mode	Default value	Page
Port parameter (P6.)	004	X Wheel	Instant		
Port parameter (P6.)	005	Y Wheel	Instant		
Port parameter (P6.)	006	Z Wheel	Instant		
Port parameter (P6.)	007	A Wheel	Instant		-
Port parameter (P6.)	008	SCRAM	Instant		
Port parameter (P6.)	009	STOP	Instant		
Port parameter (P6.)	010	STARTUP	Instant		
Port parameter (P6.)	011	X Alarm	Instant		
Port parameter (P6.)	012	Y Alarm	Instant		
Port parameter (P6.)	013	Z Alarm	Instant		
Port parameter (P6.)	014	4 Alarm	Instant		
Port parameter (P6.)	015	IN0wire No.: (1-24)	Instant		
Port parameter (P6.)	016	IN1wire No.: (1-24)	Instant		-
Port parameter (P6.)	017	IN2wire No.: (1-24)	Instant		
Port parameter (P6.)	018	IN3wire No.: (1-24)	Instant		
Port parameter (P6.)	019	IN4wire No.: (1-24)	Instant		
Port parameter (P6.)	020	IN5wire No.: (1-24)	Instant		
Port parameter (P6.)	021	IN6wire No.: (1-24)	Instant		
Port parameter (P6.)	022	IN7wire No.: (1-24)	Instant		
Port parameter (P6.)	023	IN8wire No.: (1-24)	Instant		

Parameter type	S/N	Description	Effective mode	Default value	Page
Port parameter (P6.)	024	IN9wire No.: (1-24)	Instant		
Port parameter (P6.)	025	IN10wire No.: (1-24)	Instant		
Port parameter (P6.)	026	IN11wire No.: (1-24)	Instant		
Port parameter (P6.)	027	IN12wire No.: (1-24)	Instant		
Port parameter (P6.)	028	IN13wire No.: (1-24)	Instant		
Port parameter (P6.)	029	IN14wire No.: (1-24)	Instant		
Port parameter (P6.)	030	IN15wire No.: (1-24)	Instant		
Port parameter (P6.)	031	IN16wire No.: (1-24)	Instant		
Port parameter (P6.)	032	IN17wire No.: (1-24)	Instant		
Port parameter (P6.)	033	IN18wire No.: (1-24)	Instant		
Port parameter (P6.)	034	IN19wire No.: (1-24)	Instant		
Port parameter (P6.)	035	IN20wire No.: (1-24)	Instant		
Port parameter (P6.)	036	IN21wire No.: (1-24)	Instant		
Port parameter (P6.)	037	IN22wire No.: (1-24)	Instant		
Port parameter (P6.)	038	IN23wire No.: (1-24)	Instant		
Port parameter (P6.)	039	OUT0wire No.: (1-24)	Instant		
Port parameter (P6.)	040	OUT1wire No.: (1-24)	Instant		
Port parameter (P6.)	041	OUT2wire No.: (1-24)	Instant		
Port parameter (P6.)	042	OUT3wire No.: (1-24)	Instant		
Port parameter (P6.)	043	OUT4wire No.: (1-24)	Instant		

Parameter type	S/N	Description	Effective mode	Default value	Page
Port parameter (P6.)	044	OUT5wire No.: (1-24)	Instant		
Port parameter (P6.)	045	OUT6wire No.: (1-24)	Instant		
Port parameter (P6.)	046	OUT7wire No.: (1-24)	Instant		
Port parameter (P6.)	047	OUT8wire No.: (1-24)	Instant		
Port parameter (P6.)	048	OUT9wire No.: (1-24)	Instant		
Port parameter (P6.)	049	OUT10wire No.: (1-24)	Instant		
Port parameter (P6.)	050	OUT11wire No.: (1-24)	Instant		
Port parameter (P6.)	051	OUT12wire No.: (1-24)	Instant		
Port parameter (P6.)	052	OUT13wire No.: (1-24)	Instant		
Port parameter (P6.)	053	OUT14wire No.: (1-24)	Instant		
Port parameter (P6.)	054	OUT15wire No.: (1-24)	Instant		
Port parameter (P6.)	055	OUT16wire No.: (1-24)	Instant		
Port parameter (P6.)	056	OUT17wire No.: (1-24)	Instant		
Port parameter (P6.)	057	OUT18wire No.: (1-24)	Instant		
Port parameter (P6.)	058	OUT19wire No.: (1-24)	Instant		
Port parameter (P6.)	059	OUT20wire No.: (1-24)	Instant		
Port parameter (P6.)	060	OUT21wire No.: (1-24)	Instant		
Port parameter (P6.)	061	OUT22wire No.: (1-24)	Instant		
Port parameter (P6.)	062	OUT23wire No.: (1-24)	Instant		
Port parameter (P6.)	063	Safe Signal	Instant		

Parameter type	S/N	Description	Effective mode	Default value	Page
Port parameter (P6.)	064	PressureDect Port	Instant		
Port parameter (P6.)	065	ChuckDectect Port	Instant		
Port parameter (P6.)	066	SysOilOut Port	Instant		
Port parameter (P6.)	067	TChecking signal Port	Instant		
Port parameter (P6.)	068	AlarmLight Out Port	Instant	6	
Port parameter (P6.)	069	RunLight Out Port	Instant	7	
Port parameter (P6.)	070	VFD 0 Level Out Port	Instant		
Port parameter (P6.)	071	VFD 1 Level Out Port	Instant		
Port parameter (P6.)	072	VFD 2 Level Out Port	Instant		
Port parameter (P6.)	073	VFD 3 Level Out Port	Instant		
Port parameter (P6.)	074	Oiling Out Port	Instant	5	
Port parameter (P6.)	075	Cooler Out Port	Instant	4	
Port parameter (P6.)	076	Spindle CW Out Port	Instant	0	
Port parameter (P6.)	077	Spindle CCW Out Port	Instant	1	
Port parameter (P6.)	078	System OilDect Port	Instant		
Port parameter (P6.)	079	SpindleAlarm DetectPort	Instant		
Port parameter (P6.)	080	Transduser DetectPort	Instant		
Port parameter (P6.)	081	ExScram2 DetectPort	Instant		
Port parameter (P6.)	082	Air of ToolCheck OutPort	Instant	11	
Port parameter (P6.)	083	IO Conf in RESET 00~15	Instant		

Parameter type	S/N	Description	Effective mode	Default value	Page
Port parameter (P6.)	084	IO Conf in RESET 16~23	Instant		
Port parameter (P6.)	085	ExStart2 DetectPort	Instant		
Port parameter (P6.)	086	ExPause2 DetectPort	Instant		
Port parameter (P6.)	087	TCheck Limit DetectPort	Instant		
Port parameter (P6.)	088	Servo spindle enable output port No.	Instant		
Port parameter (P6.)	089	Servo spindle quasi stop output port No.	Instant		
Port parameter (P6.)	090	Servo spindle pulse control output No.	Instant		
Port parameter (P6.)	091	Servo spindle rigid tapping output No.	Instant		
Port parameter (P6.)	092	Servo spindle ready input No.	Instant		
Port parameter (P6.)	093	Servo spindle quasi stop input port No.	Instant		
Port parameter (P6.)	094	Servo spindle zero speed in-place input port No.	Instant		
Port parameter (P6.)	095	Servo spindle speed arrival input port No.	Instant		
Port parameter (P6.)	096	Reset off LED configuration 0-31	Instant		
Port parameter (P6.)	097	Reset off LED configuration 32-63	Instant		
Port parameter (P6.)	098	X lock brake output port	Instant		
Port parameter (P6.)	099	Y lock brake output port	Instant		
Port parameter (P6.)	100	Z lock brake output port	Instant		
Port parameter (P6.)	101	A lock brake output port	Instant	5 	

Parameter type	S/N	Description	Effective mode	Default value	Page
Port parameter (P6.)	102	Spindle frequency alarm reset port	Instant		
Port parameter (P6.)	103	Cooler alarm detection port	Instant		
Port parameter (P6.)	104	External reset input port	Instant		
Port parameter (P6.)	105	Elastic cutter input port	Instant		
Port parameter (P6.)	106	Spindle air blow output port	Instant	11	
Port parameter (P6.)	107	Lubricant level alarm input port	Instant		
Port parameter (P6.)	108	Spindle brake output port	Instant		

10.2. General parameter (P1.)

001	X Gear Nume	erator		
002	X Gear Deno	minator		
003	Y Gear Nume	erator		
004	Y Gear Deno	Y Gear Denominator		
005	Z Gear Nume	2 Gear Numerator		
006	Z Gear Deno	Z Gear Denominator		
007	4 Gear Nume	4 Gear Numerator		
008	4 Gear Deno	minator		
	Range	:	1~65535	
	Unit	:	None	
	Authority	:	Operation admin or higher	
	Default	:	1	
	Effective	:	Instant	
	time			
	Note	:	When screws of different pitches and motors of different step angles or	
			servo motors of different pulses are matched, or connected through	
			gears, it allows keeping the program and actual motion distance	

 $CMR/CMD = P/(L \times 1000)$

CMR: gear ratio numerator

CMD: gear ratio denominator

P: Pulses corresponding to one rotation of the motor

L: Machine tool movement corresponding to one rotation of the motor

(mm)

CMD/CMR is the pulse equivalent actually, i.e. the motion distance

corresponding to every pulse (unit: 0.001mm).

Ex 1: the motor rotates one cycle every 5000 pulses, and the machine

tool moves 5mm when the motor rotates one cycle, then

CMR/CMD=5000/ (5*1000)=1/1

Then, CMR=1, CMD=1, the pulse equivalent is 0.001mm

Ex 2: the motor rotates one cycle every 5000 pulses, and the machine tool moves 10mm when the motor rotates one cycle, then CMR/CMD=5000/ (10*1000)=1/2

This parameter is the trapezoid acceleration/deceleration setting and

Then, CMR=1, CMD=2, the pulse equivalent is 0.002mm

009	X FastSpeed(mm/min)				
010	Y FastSpeed(mm/min) Z FastSpeed(mm/min)				
011					
012	4 FastSpeed(mm/min)				
013	XStartupSpeed(mm/min)				
014	YStartupSpeed(mm/min)				
015	ZStartupSpeed(mm/min)				
016	4StartupSpeed(mm/min)				
017	X Acceleration(Kpps)				
018	Y Acceleration(Kpps)				
019	Z Acceleration(Kpps)				
020	4 Acceleration(Kpps)				
	Range : 1~200000, 1~200000, 1~8000				
	Unit : mm/min,mm/min, Kpps				
	Authority : Operation admin or higher				
	Default : 3000,100,1000				
	Effective time · Instant				

Note

:

used for GOO instruction

About start speed, 1-2 rotation motor speed is recommended for step motor; as above, the machine tool moves 5mm when the motor rotates one cycle, and the speed is 5-10mm/sec (300-600mm/min). For servo motor, the start and stop shouldn't have vibration. If this speed is too high, it will cause vibration during motion, and the step motor will be out of step. If the machine tool vibrates when starting and stopping, you can reduce the acceleration.

The acceleration and start speed also affect manual speed, home speed, etc.;

021	X Soft PosLimit+(mm)						
022	(Soft PosLimit-(mm)						
023	Y Soft PosLimit+(mm)						
024	Y Soft PosLimit-(mm)						
025	Z Soft PosLimit+(mm)						
026	Z Soft PosLimit-(mm)						
027	4 Soft PosLimit+(mm)						
028	4 Soft PosLimit-(mm)						
	Range : -9999~9999						

Unit	:	mm
Authority	:	Operation admin or higher
Default	:	Maximum positive/negative value
Effective time	:	Instant
Note	:	Generally, the machine tool has hard limit signal. In this case, software
		limit isn't required. Please set the positive limit to +9999.999, and
		negative limit to -9999.999.

If hard limit switch isn't installed, please use soft limit, which uses machine tool coordinate system as the base point. Positive limit and negative limit are subject to actual distance (unit: mm).

Since soft limit decelerates and stops at the limit point, it may exceed the set distance, which depends on acceleration time and speed. Please keep certain margin when setting this parameter.

029

Inp Speed(mm/min)

030

InpStartSpeed(mm/min)

031 039

InpAcceleration(mm/sec)						
XBacklashExpiate(pulse)						
Range	:	1~200000, 1~200000, 1~8000, 1~200000				
Unit	:	mm/min,mm/min,mm/sec,mm/min				
Authority	:	Operation admin or higher				
Default	:	3000,200,1000,3000				
Effective time	:	Instant				
Note	:	The feeding instructions such as G01, G02 and G03 move at the speed of				
		${\bf F}$ instruction. If the ${\bf F}$ instruction isn't specified in the program, the				
		above instructions move at the speed set by this parameter. If the \ensuremath{F}				
		instruction is specified, this parameter will be invalid.				
		The maximum feeding speed restricts the F instruction during				

processing, i.e. no matter what F is set, the actual speed can't exceed this parameter value. Setting this parameter will prevent the damage caused by accidental speed programming error when transferring processing files.

032	XBacklashExpiat	XBacklashExpiate(pulse) YBacklashExpiate(pulse)			
033	YBacklashExpiat				
034	ZBacklashExpiate	ZBacklashExpiate(pulse)			
035	4BacklashExpiat	4BacklashExpiate(pulse)			
	Range	:	1~20000		
	Unit	:	Pulse		
	Authority	:	Operation admin or higher		
	Default	:	0		
	Effective time	:	Instant		
	Note	:	1. Compensate the clearance between control axis		
			2. Compensate with the pulse in minimum unit. The specific number		
			should be converted according to gear ratio. For example, the backlash		

should be converted according to gear ratio. For example, the backlash measured by the machine tool is 0.1mm and the gear ratio of the system is CMR/CMD=1/1, the compensation pulses is p=0.1*1000*1/1=100.

ZeroReturn Mode			
Range	:	0~1	
Unit	:	None	
Authority	:	Operation admin or higher	
Default	:	0 (program)	
Effective time	:	Instant	

036

Note

: 0 - Program home

1 - Mechanical home

Program home is that the coordinates go to home, i.e. in place.

Mechanical home requires external detection switch to locate the home position; while home operation, move to specified home direction at home speed, and move back slowly after signal is detected. At this moment, move forward slowly when the signal is disconnected, and the home operation completes when the signal is valid again. When the servo Z phase enable switch in IO configuration parameters is enabled, mechanical home will enable Z phase positioning as home position automatically after signal reaches.

037

IO FilterWave(1~8)

Range	:	0~8
Unit	:	None
Authority	:	Operation admin or higher
Default	:	0
Effective time	:	Instant
Note	:	Set the filter constant;
		If the environment has too much interference, e.g. rain and thunder,
		please enter a filter value. Higher value indicates longer test time and
		high reliability; 0 indicates no filter;

038	Communication mode				
	Range	:	0~3		
	Unit	:	None		
	Authority	:	Operation admin or higher		
	Default	:	0		
	Effective time	:	Restart		
	Note	:	Set the communication mode of the system;		
			System can communicate through the serial port, network and PC or		

other device, 0 is Uart serial port, 1 is network communication, 2 is NoUser and system communication is turned off;

040

MaxMPGSpeed(mm/min)

041

Wheel Coefficient					
Range	:	500~10000 100~3000			
Unit	:	mm/min			
Authority	:	Operation admin or higher			
Default	:	9000, 1000			
Effective time	:	Instant			
Note	:	Set handwheel speed and acceleration;			

In handwheel mode, the maximum speed of handwheel movement controlled by setting the maximum speed of the handwheel, wheel coefficient is to control the acceleration of the wheel; if the machine vibrates in handwheel mode, please adjust the two parameters to smaller; however, the machine response will be slow if it is too small; please adjust to the maximum value as long as there is no vibration;

042

M Code Delay time					
Range	:	0~9999			
Unit	:	ms			
Authority	:	Operation admin or higher			
Default	:	100			
Effective time	:	Instant			
Note	:	Set the waiting time (unit: ms) after executing M code			

043	X HOME Offset(X HOME Offset(pulse) Y HOME Offset(pulse)			
044	Y HOME Offset(p				
045	Z HOME Offset(p	Z HOME Offset(pulse)			
046	4 HOME Offset(4 HOME Offset(pulse)			
	Range	Range : -9999~9999			
	Unit	Unit : mm			
	Authority	Authority : Operation admin or higher			
	Default	:	0		
	Effective time	:	Instant		
	Note	:	Set the compensation home offset after axis home operation.		

First, complete the mechanical home operation, offset corresponding pulse, and then set this point as mechanical home.

Note: This parameter is invalid during program home operation.

047

Line number

	Range	:	0~64
	Unit	:	None
	Authority	:	Operation admin or higher
	Default	:	0
	Effective time	:	Instant
	Note	:	While editing G code manually, add a line number Nxxxxx automatically
			in a new line;
			0 indicates that this function is disabled;
048	System Baudrate	e	
	Range	:	9600~115200
	Unit	:	None
	Authority	:	Operation admin or higher
	Default	:	115200
	Effective time	:	Restart
	Note	:	The communication rate setting when DNC or other PC software and
			this controller are in RS232 communication mode
049	Controler ID		
	Range	:	1~255
	Unit	:	None
	Authority	:	Operation admin or higher
	Default	:	1
	Effective time	:	Restart
	Note	:	The ID number setting of the controller when DNC or other PC software
			and this controller are in MODBUS communication mode

050	X HomeDir		
051	Y HomeDir		
052	Z HomeDir		
053	4 HomeDir		
	Range	:	0~1
	Unit	:	None
	Authority	:	Operation admin or higher
	Default	:	1,1,0,0

:	Operation admin or higher
:	1,1,0,0
:	Instant
:	Set the mechanical home direction of every processing axis
	: : :

Positive

Negative

Home direction is valid in mechanical home mode, that is, the system scans the home signal direction of the machine in the home process.

054

Circle InpUnit(mm)				
Range	:	0~1		
Unit	:	mm		
Authority	:	Operation admin or higher		
Default	:	0.2		
Effective time	:	Instant		
Note	:	Set the arc interpolation equivalent		

If this value is too small, the arc has higher approximation accuracy, but the computation will be too high, making the pause during processing obvious and affecting the processing effect.

055	G73(M)LoopObligate(mm)			
056	G83(M)LoopObligate(mm)			
	Range	:	0.1~100	
	Unit	:	mm	
	Authority	:	Operation admin or higher	
	Default	:	2.000	
	Effective time	:	Instant	
	Note	:	Set the tool retracting amount after Q is fed in G73 and G83 instructions;	
			this parameter (default: 2mm) is set according to actual chip removal	
			effect.	
057	ArcSpeedUpVal			
	Range	:	0&1	
	Unit	:		
	Authority	:	Operation admin or higher	
	Default	:	1	
	Effective time	:	Instant	
	Note	:	Set arc speed processing mode	
			As for arc split, 0 is to interpolate through time split arc, and 1 is to	

interpolate through step split arc.

058

Interpolation speed mode			
Range	:	0~1	
Unit	:	None	
Authority	:	Operation admin or higher	
Default	:	0	
Effective time	:	Instant	
Note	:	In pretreatment mode, set to 0 to use corner speed balancing algorithm,	
		or set to 1 to use axis acceleration constraints balancing algorithm	

059

GCode pre-treatment				
Range	:	0~1		
Unit	:	None		
Authority	:	Operation admin or higher		
Default	:	0 (real-time processing)		
Effective time	:	Instant		
Note	:	Real-time processing is suitable for machine test.		

In pretreatment mode, the system enters processing state buffs for two seconds and pre-reads. The pretreatment mode only can check the direction and size of feeding segment to adjust the speed automatically and process at optimized speed.

060

'O'Pro Scan		
Range	:	0~1
Unit	:	None
Authority	:	Operation admin or higher
Default	:	1
Effective time	:	Instant
Note	:	File scanning symbol will quicken the file transfer speed when
		processing large files.
		When transferring NC files, the system needs to scan over to position
		every program block. In this way, if the file only has one block and the
		file size is very big, it will cause unnecessary waiting time. If this option
		is closed, the system will exit after scanning the address of first block.

061

SpindleControlM	lode	
Range	:	0~1
Unit	:	None

Authority	:	Operation admin or higher
Default	:	0
Effective time	:	Instant
Note	:	Control mode corresponding to principal axis S code (frequency
		conversion mode)
		0: Analog output
		1: Section speed regulation (4-digit code), as below:
		OUT23S0
		OUT22S1
		OUT21S2
		OUT20S3
		In analog output mode, the analog voltage is:
		V=S/MaxRPM

S is the rotation set by the user, and MaxRPM is the maximum rotation of principal axis set by the parameter (P4.017);

In switching quantity mode, constitute block 0-15 according to four-digit code to output; S code value is restricted to 0-15;

062	X ZeroReturn Sp	X ZeroReturn Speed				
063	Y ZeroReturn Sp	Y ZeroReturn Speed				
064	Z ZeroReturn Sp	Z ZeroReturn Speed				
065	4 ZeroReturn Sp	4 ZeroReturn Speed				
	Range	:	0~9999			
	Unit	:	mm/min			
	Authority	:	Operation admin or higher			
	Default	:	1000			
	Effective time	:	Instant			
	Note	:	Set the home speed of every axis separately; both program home and			
			mechanical home use this parameter			

066

Safe Signal ELevel

-		
Range	:	0~1
Unit	:	LOGIC VOLTAGE LEVEL
Authority	:	Operation admin or higher
Default	:	0
Effective time	:	Instant
Note	:	Set the effective voltage level of the system safety signal. The source of
		safety signal can be customized by the user, and generally may be

electric cabinet door and similar sensitive occasions. If there are several insecure places, please connect the signals in parallel to safety signal test pin of the system.

Considering the convenience of maintenance, safety signals are checked only when the system starts processing, and won't prompt in idle state.

067	Pressure Signal E	Pressure Signal ELevel							
068	ChuckSignal ELevel								
	Range	:	0~1						
	Unit	:	LOGIC VOLTAGE LEVEL						
	Authority	:	Operation admin or higher						
	Default	:	0						
	Effective time	:	Instant						
	Note	:	Set the effective voltage level of system air pressure alarm; set the						
			effective voltage level of system chuck alarm.						

Both air pressure alarm and emergency stop alarm are effective globally; the detection ports of air pressure alarm and chuck alarm are set in port parameters.

069	OilPressure Open(min)									
070	OilPressure Keep	OilPressure Keep(sec)								
071	OilPressureOut F	OilPressureOut Freq(Hz)								
072	OilInspect ELeve	OilInspect ELevel								
	Range	:	0~ 10000 1~10000 0~100 0,~ 1							
	Unit	:	Min Sec Hz LOGIC VOLTAGE LEVEL							
	Authority	:	Operation admin or higher							
	Default	:	0, 1, 0, 0							
	Effective time	:	Instant							
	Note	:	Set the system lubricating function.							

Oil pressure timing open parameter controls the lubrication timing function, 0 is to turn off the lubrication, non-zero is to turn on the lubrication port after the time specified by timing parameters (min); the oil pressure hold time sets the hold time of output lubrication port (unit: second), oil control frequency is to control the lubrication signal output mode, 0 is the jog mode, non-zero is the time to control the lubrication signal in the output holding time (unit: HZ). Oil pressure detection level parameter is to set whether detect the effective level in the holding time. Lubrication output port and oil pressure detection port are set by parameters 066 and 078.

073 074

Γ

TransduserAlarm ELevel						
Range	:	0~1				
Unit	:	LOGIC VOLTAGE LEVEL				
Authority	:	Operation admin or higher				
Default	:	0				
Effective time	:	Instant				
Note	:	The above alarms are checked while the system is running. The system				
		alarms once the test is valid.				

This port is affected by IO configuration.



)76	BackHome ModeConf(bit)							
	Range	:	0~10000					
	Unit	:	None					
	Authority	:	Operation admin or higher					
	Default	:	Z-XY					
	Effective time	:	Instant					
	Note	:	Configure the axis and order of automatic back home of the system.					

Be default, it backs to Z-axis first and then XY axis. Other home mode

can be configured by modifying this parameter. The setting method is pressing the EOB key and selecting in the pop-up dialog box, and press and hold the EOB key for three seconds to exit. The black option indicates home operation. You can press UP/DOWN key and Page Up/Down key to select the home axis and stage.

077

Arc Acc for Radii

Arc Acc.for Speed	ł	
Range	:	10~100 10~10000
Unit	:	Coefficient
Authority	:	Operation admin or higher
Default	:	50, 100
Effective time	:	Instant
Note	:	Used to restrict the arc processing speed automatically. This parameter
		is valid in pretreatment mode.
		The bigger the radius coefficient is, the lower the arc speed is.

The bigger the acceleration coefficient is, the higher the arc speed is.

PretreatmentCode Set : 100~1000 Range Unit : Instruction line Authority : Operation admin or higher Default 500 : Effective time Instant : Note Set the pre-reading instruction lines; if the pretreatment processing · pauses and pre-reads, please increase this value to pre-read more instructions.

080

081

079

		Inp AccSpeed Mode
--	--	-------------------

'S'Speed Acceleration							
Range	:	0~1 1000~10000					
Unit	:	None					
Authority	:	Operation admin or higher					
Default	:	0, 5000					
Effective time	:	Instant					
Note	:	Used to set the performance of S curve acceleration/deceleration					

The interpolation mode 0 is linear acceleration/deceleration, 1 is S

acceleration/deceleration, and this parameter is valid in preprocessing mode.

084	HOME Check for alarm								
085	HOME Check Enable								
	Range	:	0~1						
	Unit	:	None						
	Authority	:	Operation admin or higher						
	Default	:	0, 1						
	Effective time	:	Instant						
	Note	:	Used to set whether prompt user to reset under certain conditions,						

: Used to set whether prompt user to reset under certain conditions, ensuring that the user has performed the operation;

087

١f	the va	lue is	set	to O	it	won'	t	check	and	will	run	directly	,
	LITE VO	nue is	SEL	ιυ υ,	ιu	won	ι	UNEUK,	anu	VVIII	run	unecu	

Default process	plane	
Range	:	G17,18,19
Unit	:	None
Authority	:	Operation admin or higher
Default	:	G18 (L series)/G17 (M series)
Effective time	:	Instant
Note	:	Set the default processing plane to XY or XZ; modify the default plane, so
		that it isn't need to specify the modal plane value while programming,
		and write plane related instructions directly in stead;

089	IP address		
090	Subnet mask		
091	Default gateway		
	Range	:	0~255
	Unit	:	None
	Authority	:	Operation admin or higher
	Default	:	192.168.0.123
			255.255.255.0
			192.168.0.1
	Effective time	:	Restart
	Note	:	Used to configure Ethernet parameters, which shall comply with the actual network settings, or else it can't be accessed normally.

After configured successfully, the user can perform the ping command
test on the PC of same network segment (same subnet mask) in the intranet. The connection has error if the return overtimes. Please check the physical connection.

The network environment requires independent NC network. Do not connect to office network or Internet, because the broadcast in the network and regular query of windows will block the network communication of NC.

Protroatment cogments
i i cu caunchi segments

Range	:	10~200							
Unit	:	None							
Authority	:	Operation admin or higher							
Default	:	20							
Effective time	:	Instant							
Note	:	Pretreatment forward segments are used to set the segments of							
		pretreatment preview.							

The larger this value is, the greater the operation is, and the longer the waiting time before motion is.

During small segment interpolating, if this value is larger, the possibility of waiting for operation during motion will become higher; the balance value is set according to the actual processing effect.

If this value is smaller, the balance value is set according to the actual price effect because the forward data are insufficient and the speed can't be improved during small segment interpolating.

093

Feed speed setting En

	-							
Range	:	0~1						
Unit	:	None						
Authority	:	Operation admin or higher						
Default	:	0						
Effective time	:	Instant						
Note	:	This parameter is used to modify the interpolation speed in						
		programming, making F programming invalid.						

Used for the cases that processing codes requires ignoring F-value. If this parameter is set to ON, F value in G code is invalid, and the system feeding speed is specified by 029# parameter.

094

095

Enable of G00 Inp mode					
Range	:	0~1			
Unit	:	None			
Authority	:	Operation admin or higher			
Default	:	0			
Effective time	:	Instant			
Note	:	Used to set whether G00 instruction is moved with G01 mode			

If G01 mode is used, the interpolation speed shall follow the setting of minimum speed;

The acceleration is the interpolation acceleration.

Abnormal memory location jump enable				
Range	:	ON~OFF		
Unit	:	None		
Authority	:	Operation admin or higher		
Default	:	ON		
Effective time	:	Instant		
Note	:	Used to restore the breakpoint position when the system is abnormal		
		during automatic processing. If the system has power failure or exits		
	abnormally during automatic running, the system will automatically save			
current breakpoint location, and will prompt whether run from the				
breakpoint after restarted. Press OK and the system will run from the				
breakpoint, ignoring the codes before the breakpoint.				

Range	:	ON~OFF
Unit	:	None
Authority	:	Operation admin or higher
Default	:	OFF
Effective time	:	Instant
Note	:	Used to stop lifting Z axis to set safe height in automatic processing for
		safety's sake. When processing is started, it first locates the position
 		before tool lifting, and then carries out unfinished processing.

097

096

Pause A to safe height enable

Range	:	ON~OFF
Unit	:	None
Authority	:	Operation admin or higher
Default	:	OFF
Effective time	:	Instant
Note	:	Used to stop lifting A axis to set safe height in automatic processing for
		safety's sake. When processing is started, it first locates the position
		before tool lifting, and then carries out unfinished processing.

098	Program reset reference point enable		
	Range	:	ON~OFF
	Unit	:	None
	Authority	:	Operation admin or higher
	Default	:	OFF
	Effective time	:	Instant
	Note	:	Set whether return to set parameter reference point after mechanical
			home, OFF is not to return to reference point, ON is to return to the
			reference point after home operation. The reference point is set in
			coordinate system interface.
099	Mechanical reser	t refere	ence point enable
	Range	:	ON~OFF
	Unit	:	None
	Authority	:	Operation admin or higher
	Default	:	OFF
	Effective time	:	Instant
	Note	:	Set whether return to set parameter reference point after mechanical
			home, OFF is not to return to reference point, ON is to return to the
			reference point after home operation. The reference point is set in
			coordinate system interface. The reference point is different from the
			point of program home. Reference points 1~4 are for mechanical home.
100	Clear coordinate	systen	n in reset mode
	Range	:	MAC Coord & G54 Coord
	Unit	:	None
	Authority	:	Operation admin or higher
	Default	:	MAC Coord
	Effective time	:	Instant
	Note	:	In system operation screen, press X, Y, Z, A in reset mode and then press
			the Cancel key to clear the coordinates. MAC is to clear machine
			coordinates, G54 is to clear program zero point, which is equivalent to
			the operation of tool setting. If it is set to G54, the program home
			operation is to return to the zero position of the workpiece.
101	Z safe height (G5	4 coor	dinates)
	Range	:	-9999~9999
	Unit	:	mm
	Authority	:	Operation admin or higher
	Default	:	0
	Effective time	:	Instant
	Note	:	Set the safe position of Z-axis of the machine tool, which can be machine
			tool coordinates or program coordinates, and specified by 096#
			parameter.
102	A safe height (G	54 coor	dinates)

Range	:	-9999~9999
Unit	:	mm
Authority	:	Operation admin or higher
Default	:	0
Effective time	:	Instant
Note	:	Set the safe position of A-axis of the machine tool, which can be
		machine tool coordinates or program coordinates, and specified by 097#
		parameter. This parameter is generally suitable for machine tools with
		dual-spindle.
Z feeding speed	d limit (mm/min)
Range	:	0~20000
Unit	:	Mm/min
Authority	:	Operation admin or higher
, Default	:	0
Effective time	:	Instant
Note	:	Set the maximum speed of Z-axis feed. 0 for no limit, and non-zero for
		speed limit. In the process of adjusting, if the machine tool vibrates
		because Z-axis speed is too high, this parameter can be set to limit the Z
		axis speed. After setting, the parameter will limit the speed of the other
		interpolation axes and thus affect the overall processing speed.
A feeding spee	d limit (mm/min)
Range		0~20000
Unit		Mm/min
Authority		Operation admin or higher
Default		
Effective time		Instant
Note		Set the maximum sneed of Z-axis feed 0 for no limit and non-zero for
Note	·	speed limit. In the process of adjusting if the machine tool vibrates
		because 7-axis speed is too high this parameter can be set to limit the 7
		avis speed. After setting the parameter will limit the speed of the other
		internolation axes and thus affect the overall processing speed
X manual speed	d (mm/	min)
Y manual speed	d (mm/i	min)
Z manual speed	d (mm/ı	nin)
A manual spee	d (mm/	min)
Range	:	0~20000
Unit	:	Mm/min
Authority	:	Operation admin or higher
Default	:	1000
Effective time	:	Instant
Note	:	Set the continuous motion speed in manual mode. The manual rapid
		speed is G00 speed.

112	X screw offset	X screw offset function enable Y screw offset function enable				
113	Y screw offset					
114	Z screw offset	Z screw offset function enable				
115	A					
115	A screw offset	A screw offset function enable				
	Range	:	ON~OFF			
	Unit	:	None			
	Authority	:	Operation admin or higher			

Default	:	OFF
Effective time	:	Instant
Note	:	Set whether screw pitch offset function is valid. OFF is to turn off screw
		pitch offset, and ON is to turn on screw pitch offset.

116	X screw offset pit	X screw offset pitch (mm)				
117	Y screw offset pit	Y screw offset pitch (mm)				
118	Z screw offset pit	Z screw offset pitch (mm)				
119	A screw offset pi	A screw offset pitch (mm)				
	Range	:	1~1000			
	Unit	:	mm			
	Authority	:	Operation admin or higher			
	Default	:	10			
	Effective time	:	Instant			
	Note	:	Set the screw offset pitch, which is generally set to 10mm, and acquired			
			by laser interferometer.			

120	X screw offset start position (mm)
121	Y screw offset start position (mm)
122	Z screw offset start position (mm)
123	A screw offset start position (mm)
124	X screw offset end position (mm)
125	Y screw offset end position (mm)
126	Z screw offset end position (mm)
127	A screw offset end position (mm)

Range	:	-9999~9999
Unit	:	mm
Authority	:	Operation admin or higher
Default	:	0.000
Effective time	:	Instant
Note	:	The offset range when the screw offset function is turned on. The set
		position is the machine coordinates. For example, if the coordinate
		range of the machine is $0^{\sim}100$ mm, you can set the starting position to 0,
		and set the end position to 100. The coordinates in this range are not
		compensated.

128	Go to M98 time/line enable			
	Range	:	ON&OFF	
	Unit	:	None	
	Authority	:	Operation admin or higher	
	Default	:	OFF	
	Effective time	:	Instant	
	Note	:	In the structure that the main program repeatedly calls subroutines, the	
			user can turn on this parameter and run the program directly. Select ON,	
			press '-', and enter the calling time and line to run directly.	
129	System start rese	t		
	Range	:	Never, Ask, Always	
	Unit	:	None	
	Authority	:	Operation admin or higher	
	Default	:	Never	
	Effective time	:	Instant	
	Note	:	Set the reset mode after the system is started. Never indicates that do	
			not reset after started; ask indicates that the system asks whether reset	
			after started (press EOB to reset or press Cancel to exit); always indicates	
			that the system resets automatically after started.	
130	Cooler alarm effe	ctive le	evel	
	Range	:	0&1	
	Unit	:		
	Authority	:	Operation admin or higher	
	Default	:	0	
	Effective time	:	Instant	
	Note	:	Purpose and function to be specified	

External	reset	effective	level	

Range	:	1&0
Unit	:	

Authority	:	Operation admin or higher
Default	:	0
Effective time	:	Instant
Note	:	Purpose and function to be specified

10.3. Axis parameter configuration (P2.)

001	X_ServoAlarmIn	X_ServoAlarmIn ELevel				
002	Y_ServoAlarmIn	Y_ServoAlarmIn ELevel				
003	Z_ServoAlarmIn	Z_ServoAlarmIn ELevel				
004	A_ServoAlarmIn	ELevel				
005	X_ServoResetOu	t ELeve				
006	Y_ServoResetOu	Y_ServoResetOut ELeve				
007	Z_ServoResetOu	t ELeve				
008	A_ServoResetOu	t ELeve				
	Range	:	0~1			
	Unit	:	LOGIC VOLTAGE LEVEL			
	Authority	:	Super Admin			
	Default	:	1, 1			
	Effective time	:	Instant			
	Note	:	Adapt to the interface parameters of selected servo drive; please refer			
			to interface voltage level description of servo for specific parameter			
			settings. Servo alarm effective level can be set to 0 for stepper motor, or			
			else servo alarm will be generated because the port level read by the			
			system is 1. Reset effective level refers that the system will output alarm			
			reset signal from pulse port if the user presses the Reset key when servo			
			alarm occurs.			

009	X_ECZ Home Enable
010	X_ECZ Home ELevel
011	Y_ECZ Home Enable
012	Y_ECZ Home ELevel
013	Z_ECZ Home Enable
014	Z_ECZ Home ELevel

015	
016	

4_ECZ Home Ena	able	
4_ECZ Home ELe	vel	
Range	:	0~1
Unit	:	LOGIC VOLTAGE LEVEL
Authority	:	Super Admin
Default	:	0
Effective time	:	Instant
Note	:	When this parameter is enabled, encoder Z phase positioning of
		corresponding axis will be enabled automatically in mechanical home
		mode, i.e. the "servo home" positioning; in this mode, the accuracy of
		repeated home positioning depends on servo positioning accuracy, and
		therefore it is recommended to enable this function for servo motor.
		Step motor doesn't have encoder and can't enable this option, or else
		the signals can't be scanned during mechanical home operation and will
		move constantly.

017	X Limit+ Enable<●>				
028	4 Limit ELevel<	●>			
	Range	:	0~1		
	Unit	:	None		
	Authority	:	Super Admin		
	Default	:	0		
	Effective time	:	Restart		
	Note	:	Hard limit has two modes, i.e. hardware response and software		
			scanning;		

Hardware response mode is integrated by the motion chip, and is triggered by the effective voltage level of the circuit test limit pin. Therefore, it is highly real-time, but it also has a defect. If the external interference is serious, the normal pulse will be affected and the system doesn't alarm because it can't read the error state in time, which will cause loss; therefore, this function requires that the wiring switch uses normally closed connection, i.e. high effective level; this function considers the complexity of field environment and the default value is off.

Scanning mode is integrated by the system and can't be shielded. The scanning mode inputs signal by accessing specified function number and uses software anti-interference detection technology to check whether limit alarm occurs or has no interference. This requires certain time to check, and thus the real time isn't as well as interrupted limit. However, in most cases (at 10mm/min processing speed), it can meet the requirement on processing safety check.

The hardware response function of hard limit is prior to scanning response function, i.e. if the hardware response is enabled, it will quicken the response speed directly. It should be noted that the hardware response function only can stop pulse in instant mode. Therefore, the instant stop mode may cause mechanical vibration if the speed is too high. While software scanning mode uses maximum acceleration mode and decelerates according to the maximum acceleration set to every axis by the user (parameter P2.074~077), and therefore overshot will occur.

)29	X Pulse Mode (restart)					
)30	Y Pulse Mode (re	Y Pulse Mode (restart)				
)31	Z Pulse Mode (re	Z Pulse Mode (restart)				
)32	4 Pulse Mode (re	4 Pulse Mode (restart)				
	Range	:	0~1			
	Unit	:	None			
	Authority	:	Super Admin			
	Default	:	1			
	Effective time	:	Restart			
	Note	:	Pulse command format setting is to configure the mode of output pulse.			
			The compatible command format of the motor drive should be known in			
			advance.			
			Pulse + pulse			

Pulse + direction

(

(

033	X Pulse Dir Mode	X Pulse Dir Mode (restart)					
034	Y Pulse Dir Mode	Y Pulse Dir Mode (restart)					
035	Z Pulse Dir Mode	Z Pulse Dir Mode (restart)					
036	4 Pulse Dir Mode	4 Pulse Dir Mode (restart)					
	Range	: 0~1					
	Unit	: None					
	Authority	prity : Super Admin					
	Default	:	1				
	Effective time	•	Restart				

Note : Set pulse direction; if the controller direction is reverse to actual drive direction, please modify this parameter to adjust the rotation direction of motor.

037	X Ext Home ELev	el						
038	Y Ext Home ELev	Y Ext Home ELevel						
039	Z Ext Home ELev	Z Ext Home ELevel						
040	A Ext Home ELev	A Ext Home ELevel						
	Range	:	0~1					
	Unit	:	LOGIC VOLTAGE LEVEL					
	Authority	:	Super Admin					
	Default	:	0					
	Effective time	Effective time : Instant						
	Note	:	Set the effective voltage level of external home sensor switch during					
			home operation.					
			Low level					

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High level

041	X Round Setting	X Round Setting (restart)				
042	Y Round Setting	Y Round Setting (restart)				
043	Z Round Setting	Z Round Setting (restart)				
044	4 Round Setting	4 Round Setting (restart)				
	Range	:	0~9999999			
	Unit	:	Pulse			
	Authority	:	Super Admin			
	Default	:	: 0			
	Effective time	:	Restart			
	Note	:	 Round function is available on hardware version 1.5 or later only; 			
			\succ This function is used to prevent the logic counting of axis			
			exceeding the maximum counting range (2147483648) and causing			
			overflow error;			
			Generally, overflow occurs only when the axis is set to rotary. The			
			system will calculate the corresponding pulse limit according to the			

parameters, and the finally displayed number will be effective.

This parameter requires restart to take effect; the corresponding axis must be rotary and set to 360° display (P2.062~069);

045	X physial Assign	X physial Assign Num (restart)						
046	Y physial Assign	Y physial Assign Num (restart)						
047	Z physial Assign	Z physial Assign Num (restart)						
048	4 physial Assign	4 physial Assign Num (restart)						
	Range	:	0~4					
	Unit	it : Pulse port sequence No.						
	Authority	Authority : Super Admin						
	Default	:						
	Effective time	:	Restart					

In default mode, the actual number of every axis corresponds to the silk screen number on the shell. If certain function axis is abnormal, you can replace the axis through this function. For example, set P2.045 to 4, P2.048 to 1, then, any operation to X axis will be the operation to A axis encoder port on the shell.

0: no such axis

1~4: corresponding to 1#-4# axis

Ω	Δ	q
0	-	-

Spindle physial Assign Num (restart)

:

:

:

Range	:	0~4
Unit	:	Pulse port sequence No.
Authority	:	Super Admin
Default	:	

Restart

Note

Effective time

Note

It is set to 0 by default, indicating that the principal axis is in variable frequency control mode, i.e. analog or gear position control mode. To use servo principal axis, a coding port is required (servo principal axis must be in position control mode); you can modify this parameter to specify the function.

0: variable frequency principal axis adjusted by analog

1~4: corresponding to 1#-4# axis

Note: If a pulse port is specified as the function port of principal axis, the pulse port should be removed from previously corresponding function axis number, or else the system will assign to principal axis after restarted and the original function axis will be invalid.

050	X Encoder bit(p)						
051	Y Encoder bit(p)	Y Encoder bit(p)					
052	Z Encoder bit(p)						
053	4 Encoder bit(p)						
	Range	:	0~9999				
	Unit	:	Wire number				
	Authority	:	Super Admin				
	Default	:	2500				
	Effective time	:	Instant				
	Note	:	Set the encoder wires connected to every pulse port (AB phase pulse).				
			Since four times frequency division is performed for internal transfer, the				

for one cycle divided by 4.

value of this parameter should be the pulses collected by the encoder

058	X PulseLogic Lev	X PulseLogic Level (restart)						
059	Y PulseLogic Lev	el (resta	art)					
060	Z PulseLogic Lev	Z PulseLogic Level (restart)						
061	4 PulseLogic Lev	el (rest	art)					
	Range	:	0~1					
	Unit	:	LOGIC VOLTAGE LEVEL					
	Authority	:	Super Admin					
	Default	:	0					
	Effective time	:	Restart					
	Note	:	Set the normal voltage level when the pulse is working. If the setting is					
			different from the normal voltage level required by motor drive, a					
			direction will have accumulative error during every positive and negative					
			motion (independent of pulses). Therefore, if the positioning axis of the					
			machine has accumulative error in a direction, please check whether this					
			parameter matches.					

062	X feature(Rota	ate0 Line:	1)			
063	Y feature(Rota	Y feature(Rotate0 Line1)				
064	Z feature(Rota	Z feature(Rotate0 Line1)				
065	4 feature(Rota	4 feature(Rotate0 Line1)				
	Range	:	0~1			
	Unit	:	None			

Authority	:	Super Admin
Default	:	1
Effective time	:	Instant
Note	:	Set axis characteristics.
		0: Rotary axis
		1: Linear axis

The setting of this parameter and P2.066~069 axis will affect the setting of P2.041~044. Please refer to the parameter description of P2.041~044 for details.

066	X Rolling Display Usage						
067	Y Rolling Display	Y Rolling Display Usage					
068	Z Rolling Display	Usage					
069	4 Rolling Display	4 Rolling Display Usage					
	Range	:	0~1				
	Unit	:	None				
	Authority : Super Admin						
	Default : 0						
	Effective time : Instant						
	Note : Set the coordinate display mode of the axis. This parame		Set the coordinate display mode of the axis. This parameter is valid when				
			P2.062~P2.065 is set to 0				
			0: 0~360° display				
		1: -9999.999~9999.999° display					
			The setting of this parameter and P2.062~065 axis will affect the setting of P2.041~044. Please refer to the parameter description of P2.041~044 for details.				

070	
073	

X Rolling Path Optimize				
4 Rolling Path O	ptimize			
Range	:	0~1		
Unit	:	None		
Authority	:	Super Admin		
Default	:	1		
Effective time	:	Instant		
Note	:	This parameter is valid when P2.062~P2.065 and P2.066~P2.069 are set		
		to 0; set whether looking for shortest path automatically; if it is rotary		

axis and is positioning but doesn't process, enable this function to

shorten the motion time.

0: Do not optimize the path

1: Enable the shortest path

Note: If processing is required during the motion, the shortest path may

be not your desired processing track.

074	
077	

Max Acc of X(Kpps)						
Max Acc of 4(Kp	ops)					
Range	:	100~8000				
Unit	:	Kpps (Kilo Pulse Per Second)				
Authority	:	Super Admin				
Default	:	2000				
Effective time	:	Instant				
Note	:	Set the maximum acceleration of every axis. This setting will affect the				
		track speed optimization of pretreatment to every axis. If a high value is				
		set, the axis response time will be shortened and characteristics of the				
		motor will be improved according to the machine tool.				
		This parameter also affects the home function and limit stop function.				

μ

Hard limit function: Use hard limit in software scanning mode, in which the hard limit decelerates and stops according to the maximum acceleration of this axis. Therefore, if this value is too high, the machine tool will stop in emergency, and if this value is too low, it will cause too much overshoot.

Home function: the home acceleration of every axis uses this value.

078	X Servo Home Dir			
079	Y Servo Home Dir			
080	Z Servo Home Dir			
081	4 Servo Home Dir			
	Range	:	0~1	
	Unit	:	None	
	Authority	:	Super Admin	
	Default	:	0	

Effective time :

:

Note

Instant

This parameter determines the Z phase search direction when servo Z phase enable parameter is enabled in P2.009~P2.016.

0: Positive

1: Negative

082	X Ext Home Eanble				
083	Y Ext Home Eans	Y Ext Home Eanble			
084	Z Ext Home Eant	Z Ext Home Eanble			
085	4 Ext Home Ean	4 Ext Home Eanble			
	Range	:	0~1		
	Unit	:	None		
	Authority	:	Super Admin		
	Default	:	1		
	Effective time	:	Instant		
	Note	:	When mechanical home mode is selected, this parameter determines whether external deceleration switch should be searched. If this parameter is set to 0, and P2.009~P2.016 (servo Z phase enable) is also set to 0, the home mode sets current point as the home directly in mechanical mode.		
			0: No		

086	X Encoder Logicl	X Encoder LogicDir< >			
087	Y Encoder Logic	Y Encoder LogicDir<●>			
088	Z Encoder Logic	Z Encoder LogicDir< >			
089	4 Encoder Logic	4 Encoder LogicDir<●>			
	Range	:	0~1		
	Unit	:	None		
	Authority	:	Super Admin		
	Default	:	0		
	Effective time	:	Instant		
	Note	:	If the logic direction obtained by the encoder is reverse to the actual		
			motion direction of the axis, please set this parameter.		
			Handwheel encoder reuses A axis encoder.		

Principal axis encoder reuses X axis encoder.

0: Positive

1: Negative

090	X HomeSpeed2					
091	Y HomeSpeed2					
092	Z HomeSpeed2	Z HomeSpeed2				
093	4 HomeSpeed2					
094	X HomeSpeed3					
095	Y HomeSpeed3					
096	Z HomeSpeed3					
097	4 HomeSpeed3					
	Range	:	1~20000			
	Unit	:	mm/min			
	Authority	:	Super Admin			
	Default	:	100, 60			
	Effective time	:	Instant			
	Note	:	Used to set the speed parameters of mechanical resetting; the specific			
			effective sequence follows:			

Resetting speed ——> (when detecting external zero switch) deceleration ——> scanning speed

100

Hand wheel encoder dir

Range	:	0~1
Unit	:	None
Authority	:	Super Admin
Default	:	0
Effective time	:	Instant
Note	:	When the logic direction obtained by handheld box encoder is reverse to
		the actual motion direction of the axis, set this parameter to perform
		in-phase setting.
		0: positive direction

1: negative direction

101	X restrain acc (mm/s^2)
102	Y restrain acc (mm/s ²)
103	Z restrain acc (mm/s^2)
104	4 restrain acc (mm/s^2)
105	X max restrain rate
106	Y max restrain rate
107	Z max restrain rate
108	4 max restrain rate
	Range : 1~90000

Range	:	1~90000
Unit	:	
Authority	:	Super Admin
Default	:	90000
Effective time	:	Instant
Note	:	1. Used to configure the restriction acceleration of every axis during
		pretreatment processing.

2. No matter which parameter, the lower the setting is, the slower the processing speed is; vice versa.

3. The setting value should be as high as possible if each axis permits.

4. In comprehensive parameter P1.58 (interpolation speed mode), this

109	X lock brake sign	X lock brake signal enable			
	Range	:	0~1		
	Unit	:	None		
	Authority	:	Super Admin		
	Default	:	0		
	Effective time	:	Instant		
	Note	:	Used for mechanical system control, such as heavy load.		
			0: Invalid		
			1: On		
110	Y lock brake sign	al enal	ble		



10.4. Management parameter (P3.)

Note

:

001 002 003

С

C

Select SupMode					
AlterSuperuserPassword					
Alter User Passv	vord				
Range	:	None			
Unit	:	None			
Authority	:	None			
Default	:	None			
Effective time	:	Instant			

Set system permissions, including super user, operator and user, of which super user has the highest permissions, the operator only has part of the setting permission, and the user can not modify any system settings. The default option is super user. If you set a super user password, the system automatically switches to operator permission after restarted next time. If you set an operator password, the system switches to user permission after restarted. The default password of super user and operator is 0.

1. In this menu, press 'EOB' and select permission in the pop-up dialog box, and then input the user password again to switch to select the permission;

2. Super user can modify the super user password and operator password, select the option to modify and press EOB, and input the old and new password in the pop-up dialog box.

Note: the initial password is 0.

004	Initialize				
05	Initialize IO Con	Initialize IO Config			
006	all para reset<●>				
	Range	:	None		
	Unit	:	None		
	Authority	:	Super user		
	Default	:	None		
	Effective time	:	Instant		
	Note	:	Initial parameter table only in super user mode. After initialized, the		
			parameters will be reset to default. Please back up the parameters before		
			initializing to avoid repeated setting.		

007	para backup	para backup		
008	para recover			
	Range	:	None	
	Unit	:	None	
	Authority	:	Super user	
	Default	:	None	
	Effective time	:	Instant	
	Note	:	1. The parameters are backed up and restored only in super user mode.	
			2. The parameters are backed up to the sysconf.bak file in the root directory of the controller. If this folder already has a file with same name, the latest backup will overwrite this file. If the parameters are same, the backup file can be copied to other systems for restoration.	
			3. The sysconf.bak file in the root directory is also used for restoring.	

4. After adjusting, please back up the parameters to avoid parameters being modified.

5. After restoring, the system will restart automatically.

generate cryptogram Range None : Unit : None Authority : None Default : None Effective time Instant : Note : If you have forgotten the password, you can generate a PassMeg.DAT file with this function, provide this file to controller manufacturer and ask the manufacturer to reset the password. menu click way

010

009

Range	:	0~1
Unit	:	None
Authority	:	None
Default	:	0 (click)
Effective time	:	Instant
Note	:	This function is to be developed

011

clear add up work num

clear current work num

Range : None

Unit	:	None
Authority	:	None
Default	:	None
Effective time	:	Instant
Note	:	Clear the accumulated value of current processing pieces. The
		accumulated processing pieces are saved after power failure, and the
		current processing pieces are cleared after the system is restarted.

013

lead in CSV sys config

Range	:	None
Unit	:	None
Authority	:	None
Default	:	None
Effective time	:	Restart
Note	:	Import the CSV system configuration of the manufacturer into the system.
		Please refer to the configuration of macro variables and tool magazine
		parameters for specific method.

014

startup display module

,		
Range	:	Select
Unit	:	None
Authority	:	Operation admin
Default	:	ABS
Effective time	:	Instant
Note	:	Select default boot screen from absolute position, relative position and
		comprehensive position.

015

sys language bag

, , ,	0	
Range	:	0~1
Unit	:	None
Authority	:	Operation admin
Default	:	0 (Chinese)
Effective time	:	Instant
Note	:	Select system language

Chinese

English

macro key word valid En

Range	:	0~1
Unit	:	None
Authority	:	Operation admin
Default	:	0 (Chinese)
Effective time	:	Instant
Note	:	Macro keyword effective parameter is used to set whether the macro
		expression symbol on the membrane is valid (1: valid, 0: invalid). Generally,
		turn on this parameter while writing macro program, and then input
		operators in number section.

Δ	1	7
υ	т	/

startup picture display

Range	:	0~6
Unit	:	None
Authority	:	Operation admin
Default	:	15
Effective time	:	Instant
Note	:	Used to configure the display mode of the logo; if it is set to 0, the user
		needs to press any key to enter the system; for any other value, the system
		delays for corresponding time, and enters automatically.

018

sys display axis setting Range : Unit : None Authority : Super user Default : XYZ Effective time Instant : Used to configure the display axis of current system, and different display Note : combinations are available.

This configuration only determines the content of the interface. If the axis function of the hardware exists, it still can output axis control during programming, but the axis status won't be displayed. The status such as axis limit and alarm will be ignored.

019	sys debug information En			
	Range	:	0~1	
	Unit	:	None	
	Authority	:	Super user	
	Default	:	OFF <i>/</i> 0	
	Effective time	:	Instant	
	Note	:	Used to configure whether RS232 of current system outputs the testing	

info while program is running.

This parameter is dedicated for programmers, and the users are not suggested using this parameter.

If the testing info is enabled, the system performance will be lowered, and therefore it is disabled during normal processing.

If networking is enabled, this function must be disabled, or else the networking will fail.

axis control cor	axis control composite					
Range	:	0~1				
Unit : None						
Authority	:	Super user				
Default	:	ON/1				
Effective time	:	Instant				
Note	:	Used to configure whether the key for axis motion on the control panel is				
		enabled.				

This parameter is used to shield the composite function of the key for axis motion on the NC panel and reduce the possibility of misoperation when additional panel is used. However, if no additional panel is used, this parameter must be enabled, or else the axis motion can't be controlled through the key.

Range	:	0~1
Unit	:	None
Authority	:	Super user
Default	:	OFF/0
Effective time	:	Instant
Note	:	Used to configure whether NC uses additional panel, which must be AD
		matching additional panel, or compatible with the interface of sam
		protocol.

If additional panel is used, the system testing info enable must be deactivated (P3.19).

0	2	2	
U	z	2	

021

020

M macro program selection<•>

Range : MFUNC(M), User-Def Unit : None

Authority	:	Super user
Default	:	MFUNC(M)
Effective time	:	Instant
Note	:	Used to configure the auxiliary control of the system by calling
		M_FUNC.NC or not. Through M_FUNC.NC file, the user can custom M
		code function and panel control function. If this parameter is set to
		User-Def, specific functions can be achieved through M_FUNC.NC program
		file under D:\MACRO directory.

023

T macro program selection<•>					
Range	:	TFUNC(M), User-Def			
Unit	:	None			
Authority	:	Super user			
Default	:	TFUNC(M)			
Effective time	:	Instant			
Note	:	This parameter can be used to define the tool magazine program. \ensuremath{TFUNC}			
		(M) is the built-in tool magazine program of the system. If this parameter is			
		set to User-Def, the tool magazine function can be achieved by writing			
		M_FUNC.NC under D:\MACRO directory.			

024	PLC program se	PLC program selection<•>				
	Range	:	PLC(M), User-Def			
	Unit	:	None			
	Authority	:	Super user			
	Default	:	PLC(M)			
	Effective time	:	Instant			
	Note	:	Used to configure the auxiliary control of the system by calling PLC (M). NC			
			or not.			
025	Screen saver or	า				
	Range	:	0&1			
	Unit	:	None			
	Authority	:	Super user			
	Default	:	0			
	Effective time	:	Instant			
	Note	:	Used to configure whether turn on screen saver of the system, in order to			
			further reduce system power consumption.			
			If the perspector is set to 1, the screep display will automatically turn off			

If the parameter is set to 1, the screen display will automatically turn off after one minute when the system is stopped.

1001 magazine	param				
Current tool	Current tool number				
Range	:	0~10000			
Unit	:	None			
Authority	:	Operation admin or higher			
Default	:	0			
Effective time	e :	Instant			
Note	:	Current tool number on the spindle;			
System cutte	r				
Range	:	0~10000			
Unit	:	None			
Authority	:	Operation admin or higher			
Default	:				
Effective time	e :	Instant			
Note	:	The number of tool magazine, used to limit tool change and prevent			
		beyond the value during processing			
ATC reference	e position	X (mm)			
Range	:	-9999~9999			
Unit	:	Mm			
Authority	:	Operation admin or higher			
Default	:	0.000			
Effective time	e :	Instant			
Note	:	The reference position on the X-axis direction in straight tool magazine;			
		if the straight tool is mounted on the X-axis direction, this parameter can			
		be used, typically the position of the first tool, other tools are calculated			
		with respect to the reference tool position and interval. The default			
		configuration of the system is straight tools installed on the X axis.			
ATC reference	e position	Y (mm)			
Range	:	-9999~9999			
Unit	:	Mm			
Authority	:	Operation admin or higher			
Default	:	0.000			
Effective time	2 :	Instant			
Note	:	The reference position on the Y-axis direction in straight tool magazine;			
		if the straight tool is mounted on the Y-axis direction, this parameter can			
		be used, typically the position of the first tool, other tools are calculated			
		with respect to the reference tool position and interval.			
ATC reference	e position	Z (mm)			
Range	:	-9999~9999			
Unit	:	Mm			
Authority	:	Operation admin or higher			
Default	:	0.000			

10.5. Tool magazine parameters (P4.)

	Effective time		Instant
	Note		The reference position on the 7-axis direction in straight tool magazine:
	Note	·	if the straight tool is mounted on the Z-axis direction this narameter can
			he used typically the position of the first tool, other tools are calculated
			with respect to the reference tool position and interval
006	ATC safety heigh	nt (mm)	
000	Are salety heigh		
	Range	:	-9999~9999
	Unit	:	Mm
	Authority	:	Operation admin or higher
	Default	:	0.000
	Effective time	:	Instant
	Note	:	Safe height of tool change, which should consider the longest tool
			holder in the tool magazine before setting this parameter. Make sure
			that there is no position interference.
007	ATC high speed	(mm/m	in)
	Dense		0000~0000
	Range	:	-9999-9999
	Unit Authority	•	Mirri
	Authority	:	Operation admin or higher
	Default	:	0.000
	Effective time	:	Instant
	Note	:	The speed that each axis quickly locates the set position when tool is
			changed. For example, if safe height is located, the safe position use this
000		, .	speed.
008	ATC low speed (mm/mi	n)
			-9999~9999
	Range	:	
	Range Unit	: :	Mm
	Range Unit Authority	: : :	Mm Operation admin or higher
	Range Unit Authority Default	: : :	Mm Operation admin or higher 0.000
	Range Unit Authority Default Effective time	: : : :	Mm Operation admin or higher 0.000 Instant
	Range Unit Authority Default Effective time Note	::	Mm Operation admin or higher 0.000 Instant The speed that each axis slowly locates the set position when tool is
	Range Unit Authority Default Effective time Note	: : : :	Mm Operation admin or higher 0.000 Instant The speed that each axis slowly locates the set position when tool is changed. This parameter is used when taking and placing the tool.
009	Range Unit Authority Default Effective time Note Quick decline po	: : : : sition (Mm Operation admin or higher 0.000 Instant The speed that each axis slowly locates the set position when tool is changed. This parameter is used when taking and placing the tool. mm)
009	Range Unit Authority Default Effective time Note Quick decline po Range	: : : : sition (Mm Operation admin or higher 0.000 Instant The speed that each axis slowly locates the set position when tool is changed. This parameter is used when taking and placing the tool. mm) -9999~9999
009	Range Unit Authority Default Effective time Note Quick decline po Range Unit	: : : : sition (Mm Operation admin or higher 0.000 Instant The speed that each axis slowly locates the set position when tool is changed. This parameter is used when taking and placing the tool. mm) -9999~9999 Mm
009	Range Unit Authority Default Effective time Note Quick decline po Range Unit Authority	: : : : : : : : : : : : : : : : : : :	Mm Operation admin or higher 0.000 Instant The speed that each axis slowly locates the set position when tool is changed. This parameter is used when taking and placing the tool. mm) -9999~9999 Mm Operation admin or higher
009	Range Unit Authority Default Effective time Note Quick decline po Range Unit Authority Default	: : : : : : : : : : : : : : :	Mm Operation admin or higher 0.000 Instant The speed that each axis slowly locates the set position when tool is changed. This parameter is used when taking and placing the tool. mm) -9999~9999 Mm Operation admin or higher 0.000
009	Range Unit Authority Default Effective time Note Quick decline po Range Unit Authority Default Effective time	: : : : : : : : : : : : : : : : : : :	Mm Operation admin or higher 0.000 Instant The speed that each axis slowly locates the set position when tool is changed. This parameter is used when taking and placing the tool. mm) -9999~9999 Mm Operation admin or higher 0.000 Instant
009	Range Unit Authority Default Effective time Note Quick decline po Range Unit Authority Default Effective time Note	: : : : : : : : : : : : : : : : : : :	Mm Operation admin or higher 0.000 Instant The speed that each axis slowly locates the set position when tool is changed. This parameter is used when taking and placing the tool. mm) -9999~9999 Mm Operation admin or higher 0.000 Instant This parameter is reserved. Current straight tool doesn't use this
009	Range Unit Authority Default Effective time Note Quick decline poor Range Unit Authority Default Effective time Note	: : : : : : : : : : : : : : :	Mm Operation admin or higher 0.000 Instant The speed that each axis slowly locates the set position when tool is changed. This parameter is used when taking and placing the tool. mm) -9999~9999 Mm Operation admin or higher 0.000 Instant This parameter is reserved. Current straight tool doesn't use this parameter. You can use this parameter in customized tool magazine
009	Range Unit Authority Default Effective time Note Quick decline po Range Unit Authority Default Effective time Note	: : : : : : : : : : : : : :	Mm Operation admin or higher 0.000 Instant The speed that each axis slowly locates the set position when tool is changed. This parameter is used when taking and placing the tool. mm) -9999~9999 Mm Operation admin or higher 0.000 Instant This parameter is reserved. Current straight tool doesn't use this parameter. You can use this parameter in customized tool magazine macro program.
009	Range Unit Authority Default Effective time Note Quick decline poor Range Unit Authority Default Effective time Note Tool placing pos	: : : : : : : : : : : : : : : : : : :	Mm Operation admin or higher 0.000 Instant The speed that each axis slowly locates the set position when tool is changed. This parameter is used when taking and placing the tool. mm) -9999~9999 Mm Operation admin or higher 0.000 Instant This parameter is reserved. Current straight tool doesn't use this parameter. You can use this parameter in customized tool magazine macro program.

	Unit	:	Mm
	Authority	:	Operation admin or higher
	Default	:	0.000
	Effective time	:	Instant
	Note	:	This parameter is reserved. Current straight tool doesn't use this
			parameter. You can use this parameter in customized tool magazine
			macro program.
011	Tool cutting posi	tion (n	im)
	Range	:	-9999~9999
	Unit	:	Mm
	Authority	:	Operation admin or higher
	Default	:	0.000
	Effective time	:	Instant
	Note	:	This parameter is reserved. Current straight tool doesn't use this
			parameter. You can use this parameter in customized tool magazine
			macro program.
012	Spindle air blow	hold ti	me (ms)
	Pango		0000~0000
	Unit	•	-5555 5555 Mm
	Authority	•	Nilli Oneration admin or higher
	Authority	:	Operation admin or higher
	Default	:	0.000
	Effective time	:	Instant
	Note	:	This parameter is reserved. Current straight tool doesn't use this
			parameter. You can use this parameter in customized tool magazine
			macro program.
013	X-safe position a	fter to	ol change (mm)
	Range	:	-9999~9999
	Unit	:	Mm
	Authority	:	Operation admin or higher
	Default	:	0.000
	Effective time	:	Instant
	Note	:	The safe position that X-axis returns to after taking and placing the tool
		-	for the tool magazine installed on the Y-axis
014	Y-safe position a	fter to	ol change (mm)
	Range	:	-9999~9999
	Unit	:	Mm
	Authority	:	Operation admin or higher
	Default	:	0.000
	Effective time	:	Instant
	Note	:	The safe position that Y-axis returns to after taking and placing the tool
			for the tool magazine installed on the X-axis; the default configuration of

the system is straight tool mounted on the X axis.

015	Tool spacing (mi	m)		
	Range	:	0~9999	
	Unit	:	Mm	
	Authority	:	Operation admin or higher	
	Default	:	0.000	
	Effective time	:	Instant	
	Note	:	The distance between two tools of straight tool magazine, the system	
			calculates the position of other tools according to the reference position	
			and spacing.	
016	Vertical-type position offset (mm)			
	Range	:	-9999~9999	
	Unit	:	Mm	
	Authority	:	Operation admin or higher	
	Default	:	0.000	
	Effective time	:	Instant	
	Note	:	This parameter is reserved. Current straight tool doesn't use this	
			parameter. You can use this parameter in customized tool magazine	
			macro program.	

10.6. Principal axis parameter (P5.)

001	Spi.Alarm ELevel
002	Spi.Reset ELevel
003	Spi.ECZ Home Enable
004	Spi.ECZ Elevel
005	Spi. Limit+ Enable
006	Spi. Limit- Enable
007	Spi.Limit Elevel
008	Spi.Pulse Mode
009	Spi.Pulse Logic Mode
010	Spi.HomeDect ELevel
011	Spi.ExtHome Check En
012	Spi.Round Setting
014	Spi.ZeroOffset(p)
015	Spi.PulseLogic Level
016	Spi.Rolling Display Usage

017	Spi.Max Acc(Kpps) Spi.Ext HomeDir			
018				
019	Spi.Servo HomeDir Spi.Home Speed(rpm)			
021				
	Range	:	0~1	
	Unit	:	Logic level	
	Authority	:	Operation admin or higher	
	Default	:	0	
	Effective time	:	Instant	
	Note	:	Servo principal axis parameters are same as common positioning axis	
			parameters. If only the principal axis is controlled with servo port, you	
			can set the number according to axis parameters.	

013

Spi.Encode bits(p)

Range	:	64~9999
Unit	:	None
Authority	:	Operation admin or higher
Default	:	2500
Effective time	:	Instant
Note	:	The received wire number of the encoder when the principal axis rotates
		one circle;
		Same as common axis encoder, it can only receive AB phase pulse, and

thus the wire number of the encoder must be pulses of one circle divided by 4.

This parameter will affect G74 and G84 tap instructions. Please set it properly.

020

Spi.Max Speed(rpm)

Range	:	1~30000
Unit	:	None
Authority	:	Operation admin or higher
Default	:	24000
Effective time	:	Instant
Note	:	This setting is used to calculate the analog output of the controller, and
		suppose that the analog of variable frequency control is in linear control
		mode:

This method is to set the rotation to this parameter according to the variable frequency rotation corresponding to analog 10V, and transfer

the rotation directly later, while the controller will output corresponding analog voltage according to linear scale automatically.

022	Spi.Gear Numera	Spi.Gear Numerator Spi.Gear Denominator		
023	Spi.Gear Denom			
	Range	:	1~65535	
	Unit	:	None	
	Authority	:	Operation admin or higher	
	Default	:	1	
	Effective time	:	Instant	
	Note	:	If the principal axis has gear position, please set the hardware gear ratio	
			to this parameter, which hasn't been used in standard version, but may	
			be used in certain special conditions.	
024	Spi.Encoder Logi	c Dir		
	Range	:	0~1	
	Unit	:	None	
	Authority	:	Operation admin or higher	
	Default	:	0	
	Effective time	:	Instant	
	Note	:	The direction of rotation of the spindle encoder.	
025	Spi.OpenDelayTi	me(ms)		
	Range	:	0~9000	
	Unit	:	Ms	
	Authority	:	Operation admin or higher	
	Default	:	6000	
	Effective time	:	Instant	
	Note	:	Set the delay time through this parameter to start the spindle. The	
			parameter is mainly to prevent processing before the spindle is started.	

026	Servo spindle r	eady lev	el		
027	Servo spindle o	Servo spindle quasi stop in-place level			
028	Servo spindle z	Servo spindle zero speed in-place level			
029	Servo spindle s	peed ar	ival level		
	Range	:	0~1		
	Unit	:	None		
	Authority	:	Operation admin or higher		

Default	:	0
Effective time	:	Instant
Note	:	These parameters are reserved for the system.

030	System spindle s	peed	
	Range	:	1~24000
	Unit	:	None
	Authority	:	Operation admin or higher
	Default	:	100
	Effective time	:	Instant
	Note	:	Set spindle speed S value of the system. If the user program uses one
			spindle for speed processing, set the desired spindle speed, and the
			spindle code doesn't need to be written in the program. If the program
			has spindle code, the system will perform the programming speed and
			save in parameters.
031	If close spindle v	vhile ex	ecuting M30
	Range	:	0~1
	Unit	:	None
	Authority	:	Operation admin or higher
	Default	:	1
	Effective time	:	Instant
	Note	:	This parameter sets whether to automatically open and close the
			spindle when the program automatically starts and ends. If set to 1, the
			spindle automatically closes before started, and automatically stops
			during operation; after started, the spindle automatically opens.

10.7. Port configuration (P6.)

Note

001	Wheel0.1	Wheel0.1 Input wire No.			
014	A Alarm Ir	A Alarm Input wire No.			
	Range	:	24~37		
	Unit	:	None		
	Authority	:	Super Admin		
	Default	:	The port table in the manual		

Effective time : Instant

: Handheld box interface and servo alarm function pin definition;

Servo alarm input port, handheld box position, axis selection, start, pause, and emergency stop input port can be configured. The default handheld box testing port is XS7, and servo alarm detection port is XS1~XS4.

015	INO Input v	INO Input wire No.			
038	IN23 Input	wire N	0.		
	Range	:	1~24		
	Unit	:	None		
	Authority	:	Super Admin		
	Default	:	The port table in the manual		
	Effective time	:	Instant		
	Note	:	Input terminal No. configuration parameter		

Terminal No. is the object of the system to control IO, e.g. X external home signal test, and the system tests terminal No. INO, which corresponds to input wire 1 by default, and thus the system tests input pin1 indirectly; by default, the terminal No. is assigned to wire No. according to the IO relationship in the manual; however, this relationship isn't constant, and you can specify in these parameters and reassign a terminal No. to any input port;

For example, if you set 10 in parameter 042, the system will test pin 10 instead of pin 1 when it tests X home signal during home operation.

039					
000	0010 001				
062	OUT23 Inp	OUT23 Input wire No.			
	Range	:	1~24		
	Unit	:	None		
	Authority	:	Super Admin		
	Default	:	The port table in the manual		
	Effective time	:	Instant		
	Note	:	Output terminal No. configuration is same as input terminal		
			configuration. Output terminal No. and wire No. are mapped		
063	Safe Signal				
	Range	:	0~23		
	Unit	:	None		
	Authority	:	Operation admin or higher		
	Default	:			
	Effective time	:	Instant		

	Note	:	Specified system safety signal detection port, the system default is null. If safety signal detection port is set, the system will generate security alarm if signal is detected in running state. To cancel this function, enter "8888" and change to "=====". The port can be used for other functions. Please note that a universal port between 0 and 23 is input. For example, to specify pin 10, enter 9 and the parameter becomes "IN (9)".
064	PressureDect	Port	
	Range	:	0~23
	Unit	:	None
	Authority	:	Operation admin or higher
	Default	:	
	Effective time	:	Instant
	Note	:	Configure air pressure signal detection port. If the signal is detected
			after port is configured, air pressure alarm is generated. The default
			configuration is No.
065	ChuckDectect	t Port	
	Range	:	0~23
	Unit	:	None
	Authority	:	Operation admin or higher
	Default	:	=======
	Effective time	:	Instant
	Note	:	Configure system chuck alarm detection port. The chuck signal is
			detected in running state, which is same as safety signal.
066	SysOilOut Por	rt	
	Range	:	0~23
	Unit	:	None
	Authority	:	Operation admin or higher
	Default	:	
	Effective time	:	Instant
	Note	:	Configure the system pump output port. The system default is null. This
			parameter specifies the oil pump port controlled by general parameter
			069~072.
067	TChecking sig	nal Po	rt
	Range	:	0~23
	Unit	:	None
	Authority	:	Operation admin or higher
	Default	:	=======
	Effective time	:	Instant
	Note	:	Configure tool checking signal detection port. The default is null. This
			parameter can be configured in the machine using tool setter.
068	AlarmI ight O	ut Port	

132

Range	:	0~23
Unit	:	None
Authority	:	Operation admin or higher
Default	:	=======
Effective time	:	Instant
Note	:	Used for system alarm status output port configuration; the default
		setting is null.
RunLight Ou	t Port	
Range	:	0~23
Unit	:	None
Authority	:	Operation admin or higher
Default	:	=======
Effective time	:	Instant
Note	:	Used for system alarm status output port configuration; the default
		setting is null.
VFD 0 Level	Out Po	rt
Range	:	0~23
Unit	:	None
Authority	:	Operation admin or higher
, Default	:	
Effective time	:	Instant
Note	:	Used for spindle speed control, corresponding to X0 input port of the
		inverter
VFD 1 Level	Out Po	rt
Range	:	0~23
Unit	:	None
Authority	:	Operation admin or higher
, Default	:	
Effective time	:	Instant
Note	:	Used for spindle speed control, corresponding to X1 input port of the
	-	inverter
VFD 2 Level	Out Po	rt
Range	:	0~23
Unit	:	None
Authority	:	Operation admin or higher
Default	:	
Effective time	:	Instant
Note	:	Used for spindle speed control, corresponding to X2 input port of the
	-	inverter
VFD 3 Level	Out Po	rt
Range	:	0~23
Unit	:	None

	Authority	:	Operation admin or higher
	Default	:	======
	Effective time	:	Instant
	Note	:	Used for spindle speed control, corresponding to X3 input port of the
			inverter
074	Oiling Out Po	rt	
	Range	:	0~23
	Unit	:	None
	Authority	:	Operation admin or higher
	Default	:	OUT (05)=
	Effective time	:	Instant
	Note	:	Used for oil output port configuration; the default value is 05
075	Cooler Out Po	ort	
	Range	:	0~23
	Unit	:	None
	Authority	:	Operation admin or higher
	Default	:	OUT (04)=
	Effective time	:	Instant
	Note	:	Used for cooler output port configuration; the default value is 04
076	Spindle CW O	ut Poi	rt
	Range	:	0~23
	Unit	:	None
	Authority	:	Operation admin or higher
	, Default	:	OUT (00)=
	Effective time	:	Instant
	Note	:	Used for spindle CW output port configuration; the default value is 00
077	Spindle CCW	Out P	ort
	Range		0~23
	Unit	:	None
	Authority	:	Operation admin or higher
	Default		
	Effective time	:	Instant
	Note	:	Used for spindle CCW output port configuration: the default value is 01
078	System OilDe	ct Por	t
	•		
	Range	:	0~23
	Unit	:	None
	Authority	:	Operation admin or higher
	Default	:	
	Effective time	:	Instant
	Note	:	Used for hydraulic pressure detection with auxiliary hydraulic control;
			the default value is null
070	SpindleAlarm	Deter	rtPort

134

Range	:	0~23	
Unit	:	None	
Authority	:	Operation admin or higher	
Default	:		
Effective time	:	Instant	
Note	:	Used for input detection port configuration of spindle alarm signal; the	
_		default value is null; used together with parameter 069~072	
Transduser D	etectF	Port	
Range	:	0~23	
Unit	:	None	
Authority	:	Operation admin or higher	
Default	:	======	
Effective time	:	Instant	
Note	:	Used for input detection port configuration of inverter alarm signal; the	
		default value is null.	
ExScram2 De	tectPc	prt	
Range	:	0~23	
Unit	:	None	
Authority	:	Operation admin or higher	
Default	:		
Effective time	:	Instant	
Note	:	Used for port configuration of external emergency stop input signal; the	
		default value is null.	
Air of ToolCh	eck Oı	utPort	
Range	:	0~23	
Unit	:	None	
Authority	:	Operation admin or higher	
Default	:	======	
Effective time	:	Instant	
Note	:	Used for output port configuration of tool setter blowing; before tool	
		setting, blow the debris to ensure the tool setting accuracy; the default	
		value is null.	
IO Conf in RESE	Г 00~15		
Range	:	0~65535	
Unit	:	None	
Authority	:	Operation admin or higher	
Default	:	======	
Effective time	:	Instant	
Note	:	Used to configure the output signal that should be reset. For example, to	
		reset output port of pin 10# when the system is reset or alarms, press	
		EOB and set OUT9 in the pop-up dialog box (black dot is selected), press	
		and hold EOB for three seconds to exit.	
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-----	------------------	-------	---
084	IO Conf in RESET	16~23	
084		10 25	
	Range	:	0~65535
	Unit	:	None
	Authority	:	Operation admin or higher
	Default	:	
	Effective time	:	Instant
	Note	:	The output signal that the system needs to reset when configuring reset
			and alarm; the configuration is OUT16~OUT23.
085	ExStart2 Dete	ctPor	t
	Range	:	0~23
	Unit	:	None
	Authority	:	Operation admin or higher
	Default	:	
	Effective time	:	Instant
	Note	:	Used to configure external start button wiring port; the default value is
			null
086	ExPause2 Det	ectPo	rt
	Range	:	0~23
	Unit	:	None
	Authority	:	Operation admin or higher
	Default	:	
	Effective time	:	Instant
	Note	:	Used to configure external start button wiring port; the default value is
			null
087	TCheck Limit I	Detec	tPort

088

Γ

		tront
Range	:	0~23
Unit	:	None
Authority	:	Operation admin or higher
Default	:	======
Effective time	:	Instant
Note	:	Used to configure external tool setter limit signal port; the default value
		is null
Servo spindle ena	able ou	itput port No.
Range	:	0~23
Unit	:	None
Authority	:	Operation admin or higher
Default	:	
Effective time	:	Instant
Note	:	Used to configure servo spindle enable control port; the default value is

pin can be controlled through this parameter

null. After the system specifies servo spindle function, the servo enable

089

	Range	:	0~23
	Unit	:	None
	Authority	:	Operation admin or higher
	Default	:	
	Effective time	:	Instant
	Note	:	Used to configure servo spindle stop detection port; the default value is
			null. In tool magazine, if spindle stop is required, start spindle stop
			command, and determine whether stop in place by detecting spindle
	_		stop port
090	Servo spindle pu	lse cont	rol output No.
	Range	:	0~23
	Unit	:	None
	Authority	:	Operation admin or higher
	Default	:	
	Effective time	:	Instant
	Note	:	Used to configure the switch port of servo spindle pulse control mode;
			the default value is null. Used when servo spindle is specified.
091	Servo spindle rig	id tappi	ng output No.
	Range	:	0~23
	Unit	:	None
	Authority	:	Operation admin or higher
	Default	:	======
	Effective time	:	Instant
	Note	:	Used to configure the servo spindle rigid tapping control output port;
			the default value is null. Current version is not used.
092	Servo spindle rea	ady inpu	it No.
	Range	:	0~23
	Unit	:	None
	Authority	:	Operation admin or higher
	Default	:	
	Effective time	:	Instant
	Note	:	Used to configure servo spindle ready input port; the default value is
			null.
093	Servo spindle qu	asi stop	input port No.
	Range	:	0~23
	Unit	:	None
	Authority	:	Operation admin or higher
	Default	:	======
	Effective time	:	Instant
	Note	:	Used to configure the servo spindle stop in-place input port; the default
			value is null. Current version is not used.
094	Servo spindle zer	ro speed	d in-place input port No.

Range	:	0~23
Unit	:	None
Authority	:	Operation admin or higher
Default	:	======
Effective time	:	Instant
Note	:	Used to configure the servo spindle zero-speed in-place input port; the
		default value is null. Current version is not used.
Servo spindle spe	eed ar	rival input port No.
Range	:	0~23
Unit	:	None
Authority	:	Operation admin or higher
Default	:	======
Effective time	:	Instant
Note	:	Used to configure the servo spindle speed arrival input port; the default
		value is null. Current version is not used.
Reset off LED cor	nfigura	ition 0-31
Range	:	0~65535
Unit	:	None
Authority	:	Operation admin or higher
Default	:	=======
Effective time	:	Instant
Note	:	Whether to turn off the LED for alarm or system reset, same as IO reset
		configuration.
		LED0~LED31 correspond to LED lights on the controller and additional
		panel.
Reset off LED cor	nfigura	ition 32-63
Range	:	0~65535
	-	
Unit	:	None
Unit Authority	:	None Operation admin or higher
Unit Authority Default	:	None Operation admin or higher ========
Unit Authority Default Effective time	:	None Operation admin or higher ======== Instant
Unit Authority Default Effective time Note	:	None Operation admin or higher ======== Instant Whether to turn off the LED for alarm or system reset, same as IO reset
Unit Authority Default Effective time Note	: : : : : : : : : : : : : : : : : : : :	None Operation admin or higher ======= Instant Whether to turn off the LED for alarm or system reset, same as IO reset configuration.
Unit Authority Default Effective time Note	:	None Operation admin or higher ======= Instant Whether to turn off the LED for alarm or system reset, same as IO reset configuration. LED0~LED31 correspond to LED lights on the controller and additional
Unit Authority Default Effective time Note	:	None Operation admin or higher ====================================
Unit Authority Default Effective time Note	: : :	None Operation admin or higher ======== Instant Whether to turn off the LED for alarm or system reset, same as IO reset configuration. LED0~LED31 correspond to LED lights on the controller and additional panel.
Unit Authority Default Effective time Note X lock brake outp	: : : : : :	None Operation admin or higher Instant Whether to turn off the LED for alarm or system reset, same as IO reset configuration. LED0~LED31 correspond to LED lights on the controller and additional panel.

Y lock brake output port

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101	Z lock brake out	put por	t	
101	4 lock brake out	4 lock brake output port		
	Range	:	0~23	
	Unit	:	None	
	Authority	:	Operation admin or higher	
	Default	:		
	Effective time	:	Instant	
	Note	:	Configure brake signal output port; the default value is null. Brake	
			enable is set in axis configuration parameters. After brake function is	
			configured, if the corresponding axis has pulse signal output, it will	
			output brake signal, and turn off brake signal if there is no pulse output.	

102	Spindle frequency alarm reset port		
	Range	:	0~23
	Unit	:	None
	Authority	:	Operation admin or higher
	Default	:	
	Effective time	:	Instant
	Note	:	Used for spindle inverter alarm clear port configuration; the default
			value is null.
103	Cooler alarm dete	ection p	port
	Range	:	0~23
	Unit	:	None
	Authority	:	Operation admin or higher
	Default	:	=======
	Effective time	:	Instant
	Note	:	Used for cooler alarm input port configuration; the default value is null.
104	External reset inp	out port	:
	Range	:	0~23
	Unit	:	None
	Authority	:	Operation admin or higher
	Default	:	======
	Effective time	:	Instant
	Note	:	Used for external reset button input port configuration; the default
			value is null.
105	Elastic cutter inpu	ut port	
	Range	:	0~23
	Unit	:	None
	Authority	:	Operation admin or higher
	Default	:	

	Effective time	:	Instant
	Note	:	Configure spindle elastic cutter detection port, and control elastic cutter
			signal via external switch signal.
106	Spindle air blow	output	port
	Range	:	
	Unit	:	None
	Authority	:	Operation admin or higher
	Default	:	
	Effective time	:	Instant
	Note	:	Used for spindle air blow output port configuration; the default value is
			null.

11. Hardware interface definition and connection instructions

11.1. Installation layout



(1) X axis, Y axis, Z axis, A axis:

15-core D-pin socket connects to step motor drive or digital AC servo drive

(5) XS5 digital input:

- 25-core D-pin socket inputs signals for every axis limit and other switching quantity
- (3) XS6 digital output:
- 25-core D-pin socket outputs signals for switching quantity
- (5) USB and serial port exchange files between PC and DK300A controller and realize other functions.
- (5) DK300A controller uses 24V DC power supply, and the internal power consumption is about 5W.
- (6) XS7 accessory panel:

15-core D-pin socket connects to handwheel

(7) XS8 principal axis:

9-core D-pin socket connects to principal axis inverter



11.1.2. Mounting dimensions



11.1.3. Installation precautions

Installation condition for electric cabinet

(1) The cabinet must be able to effectively prevent dust, coolant and organic solution entering;

(2) When design electric cabinet, the distance between rear cover and case should be at least 20CM; considering the temperature rises in the cabinet, the temperature difference between interior and exterior of the cabinet shouldn't exceed 10° C;

- (3) The cabinet should be installed with fan to ensure interior ventilation;
- (4) The display panel should be installed at the position can't be sprayed by the coolant;

(5) When design electric cabinet, the external electrical interference should be reduced to lowest to prevent interfering with the system;

To prevent interference

The system is designed with anti-interference measures such as shielding space electromagnetic radiation, absorbing impact current and filtering power clutter, which can prevent interference with the system in certain degree. To ensure system stability, please take the following measures to install and connect the system:

(1) CNC must be kept away from the equipment with interference (e.g. inverter, AC contactor, electrostatic generator, high voltage generator, and sub-unit of power lines), and the switching power supply should be connected to a filter to improve the anti-interference of CNC (as in Fig.1-4);

(2) To supply power to the system through isolation transformer, the machine tool must be grounded, CNC and drive must be connected to separate earth wire.

To suppress interference

Connect RC circuit (0.01μ F, $100^{2}200\Omega$, as in Fig. 1-5) to both sides of AC coil in parallel. RC circuit should be installed close to inductive load; connect freewheeling diode reversely on both sides of DC coil in parallel (as in Fig.1-6); connect surge absorber to the winding of AC motor in parallel (as in Fig. 1-7).



To reduce the interference between CNC signal cables and strong current cables, the wiring shall follow the principles below:

Gro up	Cable type	Wiring requirements
A	AC power cord	Bundle the cables of group A separately from group B and C, keep at
	AC coil	least 10cm clearance, or make electromagnetic shielding for group A

	AC contactor	
В	AC coil (24VDC)	
	DC relay (24VDC)	
	Cable between system and strong current cabinet	Bundle the cables of group B separately from group A or shield group B; group B and group C should be as far as possible
	Cable between system and machine tool	
	Cable between system and servo drive	
	Position feedback cable	Bundle the cables of group C separately from group A, or shield grou
C	Position encoder cable	twisted pair
	Handwheel cable	
	Other cables for shielding	

11.2. Interface definition

11.2.1. Motor drive control interface (XS1...XS4)

Four drive interfaces are available (XS1 X axis, XS2 Y axis, XS3 Z axis, XS4 A axis), and they have the same definition, as shown below:



Pulse wire connection



Simple Internal Circuit Diagram for Pulse Output

Wire No.	Definition	Function
1	PU+	Pulse signal +
2	PU-	Pulse signal -
3	DR+	Direction signal +
4	DR-	Direction signal -
5 AL	ALM	Servo alarm signal input
		X axis: IN34, Y axis: IN35, Z axis: IN36, A axis: IN37
		Axis alarm reset output signal
6	OUT	X axis: OUT24, Y axis: OUT25, Z axis: OUT26 A, axis:
		OUT27
7	ECZ+	Encoder phase Z input +

8	ECZ-	Encoder phase Z input -
9	PUCOM	Controller for single end input
10	24V+	Internally provided 24V power supply, directly connected
11	24V-	to 24V power supply of the controller
12	ECA+	Encoder phase A input +
13	ECA-	Encoder phase A input -
14	ECB+	Encoder phase B input +
15	ECB-	Encoder phase B input -

Standard pulse wiring diagram



XS1 … XS4 Pulse Interfaces Standard Wiring

This wiring is suitable for DK300A/400A controller;

Step motor drive cable to differential input

Adtech CNC drive is for reference, all of which use differential input mode. This mode has strong anti-interference and is recommended. Please refer to the figure below for the connection of CNC with step motor drive and step motor



Step motor drive wiring diagram for single-ended input

Certain companies connect together the optocoupler input cathodes of step drives, i.e. common cathode connection, which isn't suitable for CNC controller. Common anode connection connects together the anodes of optocoupler input. The wiring shall follow the figure below, and do not connect PU+ and DR+ together, or else the pulse interface may be damaged.



Wiring Diagram for Step Motor Drive with Common Anode Input

Servo motor drive wiring diagram

Since differential connection is used in most cases, please refer to differential mode for the pulse connection. Most servo drives require 12-24V power supply, and the 24V power provided by pin 10, 11 is available. The specific connection depends on servo drive. Please contact us if you have any question.

Caution

Either two of PU+, PU-, DR+ and DR- shouldn't be connected, or else the pulse interface may be damaged.

11.2.2. Digital input interface (XS5)

The digital input interface contains the hard limit signal of every axis, and the definition follows:





Default input port configuration of engraving machine

Wire No.	Definition	Function
1	INO	X axis zero point
2	IN1	Y axis zero point
3	IN2	Z axis zero point
4	IN3	A axis zero point
5	IN4	Start

6	IN5	Pause
7	IN6	Emergency stop
8	IN7	Spindle alarm input
9	IN8	Spindle quasi stop done
10	IN9	Tool setter signal
11	IN10	Cutterhead launch in place
12	IN11	Cutterhead return in place
13	IN12	Loose tool in place signal
14	IN13	Tight tool in place signal
15	IN14	Cutterhead count signal
16	IN15	Cutterhead origin signal





Default output port configuration of engraving machine

wire No.	Definition	Function
1	OUT0	Spindle positive rotation (M03)
2	OUT1	Spindle reverse rotation (M04)
3	OUT2	Spindle alarm release
4	OUT3	Spindle stop
5	OUT4	Cooling (M08, M09)
6	OUT5	Lubricating (M32, M33)
7	OUT6	Alarm indicator
8	OUT7	Running indicator
9	OUT8	System ready indicator (stop)
10	OUT9	Lighting
11	OUT10	Z-axis brake
12	OUT11	Air blow
13	OUT12	Tool magazine positive rotation
14	OUT13	Tool magazine reverse rotation
15	OUT14	Cutterhead launch
16	OUT15	Elastic tool

11.2.4. Handheld box interface (XS7)





Wire No.	Definition	Function
1	(IN24) gear switch	0.1 gear High speed
2	(IN26) gear switch	0.01 gear Medium speed
3	(IN28) gear switch	0.001 gear Low speed
4	(IN30) button	Cycle start
5	(IN32) button	Emergency stop
7	24V-	Negative pole of internally provided 24V power supply
9	(IN25) axis selection	X axis
10	(IN27) axis selection	Y axis
11	(IN29) axis selection	Z axis
12	(IN31) axis selection	A axis
13	(IN33) button	Emergency stop

6	НА	Hand encoder phase A input signal
14	НВ	Hand encoder phase B input signal
15	5V-	Negative pole of internally provided 5V power supply
8	+5V	Positive pole of internally provided 5V power supply
7	24V-	Negative pole of internally provided 24V power supply

11.2.5. Analog output interface (XS8)

Analog output interface wiring diagram:



The wiring is also suitable for XS8 interface of 4640/4620 controller;

Analog spindle XS8 and inverter wiring



Wire No.	Definition	Function
1	DAOUT1	Analog voltage output (0~10) V
2	DAOUT2	Analog voltage output (0~10) V
3	GND	Internal 24V power grounding
4	GND	Internal 24V power grounding
5	GND	Internal 24V power grounding

11.2.6. RS232 transmission interface (XS9)

Serial communication interface ---9-core signal socket (male)





RS-232 communication mode

11.2.7. USB memory connection interface (XS10)

Standard USB memory (e.g. USB disk) interface;

11.2.8. PC USB communication interface (XS11)

Standard USB communication interface;

11.3. Electrical connection diagram

11.3.1. Symbol schematic diagram

Symbol	Name	Figure	Symbol	Name	Figure
OF	Breaker	*/*/* 	SМ	Servo motor	(M)
КМ	Contactor		м	Step motor	(I)
UF	Inverter	UF	20	Approach switch	
м	Motor	Þ	SA	Foot switch	4
тс	Transformer		ΥB	Motor brake	ΥB
z	Filter	Z	FR	Thermal relay	
FU	Fuse		UC	Switching power supply	
ZB	Button	_¥_	ΥV	Electromagnetic valve	Ĩ
FM	Fan	ф ф	С	Capacitor	$\dashv \vdash$
нL	Indicator	$ \otimes $	R	Resistor	
20	Touch switch		20	Travel switch	A
PG	Encoder	PG	КA	Relay	





11.3.3. Servo drive connection diagram



Select servo wire



11.3.4. Step connection diagram

12. Configuration and system functions

12.1 System configuration

- CPU: ARM industrial motherboard;
- Communications: USB interface;
- Capacity: 64M RAM, 60M Flash ROM;
- Y Feedback: AB phase pulse feedback;
- Control: FPGA motion controller;
- MPG: Incremental hand encoder;
- Display: 800x480 dot matrix, 7-inch LCD;
- Minput / output full optocoupler isolation;
- $\overset{\circ}{\times}$ Touch operation panel;
- Highly anti-jamming switching power supply;

🕅 RS232 interface

12.2	System	technical	parameters
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Function	Name		Specifications
	Control axes		4 axes DK400A
			3 axes DK300A
Control axis			4 axes linear interpolation DK400A
	Axes controlled simulta	aneously	3 axes linear interpolation DK300A
			2 axes arc interpolation
	Minimum setting unit		0.001mm
Input command	Minimum motion unit		0.001mm
	Maximum instruction unit		±9999.999mm
	Quick feed rate		X-axis, Y-axis, Z-axis, A-axis: 9999 mm/min
			(max.)
	Feed speed range	Feed per minute	1~9999mm/min
Feeding		Feed per revolution	1~500rpm
	Automatic acceleration and deceleration		Yes
	Feed rate override		10~150%
	Manual continuous feed		Yes
Manual	Manual reference position return		All control axes return to reference point
			(Priority configurable)
	Single step / wheel function		Yes

Function	Name	Specifications
Interpolation	Positioning, linear interpolation, arc interpolation	G00,G01,G02/G03
Running mode	MDI, automatic, manual, single-step, edit	Yes
Debugging function	Test run, single block, handwheel	Yes
	Pause (sec/ms)	G04 X/P_
Coordinate system and suspension	Coordinate system settings	G92
	Automatic coordinate system settings	Yes
Safety measures	Software soft & hard limit check	Yes
	Emergency stop	Yes
Coordinate rotation	Enable rotation	G68
	Disable rotation	G69
	Program memory capacity, the number of	Total capacity 60MB
Program saving	stored program	100 workspace
		Unlimited processing file quantity
	Program editing	Insert, modify, delete, cancel
Program editing	Program number, sequence number, address, word retrieval	Yes
	Decimal point programming	Yes
Display	800×480 pixels, 7-inch LCD	

Function	Name	Specifications
	Position screen, program editing	Yes
	Tool offset setting, alarm display	
	Handwheel debugging, diagnostic screen	
	Parameter settings, graphic simulation	
	Auxiliary function	M code
M. S. T function	Spindle function	SO-S15 (gear position control)
		S15-S99999 (analog)
	Tool function	T code
Offset function	Tool offset memory	30 sets of tool length and radius offset
Unset function	Backlash offset	Yes
	Measurement centering	Yes
Other functions	Automatic tool setter	
	Specified radius R / center position	Yes
	Electronic gear ratio	Yes