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C)

B Series Dual-Channel Lathe Operation Manual

Version Number:F202410DLO-EN

Guangzhou Finger Technology Co., Ltd.

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1. Function Keys and System Overview



1.1Main Screen Introduction

Screen Element Description

- 1、Current Workpiece Coordinate System
- 2、Current Channel Selection Status
- 3、Current Page Title
- 4、Current System Time
- finger-onc.co 5、Current System Operation Permission Level
- 6、MPG Mode Axis Display for Channel 1
- 7、Channel 1 Operating Status
- 8、Channel 1 Operating Mode
- 9、Channel 1 Alarm Status
- 10、MPG Mode Axis Display for Channel 2
- 11、Channel 2 Operating Status

- 12、Channel 2 Operating Mode
- 13、Channel 2 Alarm Status
- 14、F1-F10 Function Keys (Depending on System Model)

1.2 Function Tree Diagram



1.3 Machine Position

• Operation Path

In any page, press the system shortcut key [Position] to enter the "Machine Position" page. Use the [Channel Switch] key to toggle between channels (for eight-key and ten-key series).

Description

- 1. Operate the machine coordinates of the current channel.
- 2. Display commonly used processing information.

1.3.1 Screen Description

G54 SYS1: Enable SYS	S2: Disable P	Position	2024.12.0	9 09:44	:25	User
SYS.1 Mechin	e			Relativ 1X	/e -6	5.482
<u>)</u> 1X		-65.	482	1Y 1Z	-4	0.000 15.587
○1Y		0.	000	1A 1B		0.000
○1Z		-45.	587	1C Absolut	e	0.000
○1 A⊙		0.	000	1X 1Y 17	-6	0.000 0.587
○1B ⊙		0.	000	1A 1B		0.000
○1C ⊙		0.	000	1C Dist.To	GO GO	0.000
F 100 (R 0.000 (0 0.000 (R	ate) S order) S	100 RPM 1 0 RPM	100% (Real.)	1X 1Y Z1 A1 B1		0.000 0.000 0.000 0.000
Run Time 0: 0: 0:	: 0 PartNO.	0 T	0000	C1		0.000
Ready S	Standby Alarn	n	Rea	<mark>dy</mark> St	andby	Alarm
Inp		Tip				
<< Coord Program	Offset/ Setting Switch S	YS Maintia	n IO Status	Extend	l Pai	ram >>

1.3.1.1 Coordinate Display

- 1. This screen simultaneously displays four types of coordinates.
- 2. The [Coordinate Switch] key allows toggling the primary coordinate display type of

the current channel among machine coordinates, relative coordinates, program coordinates, and remaining distance.

1.3.1.2 F (Feed Rate)

- 1. Displays the user-defined feed rate for the current channel.
- 2. Displays the user-defined feed rate percentage multiplier (F-value scaling).

1.3.1.3 S (Spindle Speed)

- 1. Displays the user-defined spindle speed for the current channel.
- 2. Displays the actual feedback spindle speed of the current channel.
- 3. Displays the user-defined feed rate percentage multiplier (spindle scaling).

1.3.1.4 Processing Time

Displays the elapsed program execution time for the current channel.

1.3.1.5 Workpiece Count

Displays the number of parts processed by the current program on the current channel.

1.3.1.6 T (Tool Number and Tool Offset Number)

Displays the tool number and tool offset number used in the current channel's operation. The higher two digits represent the tool number, and the lower two digits represent the tool offset number. For gang tooling, the tool number remains constant, while the last two digits represent the real-time tool offset number.

1.4Coordinate Switching

1.4.1Coordinate Switch

• Operation Path

"Machine Position" page \rightarrow F1 [Machine Coordinates] \rightarrow F1 [Coordinate Switch]

Description

This key toggles the machine coordinate screen. The display sequence of coordinate types cycles through machine coordinates, relative coordinates, program coordinates, and remaining distance for the current channel.

1.4.2 1/2 Coordinates

• Operation Path

"Machine Position" page \rightarrow F1 [Machine Coordinates] \rightarrow F2 [1/2 Coordinates].

• Description

- Divides the relative coordinate value of the corresponding axis in the current channel by 2.
- 2. Used in conjunction with the "Relative Coordinate Setting" function, it quickly determines the midpoint coordinate between any two points.

• Operation Method

"Machine Position" page \rightarrow F1 [Machine Coordinates] \rightarrow Enter the axis to be set in the data input field \rightarrow F2 [1/2 Coordinates].

• Operation Example

- 1. The current relative coordinate of the X-axis in the channel is 10.000.
- 2. Enter "X" in the data input field (no need to press the enter key after input).
- 3. Press F2 [1/2 Coordinates].
- 4. The relative coordinate of the X-axis will be updated to 5.000.

1.4.3 Relative Coordinate Setting

• Operation Path

"Machine Position" page \rightarrow F1 [Machine Coordinates] \rightarrow F3 [Relative Coordinate Setting].

• Description

Sets the relative coordinate of the corresponding axis to any value.

• Operation Method

Enter the axis symbol and coordinate value in the input field, then press F3 [Relative Coordinate Setting].

• Operation Example

- 1. The current relative coordinate of the X-axis in the channel is 10.000.
- 2. Enter "X0.000" in the input field.
- 3. Press F3 [Relative Coordinate Setting].
- 4. The relative coordinate of the X-axis will be updated to 0.000.

1.4.4 Relative Coordinate Reset

• Operation Path

"Machine Position" page \rightarrow F1 [Machine Coordinates] \rightarrow F4 [Relative Coordinate Reset].

Description

Resets the relative coordinates of the corresponding axes to zero.

• Operation Method

Press F4 [Relative Coordinate Reset] to clear the values of all relative coordinates in the

current channel.

• Operation Example

- 1. The current relative coordinates in the channel are:
- X-axis: 10.000
- Y-axis: 9.999
- ◆ Z-axis: 5.000
- 2. Press F4 [Relative Coordinate Reset].

3. The relative coordinates for X, Y, and Z axes will be updated to 0.000.

1.5 Program Editing

G	54 SYS1:	Enable S	YS2: Dis	able H	Edit	20	24.12.09	10:04:3	38	User	r
3	Name:00	01.CNC	Channe	1:0001	Na	me:	0002.CN	IC Cha	nnel	:000	91
1					1						
	0	D	CI]					• 1	
		Ready	Standby	Alarm	[]		Read	y Sta	ndby	Ala	rm
Ir	ip		1		Tip			0	-		
<.	< Load File	Simulation	Delete	Save	File Mana	e ger	Search /Replace	Switch	Un	do	>>

• Operation Paths

Path 1: Use the system panel shortcut key [Edit/Program Select] to switch to the "Program Editing" page.

Path 2: From the "Program Selection" page, press F5 [Load to Editor 1] or F6 [Load to Editor 2] to enter the "Program Editing" page.

Path 3: From the "Machine Position" page, press F2 [Program Edit] to access the "Program Editing" page.

• Description

The "Program Editing" page is used to edit machining programs. Typically, Editor 1 is for editing Channel 1 programs, and Editor 2 is for Channel 2 programs.

• Operation Instructions

1、Use the arrow keys [↑] [↓] [←] [→] to move the cursor.

2、Use [\approx] [\approx] for page up and page down.

3、Use [Line Start] [Line End] to quickly move the cursor to the beginning or end of the current line.

4. Use the system panel shortcut key [Edit/Program Select] to toggle between the "Program Editing" and "Program Selection" pages.

5. Use the [Switch Focus] button to switch between Editor 1 and Editor 2 for editing different programs.

1.5.1 Load Machining Program

• Operation Path

From the "Program Editing" page, press F1 [Load Machining Program].

• Description

This button is used to designate the currently edited program as the machining program and switch to the "Machining Monitoring" page.

The program in Editor 1 is loaded into Channel 1.

The program in Editor 2 is loaded into Channel 2.

Note

If a program is currently running, this button will be disabled, and an error message will be displayed.

1.5.2 Graphic Simulation

• Operation Path

From the "Program Editing" page, press F2 [Graphic Simulation].

• Description

1. This button allows you to preview the machining path of the currently edited program.

2、 It also provides a function to check for program errors.

3. The preset display range covers the maximum coordinate range of the entire program.

In other words, the graphic simulation will show the largest possible image that can fit

within the drawing frame.

1.5.3 Delete Line

• Operation Path

From the "Program Editing" page, press F3 [Delete Line].

• Description

This button deletes the program content in the current editor, at the line where the cursor is located.

1.5.4 Save Program

• Operation Path

From the "Program Editing" page, press F4 [Save Program].

• Description

This button saves the current program content to a file, preventing data loss.

1.5.5 Program Selection

Operation Path

From the "Program Editing" page, press F5 [File Management].

• Description

This function is used for managing machining documents. Please refer to section 1.6 for

the "Program Selection" feature details.

1.5.6 Find/Replace

G54 SYS1:	Enable S	SYS2: Dis	able E	dit	2024.	12.09	10:24:0	4	User
Name:00	001.CNC	Channe	Name:	0002.	CNC	Chanr	e Search:		
1			1				Replace:		
(Sea)							Reprieer		
							Backw	ard	
							Case :	Sensitiv	e
							Whole	Words o	nly
							Searc	h	Replace
							Replace	A11	Close
	Ready	Standby	Alarm			Ready	Stan	dby	Alarm
Inp				Tip					
<< Switch input	Reverse	Case sensitive	Full word match	Look U	p Re	place	All Replace	Lii Sea	ne Irch

• Operation Path

From the "Program Editing" page, press F6 [Find/Replace].

• Description

1. This button allows you to search or replace characters in the program content of the current editor, where the cursor is focused.

2、After pressing [Find/Replace], a sidebar will appear along with toggle buttons. You can enter the character to search in the "Find" input box, and the replacement character in the "Replace" input box.

• Operation Instructions

Use the [Switch Input Box] button to toggle between the "Find" and "Replace" input boxes.

1.5.6.1 Close

• Operation Path

From the "Program Editing" page, press F6 [Find/Replace] \rightarrow [<<].

Description

When the Find/Replace function is no longer needed, press this button to close the right sidebar and return to the button group.

1.5.6.2 Switch Input Box

• Operation Path

From the "Program Editing" page, press F6 [Find/Replace] \rightarrow F1 [Switch Input Box].

• Description

Switches the cursor between the "Find" and "Replace" input boxes.

1.5.6.3 Reverse

• Operation Path

From the "Program Editing" page, press F6 [Find/Replace] \rightarrow F2 [Reverse].

• Description

When searching or replacing, this button allows you to choose the search direction.

• Operation Instructions

Press this button, and the "Reverse Search" option in the sidebar will be selected. When this option is enabled, pressing "Find" or "Replace" will search or replace characters above the current cursor position. If not selected, the default search direction will be downwards.

1.5.6.4 Case Sensitivity

• Operation Path

From the "Program Editing" page, press F6 [Find/Replace] \rightarrow F3 [Case Sensitivity].

• Description

When searching or replacing, pressing this button will ensure that the letter case is respected when finding characters.

• Operation Instructions

Pressing this button will select the "Case Sensitive" option in the sidebar, activating the feature.

1.5.6.5 Whole Word Match

• Operation Path

From the "Program Editing" page, press F6 [Find/Replace] \rightarrow F4 [Whole Word Match].

• Description

When searching or replacing, this button will ensure that only whole words matching the content in the "Find" input box are searched.

• Operation Instructions

Pressing this button will select the "Whole Word Match" option in the sidebar, activating the feature.

1.5.6.6 Find

Operation Path

From the "Program Editing" page, press F6 [Find/Replace] \rightarrow F5 [Find].

Description

Searches for the characters entered in the "Find" input box within the code editor.

1.5.6.7 Replace

• Operation Path

From the "Program Editing" page, press F6 [Find/Replace] \rightarrow F6 [Replace].

Description

Searches for the characters entered in the "Find" input box within the code editor and replaces them with the characters in the "Replace" input box. (Each press of the button replaces one occurrence of the character.)

1.5.6.8 Replace All

• Operation Path

From the "Program Editing" page, press F6 [Find/Replace] \rightarrow F7 [Replace All].

• Description

Searches for the characters entered in the "Find" input box within the code editor and replaces all occurrences with the characters in the "Replace" input box.

1.5.6.9 Line Number Search

• Operation Path

From the "Program Editing" page, press F6 [Find/Replace] \rightarrow F8 [Line Number Search].

• Description

Searches for the line number of the current editor where the cursor is located and jumps the cursor to display it.

1.5.7Switch Focus

• Operation Path

From the "Program Editing" page, press F7 [Switch Focus].

• Description

Switches the focus between Editor 1 and Editor 2.

1.5.8 Undo

• Operation Path

From the "Program Editing" page, press F8 [Undo].

Description

Undoes the last editing operation in the current editor, such as line deletion, copy, paste,

etc.

1.5.9 Program Copy/Paste

• Operation Path

From the "Program Editing" page, press [>>] \rightarrow F1 [Zoom In Editor].

• Description

Performs copy, cut, paste, undo, and redo operations on the character content of the current editor where the cursor is located.

1.5.9.1 Block Selection

G54 SYS	51:	Enable	SYS2:	Disa	ble	E	dit		2024	1.12.09	10	:33:2	1	User	ſ
Name	:00	01.CNC	Cha	nnel	:000	1		Nam	e:00	002.CN	IC	Char	nel	:000	91
1							1								
1999															
		- 144-1											0.00 00		_
		Ready	Semi-	Auto	Aları	m				Read	у	Semi-	Auto	Ala	rm
Inp							Tip)							
<< Blocks	Сору	Cancle Blocks Co	py Cor	у	Cut		F	Paste		Undo	R	eset	Swit	tch	22

• Operation Path

From the "Program Editing" page, press [>>] \rightarrow F1 [Block Selection].

• Description

Selects a block of program code to work with the "Copy", "Cut", and "Paste" functions.

• Operation Instructions

Press the [Block Selection] button and use the arrow keys $(\uparrow, \downarrow, \leftarrow, \rightarrow)$ to move the cursor and select the program block to copy or cut. The selected block will be highlighted in blue.

1.5.9.2 Cancel Block Selection

• Operation Path

From the "Program Editing" page, press [>>] \rightarrow F2 [Cancel Block Selection].

• Description

Disables block selection functionality.

• Operation Instructions

Press the [Cancel Block Selection] button to disable block selection. Any previously selected block will be canceled, and the "Copy" and "Cut" buttons will become inactive.

1.5.9.3 Copy

• Operation Path

From the "Program Editing" page, press [>>] \rightarrow F3 [Copy].

• Description

Copies the content of the selected block to be used with the "Paste" function.

1.5.9.4 Cut

• Operation Path

From the "Program Editing" page, press [>>] \rightarrow F4 [Cut].

• Description

Cuts the selected block of content, which will be removed and can be used with the "Paste" function.

1.5.9.5 Paste

• Operation Path

From the "Program Editing" page, press [>>] \rightarrow F5 [Paste].

• Description

Pastes the content copied or cut from another location to the current cursor position in the

program.

1.5.9.6 Undo

• Operation Path

From the "Program Editing" page, press [>>] \rightarrow F6 [Undo].

• Description

Undoes the last editing operation. This can be repeated to undo multiple actions, all the way back to the first step of the program editing.

1.5.9.7 Redo

• Operation Path

From the "Program Editing" page, press [>>] \rightarrow F7 [Redo].

Description

Restores the last undone operation. This can be repeated to redo multiple actions, all the way to the last step of the program editing.

1.5.10 Zoom In Editor

• Operation Path

From the "Program Editing" page, press F8 [Zoom In Editor].

• Description

Zooms in on the currently focused editor, displaying only that editor on the screen.

1.5.11 Restart from Current Line

• Operation Path

From the "Program Editing" page, press [>>] \rightarrow F7 [Restart from Current Line].

Description

1. Allows selection of the starting point for restarting the program;

- 2. This function can only be used in automatic mode;
- After activation, the system will automatically jump to the "Processing Monitoring" page.

Notes

- 1. The program being edited must be the current processing program.
- 2. The system will restart from the line where the cursor is located in the focused editor.

1.5.12 Input Method Switching

• Operation Path

From the "Program Editing" page, press [>>] \rightarrow [>>] \rightarrow F6 [Chinese Input], F7 [English Uppercase], or F8 [English Lowercase].

Description

Switches between input methods in the program editing page, allowing the input of Chinese characters for comments, making it easier for users to understand the program.

1.6 Program Selection

G54	SYS1:	Enable	SYS2: D	isable	File	2024.3	12.09	10:35:44	t n	ser
CNC	•/s	ys0001/p	rogram						*	•
	Name	Su	ffix	Size	Modificatio	on Time				
							3			
		Ready	Semi-Au	ito Alar	rm		Ready	Semi-	Auto A	larm
Inp					Tip					
< <	Build File	Сору	Delete	File Trans	fer Load I	1 SY Edit Load	/S2 d Edit	SYS1 Load File	SYS2 Load Fi	le >>

• Operation Path

- Path 1: Use the system panel shortcut button [Edit/Program Selection] to switch to the "Program Selection" page.
- Path 2: From the "Program Editing" page, press F4 [File Management] to go to the "Program Selection" page.

• Description

Used for managing processing program files, including creating, copying, deleting, and transferring files.

• Operation Instructions

- 1. Use the arrow keys (\uparrow, \downarrow) to move the cursor and select a program file.
- 2. Use the $[\approx]$ and $[\approx]$ keys to scroll the page up and down.

3、Use the system panel buttons F5 [Load to Editor 1], F6 [Load to Editor 2], F7 [Load SYS1 Program], or F8 [Load SYS2 Program] to load the program file into the editor or to load it into the corresponding channel for processing.

1.6.1 Create New File

• Operation Path

From the "Program Selection" page, press F1 [Create New File].

Description

Used to create a new processing program file, defaulting to a CNC file.

• Operation Instructions

1. Press the [Create New File] button, a dialog box will pop up prompting for the file name.

2、Press F1 [Confirm] to complete the file creation.

• Notes

If the file name entered does not have a file extension, the default extension ".CNC" will be added.

1.6.2 Copy File

Operation Path

From the "Program Selection" page, press F2 [Copy File].

Description

Used to copy and rename the current file under focus, effectively backing up the program file.

• Operation Instructions

1. Press the [Copy File] button, a dialog box will appear asking for the new file name.

After entering the name, the file will be copied.

2. If the new file name is the same as an existing file, a prompt will ask if you want to overwrite the file.

3、 If the newly created file does not have a file extension, it will default to a ".CNC" file.

1.6.3 Delete File

• Operation Path

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From the "Program Selection" page, press F3 [Delete].

• Description

This button is used to delete a program document.

• Operation Description

1. Use the arrow keys ($\uparrow, \downarrow)$ to move the cursor and select the program file to delete.

Press F3 [Delete], a confirmation dialog will appear.

2、Press F1 [Confirm Delete] to delete the file and automatically close the confirmation dialog.

3、Press F2 [Cancel] to cancel the deletion.

Notes

You cannot delete a file that is currently being edited or loaded for processing. The deletion will fail if the selected file is in use.

1.6.4 File Transfer

G54 SYS1	: Enable	SYS2: D	isable	USB	2024.12.09	9 10:37:34	User
USB DisC	tonnectio	n Net Dis	ગ્ર Connectio	on			
Ext. pat	h			Local	Path/sy	s0001/pro	gram
Na	ne	Size	Modif ^	-	Name	Size	Modif ^
4							•
-	Ready	Sem1-A	uto Alarm		Read	ly Semi-A	uto Alarm
Tub	-	1 _		lip	1	1	
< USB/Sy Switch	s. Open 1 Folder	Return Last leve	el Search	Select	Сору	Paste	Rename >>

• Operation Path

From the "Program Selection" page, press F4 [File Transfer].

Description

This function is used for file sharing between the controller and external devices, such as USB drives and computers, for file import/export.

1.6.4.1 USB/System File Toggle

• Operation Path

From the "File Transfer" page, press F1 [USB/System File Toggle].

• Description

Switches the focus between the controller's file selector and the external device's file selector. Cursor movement is only possible in the file selector currently in focus.

1.6.4.2 Open Folder

• Operation Path

From the "File Transfer" page, press F2 [Open Folder].

• Description

Opens the folder currently selected by the cursor.

1.6.4.3 Go Back

• Operation Path

From the "File Transfer" page, press F3 [Go Back].

• Description

Navigates to the parent directory of the current folder.

1.6.4.4 Search

• Operation Path

From the "File Transfer" page, press F2 [Search].

• Description

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Used to locate files.

Operation Instructions

- 1. Press the [Search] button to open a dialog box and input the file name.
- 2、Use F1 [Find Next] or F2 [Find Previous] to search.
- 3、Press F3 [Cancel] to abandon the search.

1.6.4.5 Select

Operation Path

From the "File Transfer" page, press F4 [Select].

Description

Selects the file currently under the cursor, enabling operations like Copy and Paste.

1.6.4.6 Copy

Operation Path

From the "File Transfer" page, press F5 [Copy].

Description •

Copies the selected file.

1.6.4.7 Paste

Operation Path

finger-cnc.com From the "File Transfer" page, press F7 [Paste].

Description

Pastes the copied file.

1.6.4.8 Rename

Operation Path

From the "File Transfer" page, press F7 [Rename].

Description

Renames the selected file.

1.6.4.9 Create Folder

• Operation Path

From the "File Transfer" page, press [>>] \rightarrow F1 [Create Folder].

• Description

Creates a new folder in the current directory.

1.6.4.10 Switch External Device

• Operation Path

From the "File Transfer" page, press [>>] \rightarrow F2 [Switch External Device].

• Description

Switches between external devices, such as USB drives and computers.

1.6.4.11 Select External Device

• Operation Path

From the "File Transfer" page, press [>>] \rightarrow F3 [Select Device].

• Description

Used to select an external device.

1.6.4.12 Select All

• Operation Path

From the "File Transfer" page, press [>>] \rightarrow F4 [Select All].

Description

Selects all files in the current directory.

1.6.4.13 Deselect All

• Operation Path

From the "File Transfer" page, press [>>] \rightarrow F5 [Deselect All].

• Description

Deselects all files in the current directory.

1.6.4.14 Delete

• Operation Path

From the "File Transfer" page, press $[>>] \rightarrow F6$ [Delete].

• Description

Deletes all selected files in the current directory.

1.6.5 Edit

• Operation Path

From the "Program Selection" page, press F5 [Load to Editor 1] or F6 [Load to Editor 2].

Description

Used for editing processing programs. Refer to 1.5 [Program Editing] for details.

1.6.6Load for Processing

• Operation Path

From the "Program Selection" page, press F7 [Load SYS1 Program] or F8 [Load SYS2 Program].

• Description

Loads the program file under the cursor into the designated channel for processing and switches to the corresponding "Processing Monitor" page.

Notes

If the program is currently running, this operation is invalid, and an error will be displayed.

1.6.7 Create Folder

• Operation Path

From the "Program Selection" page, press [>>] \rightarrow F1 [Create Folder].

• Description

Creates a new folder in the current directory.

• Operation Instructions

- 1、Press F1 [Create Folder], and a dialog box will appear.
- 2. Enter the folder name and press F1 [Confirm] to complete the creation.
- 3、Press F2 [Cancel] to abort and close the dialog box.

1.6.8 Go Back

• Operation Path

From the "Program Selection" page, press [>>] \rightarrow F2 [Go Back].

• Description

Navigates to the parent directory of the current folder.

1.6.9 Delete Folder

• Operation Path

From the "Program Selection" page, press [>>] \rightarrow F3 [Delete Folder].

• Description

Deletes the folder currently under the cursor.

1.6.10 Rename

• Operation Path

From the "Program Selection" page, press F4 [Rename].

Description

Renames the selected processing program file.

• Operation Instructions

1. Use the arrow keys [\uparrow] [\downarrow] to move the cursor to the program file to be renamed, then

press F4 [Rename].A dialog box will appear; input the new file name.

- 2、Press F1 [Confirm] to complete the renaming and close the input dialog box.
- 3、Press F2 [Cancel] to cancel renaming and close the dialog box.

1.6.11 Search

• Operation Path

From the "Program Selection" page, press [>>] \rightarrow F7 [Search].

• Description

Searches for a program file and moves the cursor to the line where the file is located.

1.6.12 Macro Program Files/Processing Program Files

Operation Path

From the "Program Selection" page, press [>>] \rightarrow F8 [Macro Program Files].

• Description

1、Pressing F8 [Macro Program Files] enters the macro program file page, where the F8 key changes to Processing Program Files.

2、On the macro program file page, you can view macro program files (with the .MACRO extension) stored in the system's memory. New files are created in CNC format (.CNC).

3. Pressing Processing Program Files displays the processing program files (with the .CNC extension) stored in the system's memory. The F8 key changes back to Macro Program Files.

4、By default, macro program files cannot be modified, as doing so may cause functional errors.

1.7 Tool Compensation/Settings

• Operation Path

1、Path 1: Use the system panel shortcut key [Tool Compensation/Settings] to switch to the "Wear Compensation" page.

2、Path 2: From the "Machine Position" page, press F3 [Offset/Settings] to switch to the "Wear Compensation" page.

Description

When entering this page, the default view is the "Wear Compensation" page.

• Operation Instructions

1. Use the arrow keys [\uparrow] (\downarrow] (\leftarrow] (\rightarrow] to move the cursor.

- 2. Use [\approx] (\approx] to scroll the page up and down.
- 3、Use [Home] or [End] to quickly move the cursor to the beginning or end of the row.

4. In the tool compensation table, entering values directly in the input field represents setting the length compensation/wear compensation values. Entering the corresponding axis name along with the value represents tool setting operations.

5. Use [SYS1 Length Compensation], [SYS2 Length Compensation], [SYS1 Wear Compensation], or [SYS2 Wear Compensation] to switch between channels 1 and 2 for length and wear compensation.

6、Use [Workpiece Shift] or [Work Coordinate System] to jump to the coordinate system interface.

7. Use [Absolute Input] or [Incremental Input] to select the type of input values.

1.7.1 Tool Setting

Description

This function is used to set the tool's tool-tip dimensions. The actual tool-tip size is calculated as the tool-tip radius plus the tool wear radius.

• Parameter Descriptions

1、Tool-tip Direction: Defines the direction of the tool-tip during processing.

2、Tool-tip Radius: The G41/G42 tool-tip radius compensation.

3、Tool-tip Wear: The adjustment for the smaller tool-tip radius during G41/G42 compensation.

4、Tool-tip Directions: Eight tool-tip directions are provided by Yida, which can be selected according to the actual processing situation. Please refer to the Yida Programming Manual - G41/G42 for details.

1.7.2 Wear Compensation

G54	SYS1: Enable	SYS2: Disable	Wear 2024	1.12.09	12:14:14	User
Cur.	ur. Tcode: 0 SYS1-Wear					0 000
Cur.	Iurret NO:		-		1X 1Y	315.000
Max.:	:99999999Min.:-9999	999	, <mark>1</mark>	NC	1Z	0.000
	1X	1Y	1Z		1A	0.000
1	0.000	0.000	0.000		1B	0.000
2	0.000	0.000	0.000		1C	0.000
-	0.000	0.000	0.000		1X	0.000
2	0.000	0.000	0.000		1Y	315,000
4	0.000	0.000	0.000		1Z	0.000
E	0 000	0.000	0 000		1A	0.000
2	0.000	0.000	0.000		1B	0.000
6	0.000	0.000 0.000	0.000		1C	0.000
7	0.000				Xelative X1	0.000
0	0 000	0 000	0 000		Y1	315.000
°	0.000	0.000	0.000		Z1	0.000
9	0.000	0.000	0.000		A1	0.000
10	0.000	0.000			C1	0.000
	Ready	Standby Alarm	r	Ready	Standb	y Alarm
Inp			Тір			
< <	Offset SYS1 Wear rep	SYS2 air Wear repair Workshi	ft ToolNose	ABS	INC W	orkCoord.

Operation Path

1. Path 1: Use the system panel shortcut key [Tool Compensation/Setting] to switch to the "Wear Compensation" page.

2. Path 2: From the "Machine Position" page \rightarrow F3 [Offset/Setting] \rightarrow "Wear Compensation" page.

• Description

- 1_{\sim} Set the tool wear compensation value.
- 2、Tool compensation = Tool length + Tool wear.

• Parameter Description

Set the maximum and minimum values for wear compensation.

Notes

1. When setting the tool length compensation, the corresponding axis wear compensation value will be automatically reset to zero.

2. If the wear compensation value is modified during machining and has not yet been executed to the corresponding T-code, the modified value will take effect immediately. If the T-code has already been executed, the modified value will take effect the next time the program executes the T-code.

G54	4 SYS1: Enable	SYS2: Disable	Offset	2024.12.09	12:15:51	L User
Cur. Tcode: Ø SYS1 Cur.Turret NO: Max.:99999999Min.:-9999999			1-Offse	Offset		e 0.000 315.000
	1X	1Y	1	1Z –	14	0.000
1	0.000	0.000	0	.000	1B	0.000
2	0.000	0.000	0	. 000	1C Absolu	0.000 te
3	0.000	0.000	0	.000 —	1X	0.000
4	0.000	0.000	0	. 000	1Y 1Z	0.000
5	0.000	0.000	0	.000	1A 1B	0.000
6	0.000	0.000	0	. 000	1C Boloti	0.000
7	0.000	0.000	0	. 000	1X	0.000
8	0.000	0.000	0	.000	1Y 1Z	315.000 0.000
9	0.000	0.000	0	.000	1A	0.000
10	0.000	0.000	0	.000	1B 1C	0.000
	Ready	Standby Alarm	n	Ready	/ Stand	dby Alarm
Inp			Tip			
<<	Wear repair SYS1 Offset	SYS2 Offset Workshi	ft Tool lif	e ABS	INC	Work Coord. >>

1.7.3 Length Compensation

• Operation Path

1、Path 1: Use the system panel shortcut key [Tool Compensation/Setting] to switch to the "Length Compensation" page.

2、Path 2: From the "Machine Position" page \rightarrow F3 [Offset/Setting] \rightarrow F2 [Length Compensation] page.
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Description

- 1. Set the tool length compensation value.
- 2, Tool compensation = Tool length + Tool wear.

Notes

1. When setting the tool length compensation, the corresponding axis wear compensation value will be automatically reset to zero.

2. Length compensation values cannot be modified during machining.

1.7.4 SYS1

Operation Path

From the "Wear Compensation" or "Length Compensation" page \rightarrow F2 [SYS1].

Description

Press this key to switch the length compensation/wear compensation for Channel 1 www.finger.cnc (SYS1).

1.7.5 SYS2

Operation Path

From the "Wear Compensation" or "Length Compensation" page \rightarrow F3 [SYS2].

Description •

Press this key to switch the length compensation/wear compensation for Channel 2 FINGER CNI (SYS2).

1.7.6 Workpiece Shift

G54 SYS1:	Enable	SYS2: I)isable Work	<shift 2<="" th=""><th>024.12.09</th><th>12:19:56</th><th>User</th><th></th></shift>	024.12.09	12:19:56	User		
Usage Incremental/Ab 1. Move the cur 2. Input offset Absolute input 1. Enter X * to coordinates 2. Enter Y * to coordinates 3. Enter Z * to coordinates	osolute Input rsor to the d with letters set the X-axi set the Y-axi set the Z-axi	esired axis s program s program s program			2 新的工件坐标系 Z 原来的工件坐标系	Mechine 1X 1Y 1Z 1A 1B 1C Absolut 1X 1Y	2 0.00 315.00 0.00 0.00 0.00 te 0.00 315.00	10 10 10 10 10 10 10 10 10 10 10 10 10 1	
SYS1 Cool	rd SYS	52 Coord				1Z 1A	0.00	10	
Coord.Sys	1X	1Y	1Z	1C		1B	0.00	00	
Offset	0. 000	0. 000	0.000	0.000		1C Relativ	0.00 ve	0	
Explanation: This workpiece n coordinate syste Local coordinate When editing a p the workpiece ca The sub coordinate	Explanation: This workpiece movement coordinate system can be independently set on each workpiece coordinate system G54~G59 Local coordinate system: When editing a program in the workpiece coordinate system, for ease of programming, the workpiece can be set. The sub coordinate system of the coordinate system is the workpiece movement coordinate.								
	Ready	Stand	by Alarm		Ready	/ Stand	lby Aları	m	
Inp				Tip				-	
<< Wear repa	ir Offset	SYS1 Cod	ord SYS2 Coord	Confirm	ABS	INC	NorkCoord.		

• Operation Path

 $\lceil Wear Compensation \rfloor$ or $\lceil Length Compensation \rfloor$ page \rightarrow F4 [Workpiece Shift].

Description

- 1、Press this button to open the 「Workpiece Shift」 page.
- 2. Workpiece shift is an external offset coordinate system that allows global offsets of

programmed coordinates.

1.7.7Absolute Input

• Operation Path

[Wear Compensation] or [Length Compensation] page \rightarrow F6[=Input (Absolute Input)].

Description

This button sets the input method for the table's input area. When the button turns green,

[=Input (Absolute Input)] indicates that the input is an absolute value.

1.7.8 Incremental Input

• Operation Path

 \lceil Wear Compensation \rfloor or \lceil Length Compensation \rfloor page \rightarrow F7 [+Input (Incremental Input)].

• Description

This button sets the input method for the table's input area. When the button turns green, [+Input (Incremental Input)] indicates that the entered value is incremental, adding to the existing value.

1.7.9 Tool Life Management

G54 S	YS1: Ena	ble SYS2	2: Disabl	e Tool L	ife 2024	.12.09 12	2:45:37	User
SYS1	Toolife S	SYS2 Toolif	e Toolife	e Param				
No	Usage T.	Usage U.	State	Limit Time	Limit Times	Wear	Offset.	Tool NO
1	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0
	Re	ady St	andby A	larm		Ready	Standby	Alarm
Inp				Ti	р			
<< T	SYS1 Foolife	SYS2 To oolife P	oolife 'aram					23

• Operation Path

 \lceil Machine Position \rfloor page \rightarrow F3 [Offset/Setup] \rightarrow F5 to enter the \lceil Tool Life \rfloor page.

Description

This function manages tools, including tool management, group management, and tool parameter settings.

1.7.9.1 Tool Management

• Operation Path

 $\lceil \text{Tool Life}
floor$ page \rightarrow F1 [Tool Management].

• Description

1. Manages tool details, such as current usage time, usage count, tool life status, time limit settings, usage limit settings, wear compensation numbers, length compensation numbers, and tool number assignments.

- 2. Use the direction keys $\uparrow \ \downarrow \ \leftarrow \ \downarrow \ \leftarrow \ \downarrow$ to move the cursor.
- 3、Use (\approx) (\approx) to scroll pages.
- 4、Use 【Home】 【End】 to quickly move the cursor to the beginning or end of a row.

1.7.9.2 Tool Parameter Settings

G	54 SYS1: Enable SYS2: Disable Tool Life 2024.12.09 12:46:53 User											
S	YS1 Toolife SYS2 Toolife Toolife Param											
Ĩ.	Name	SYS1	SYS2	Unit								
1	Whether to enable tool life management, 0= no, 1= on	0	0	-								
2	Tool life counting mode, 0 = time counting, 1= number of counts, 2= time counting and numbe	0	0	2.5								
3	Set the number of effective groups of tool parameters	0	0	-								
4	Tool life reach trigger M68:0 between two channels = No 1= Yes	0	0	-								
				3								
-				g z								
				<u>.</u>								
	Ready Standby Alarm	Read	y Standby	Alarm								
In	p Tip											
< <	SYS1 SYS2 Toolife Toolife Toolife Param											

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• Operation Path

 $\lceil \text{Tool Life} \rfloor \text{ page} \rightarrow F3 \text{ [Tool Parameters]}$.

Description

- 1、Sets tool parameters.
- 2. Use the direction keys $\uparrow \downarrow \downarrow \downarrow$ to move the cursor.
- 3. Use (\approx) (\approx) to scroll pages.
- 4. Use 【Home】 【End】 to quickly move the cursor to the beginning or end of a row.

Enable SYS2: Disable WorkCoord 2024.12.09 13:30:54 G54 SYS1: User Mechine Coord.Sys 1X 1Y 1Z 10 0.000 1X External 0.000 0.000 0.000 0.000 1Y 315.000 CS 1Z 0.000 G54 0.000 0.000 0.000 0.000 1A 0.000 1B 0.000 G55 0.000 0.000 0.000 0.000 1C 0.000 Absolute 0.000 0.000 0.000 G56 0.000 1X 0.000 1Y 315.000 G57 0.000 0.000 0.000 0.000 1Z 0.000 1A 0.000 G58 0.000 0.000 0.000 0.000 1B 0.000 1C 0.000 G59 0.000 0.000 0.000 0.000 Relative 1X 0.000 G54.1P1 0.000 0.000 0.000 0.000 1Y 315.000 1Z 0.000 G54.1P2 0.000 0.000 0.000 0.000 1A 0.000 1B 0.000 G54.1P3 0.000 0.000 0.000 0.000 1C 0.000 Ready Standby Alarm Ready Standby Alarm Inp Tip SYS1 SYS2 Offset Wear repair ABS INC WorkShift Confirm WorkCoord. WorkCoord.

1.7.10 Workpiece Coordinate System

Operation Path

 $\label{eq:compensation} \end{tabular} \end$

Description

1. This button switches to the [Workpiece Coordinate System] page for setting workpiece coordinates.

2、If G54.1P1-G54.1P48/G54-G59 is not specified in the program, the default coordinate system is G54.

3、External Workpiece Coordinate System: Applies to all G54.1P1-G54.1P48/G54-G59 coordinate systems.

• Operating Instructions:

1. Use the direction keys $\uparrow \ \downarrow \ \leftarrow \ \downarrow \rightarrow$ to move the cursor.

2、Use 【 余】【 중】 to scroll pages.

3、Use 【Home】 【End】 to quickly move the cursor to the beginning or end of a row.

4. Input values directly or input the axis name along with the value for tool setting within the workpiece coordinate system.

• Notes:

If not used for global offset purposes, re-zero the tool after setting the workpiece coordinate system.

1.7.10.1 Length Compensation

• Operation Path

[Workpiece Coordinate System] page \rightarrow F1 [Length Compensation] \rightarrow [Length Compensation] page.

Description

Refer to 1.7.3 "Length Compensation" for details.

1.7.10.2 Wear Compensation

• Operation Path

 \lceil Workpiece Coordinate System ight
ceil page → F2 \llbracket Wear Compensation ight
ceil → \lceil Wear Compensation ight
ceil page.

• Description

Refer to 1.7.2 "Wear Compensation" for details.

1.7.11 Copy Current Row

• Operation Path

 $\lceil \text{Length Compensation} \rfloor \text{ page} \rightarrow \langle \rangle \rangle \rightarrow F1 \langle \text{Copy Current Row} \rangle$.

• Description

- 1. Copies the values in the tool length compensation list.
- 2. Use the direction keys $\uparrow \ \downarrow \ \leftarrow \ \downarrow \ \leftarrow \ \downarrow$ to move the cursor.
- 3、Use $(\approx) (\approx)$ to scroll pages.
- 4、Use 【Home】 【End】 to quickly move the cursor to the beginning or end of a row.

1.7.12 Paste to Current Row

• Operation Path

 \lceil Length Compensation \rfloor page → \lfloor >> \rfloor → F2 \lfloor Paste to Current Row \rfloor .

Description

1. Pastes the copied data to the corresponding option, e.g., data copied from the X-axis

option must be pasted into the X-axis option.

- 2. Use the direction keys $\uparrow \ \downarrow \ \leftarrow \ \downarrow \ \leftarrow \ \downarrow$ to move the cursor.
- 3、Use (\approx) (\approx) to scroll pages.
- 4. Use 【Home】【End】 to quickly move the cursor to the beginning or end of a row.

1.7.13 Clear Current Row

• Operation Path

 \lceil Length Compensation \rfloor page → \lfloor >> \rfloor → F3 \lfloor Clear Current Row \rfloor .

• Description

Clears the values in the row where the cursor is currently located.

1.7.14 Three-Point Centering

G54 SYS1: E	nable	SYS2:	Disable	:omp.Ce	entei	2024.12.09	9 13:37:38	3 User
1. Select the 2. Read the 3. Read the 4. Read the 5. Measure c 6. Select too 7. Write cent	plane Coord o Coord o Coord of Coord of I numbe	f A f B f C the cent er d	G17plane ter of the Unselecte	e circle	• •		Mechin X1 Y1 Z1 A1 B1 C1 Absolu X1 Y1 71	e 0.000 315.000 0.000 0.000 0.000 te 0.000 te 0.000 315.000
Hori. Coord Ver. Coord o Hori. Coord Ver. Coord o Hori. Coord Ver. Coord o	of A: f A: of B: f B: of C: f C:	0.00 0.00 0.00 0.00 0.00 0.00	0 0 0 Horizo 0 Vertico 0 0	ontal Co al Coord	oord d:	0.000 0.000	A1 B1 C1 Relati X1 Y1 Z1 A1 B1 C1	0.000 0.000 0.000 Ve 0.000 315.000 0.000 0.000 0.000 0.000
	Ready	Stand	lby Ala	arm		Read	<mark>y</mark> Stand	by Alarm
Inp				Ti	Ĺр			
<< SYS1 Center	Channel 2 he center	2	Re A Co	ad oord I	Read B Coord	Read C Coord	Measure Center	Write Coord TO Tool

• Operation Path

• Description

Quickly obtain the center coordinates of a workpiece circle, commonly used for centering operations during workpiece alignment.

1.8Machining Monitoring

G54 SY	'S1:	Enable	SYS2:	Disab	ole	Μ	lon	20	24.12.09	13:	41:13	3	User	`
G54 0	001.	CNC		L(9		G54 (0002	2.CNC			L0)	
Abso 1X 1Y 1Z 1A 1B 1C F mm/n	1ute 0.00 0.00	0.000 315.000 0.000 0.000 0.000 0.000 0.000	S2 S3 S1 0000	Go 0 0 0 0 0 0 0 0	.000 .000 .000 .000 .000 .000 .000 .00		Abso 2x 2y 2z 22 24 2e 2c F mm/	min 0.0	e 0.0000 0.00000 0.00000 0.0000 0.0000 0.0000 0.00000 0.00000 0.00		52 53 51 0000	Go 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0.	000 000 000 000 000 000 RPN RPN RPN	1 1 1
1	Curi	code	0000				1	C	ur i code		0000			
		Ready	Stan	dby	Alarm				Ready	/	Stan	dby	Alar	~m
Inp			1000				Tip							
<< SYS	1 Mon	SYS2 Mo	n Mon Sv	vitch			MDI inp	puite	Offset/set	IO S	itatus			22

Operation Path

Use the system panel shortcut key [Monitoring] to switch the page to \lceil Machining Monitoring].

• Description

This page provides essential information needed for monitoring during machining. By default, dual-channel machining monitoring is displayed, but single-channel monitoring can also be selected.

1.8.1 Screen Description

1.8.1.1 Machine Control Area

This area displays current machine information:

1、Current channel program coordinates.

Remaining distance of the current channel.

Current channel feed rate.

Current channel spindle speed.

1.8.1.2 Program Code Monitoring Area

This area displays the program content being executed on the current channel.

A blue cursor indicates the specific block currently being executed in the program.

1.8.1.3 Machining Information Display Area

G54 S	YS1:	Enable	SYS2:	Disable	SYS	1 Mon	2024	1.12.09	13:56:30)	User	r
Absol 1X 1Y 1Z 1A 1B 1C	ute	0.000 315.000 0.000 0.000 0.000 0.000	Dist.To	GO 0.6 0.6 0.6 0.6	200 200 200 200 200 200	G Cod G54 G21 Time/Pi Time/A	le G18 G90 e 0: cu 0:	G01 G99 G40 0: 0: 0: 7:28	G00 G01 MPG Spd.A 0 Spd.B 2 Spd.C	MFO MFO MFO MFO MFO MFO) 100) 150) 100) 100) 100) 0	% % % %
F mm	/min		Spd.A	OR	PM	Num/Ti	me	0	Т	0	М	0
	0.000	(Order)	Spd.B	OR	PM				Tool NC			
1	0.000	(Real.) 💽	Spd.C	OR	PM	Num/A	cu.	0	Restart			
1												
		Ready	Stan	dby Ala	arm			Ready	/ Stan	dby	Ala	rm
Inp						Tip						_
			Progr	am				I	l	Gr	mhir	
<< SY:	S1 Mon	SYS2 Mo	Edit	t Simul	lation	MDI Inp	Pro	ocessing	Restart	set	ting .	>>

Description

- 1、This area overlaps with the 「Machining Information Settings」 area.
- 2、Use the F6【Machining Information Settings】 key to toggle the display.

• Screen Description:

1、G-Code Status

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- Displays the G-codes currently being executed in the system for the active channel.
- 2、Current Work Time
- Shows the machining time for the current workpiece.
- The time resets when the program restarts.
- 3、Cumulative Work Time
- Displays the total machining time from the first program execution to the present.
- Can be reset using the second group of keys, specifically the 【Clear Cumulative Time】 key.
- 4、Override Rates
- G00 Rate Override.
- G01 Rate Override.
- MPG Rate Override.
- Spindle Speed Override.
- 5、Cumulative Count
- Displays the total number of workpieces machined on the machine.
- This value is not reset automatically; it can be manually reset in the Machining Information Settings under "Cumulative Count".
- 6、Current Count
- Displays the number of workpieces machined during the current session.
- This count is reset when the machining program is executed for the first time in a session.
- 7、Machining Tool Data
- T-Code (4-digit display):
- The higher two digits represent the current tool number being used.
- The lower two digits represent the current tool offset number.
- Displays the tool number currently loaded in the turret.
- 8、M-Code
- Displays the M-code currently being executed.
- 9、Restart Block
- Allows setting the starting block for restarting.

- N: Specifies the starting block as line N.
- N=0: Starts from the first line.
- If N exceeds the maximum program line count, the system triggers an alarm.

1.8.1.4 Processing Settings Display Area

• Description

- 1、This area overlaps with the "Processing Information Area."
- 2. Use the Processing Information Settings button to toggle between displays.

• Screen Description

- 1. Displays the current processing time and cumulative processing time.
- 2、Feed rate settings (Note: Currently displayed only, cannot be modified)
- Set the processing rate.
- 3、Spindle speed settings (Note: Requires login for operational permission)
- Set the spindle speed.
- 4、Cumulative completion (Note: Requires login for operational permission)
- Set the total number of workpieces processed by the machine.
- The system does not automatically reset; manual resetting is required.
- 5、Current completion (Note: Requires login for operational permission)
- Set the number of workpieces currently being processed.
- The workpiece count is reset when the processing program is changed.
- Works in conjunction with M codes, where M15 increments the count by 1 and M16 resets the count. The processing pauses when the desired workpiece count is reached.
- 6、Planned completion (Note: Requires login for operational permission)
- Set the upper limit of the workpieces to be processed.
- A prompt will appear when the required workpiece count is reached, and the machine will pause processing.

1.8.1.5 Graphical Simulation Display Area

Description

- 1. This area displays the actual tool movement path of the current processing program.
- 2、Use the F4 [Graphical Simulation Display] button to toggle the display.

1.8.2 Load Program for Editing

• Operation Path

Each channel's "Processing Monitoring" page \rightarrow F3 [Load Program for Editing]

Description

Load the program file currently being executed on the channel into the code editor and switch to the "Program Editing" page.

Note

If this button is pressed during program execution, the screen will switch to the "Program Editing" page, but the program file cannot be edited.

1.8.3 Graphical Simulation Display

• Operation Path

Each channel's "Processing Monitoring" page \rightarrow F4 [Graphical Simulation Display]

• Description

- 1. Used to toggle the display of the graphical simulator.
- 2. The graphical simulator must be displayed in order to adjust the graphical settings.
- 3、For detailed information, refer to 1.7.8 "Graphical Adjustment."

1.8.4 MDI Input

G54 SYS1:	Enable	SYS2: Di	sable	Mon	2024.12	2.09	15:18:31	User
G54 MDI			L1	G54 I	MDI			L1
Absolute 1X 1Y 1Z 1A 1B 1C	2 0.000 315.000 0.000 0.000 0.000 0.000	Dist.To Go	0.000 0.000 0.000 0.000 0.000	Abso 22 21 22 22 22 22	olute K G Y G A G	0.000	Dist.To G	0.000 0.000 0.000 0.000 0.000 0.000
G00 MFO	100 %	SP.					SP2 MFO	100 %
G01 MFO	150 %	SP					SP3 MFO	100 %
MPG MFO	100 %	SP					SP1 MFO	0 %
1								
	Ready	MDI	Alarm		R	leady	MDI	Alarm
Inp				Tip		1210		
<< MDI loadi Chn.1	ng MDI loadi Chn.2	ng Clear MDI	Line delete					

• Operation Path

"Processing Monitoring" page → F5 [MDI Input]

• Description

Edit the MDI program to be executed.

• Operation Description

1、Switch the mode to "MDI" mode. The F3 [MDI Input] button is only activated in MDI mode.

- 2、Press the MDI Input button to open the editing dialog.
- 3、After editing the program in the dialog, select to load it into Channel 1 or Channel 2.

The system will load the edited program into the processing storage area.

4、 Press the Start button to execute the MDI program.

Note

This button is only functional in "MDI" mode. The auxiliary panel MDI button can switch the mode to MDI.

1.8.5 Monitoring Information Toggle

• Operation Path

"Processing Monitoring" page \rightarrow F3 [Monitoring Information Toggle]

• Description

Toggle between the display of basic processing information and axis multiplication factors.

1.8.6 Numerical State Monitoring

• Operation Path

"Processing Monitoring" page → F7 [Numerical State Monitoring]

Description

Open the system IO monitoring interface.

1.8.7 Restart

• Operation Path

Each channel's "Processing Monitoring" page \rightarrow F7 [Restart]

"Program Editing" page \rightarrow (>>) \rightarrow F7 [Restart from Current Line]

• Description

1. This function allows you to specify a certain program block as the restart block, so that processing can be resumed from that specific block.

2. Switch to "Automatic Execution" mode. In the "Processing Information" area of each channel's "Processing Monitoring" page, input the restart block number and press the Start button. Processing will resume from the specified block.

3. Switch to "Automatic Execution" mode, move the cursor in the editing page to the desired restart position, press F7 [Restart from Current Line], and the page will automatically switch to the monitoring page. Press the Start button to resume processing from the specified block.

1.8.8 Graphic Adjustment

G54 SYS1	: Enable	SYS2: Di	sable SYS	51 Mon	2024	.12.09	14:10:15	User
Absolute > 1X > 1Y > 1Z > 1A > 1B > 1C	0.000 315.000 0.000 0.000 0.000 0.000	Dist.To G	0 0.000 0.000 0.000 0.000 0.000 0.000	G Code G54 G21 Time/Pie Time/Act	e G18 G90 0: 1 0:	G01 G99 G40 0: 0: 0 0: 7:282	G00 I G01 I MPG I Spd.A I Spd.B I Spd.C I	MFO 100 % MFO 150 % MFO 100 % MFO 100 % MFO 100 % MFO 0 %
F mm/min 0.0 0.0	00(Order)	Spd.A Spd.B Spd.C	O RPM O RPM O RPM	Num/Tin	ne J.	0	T (Tool NO. Restart) M 0
1					-108		D. 000	108.000
<u></u>	Ready	Standb	y Alarm			Ready	Stand	by Alarm
Inp				Tip				
<< SYS1 M	on SYS2 Mor	n Program Edit	Simulation	MDLInpu	Pro	cessing	Restart	Graphic setting >>

• Operation Path

"Processing Monitoring" page \rightarrow F4 [Graphic Adjustment]

Description

Allows you to perform graphical simulation of the program currently being executed on the channel.

1.8.8.1 Plane Selection

• Operation Path

"Processing Monitoring" page \rightarrow F8 [Graphic Adjustment] \rightarrow F1 [Plane Selection]

• Description

Allows switching the plane for the graphic simulation display.

1.8.8.2 Zoom In (Not Supported)

• Operation Path

"Processing Monitoring" page \rightarrow F8 [Graphic Adjustment] \rightarrow F2 [Zoom In]

Description

Allows zooming in on the simulated trajectory of the program.

1.8.8.3 Zoom Out (Not Supported)

• Operation Path

"Processing Monitoring" page \rightarrow F8 [Graphic Adjustment] \rightarrow F3 [Zoom Out]

Description

Allows zooming out the simulated trajectory of the program.

1.8.8.4 Fit to Screen

• Operation Path

"Processing Monitoring" page \rightarrow F8 [Graphic Adjustment] \rightarrow F4 [Fit to Screen]

• Description

Adjusts the graphic simulation trajectory to fit the screen, ensuring that the entire trajectory is visible.

1.8.8.5 Clear

• Operation Path

"Processing Monitoring" page \rightarrow F8 [Graphic Adjustment] \rightarrow F5 [Clear]

• Description

Clears the simulated trajectory from the screen.

1.8.8.6 Window Adjustment (Not Supported)

• Operation Path

"Processing Monitoring" page → F8 [Graphic Adjustment] → F6 [Window Adjustment]

• Description

Allows you to move the graphic simulator's window.

1.8.8.6.1 Move Window Left (Not Supported)

• Operation Path

"Processing Monitoring" page \rightarrow F8 [Graphic Adjustment] \rightarrow F6 [Window Adjustment] \rightarrow

F1 [Move Window Left]

• Description

Moves the window of the graphic simulator to the left.

1.8.8.6.2 Move Window Right (Not Supported)

Operation Path

"Processing Monitoring" page \rightarrow F8 [Graphic Adjustment] \rightarrow F6 [Window Adjustment] \rightarrow

F2 [Move Window Right]

• Description

Moves the window of the graphic simulator to the right.

1.8.8.6.3 Move Window Up (Not Supported)

• Operation Path

"Processing Monitoring" page \rightarrow F8 [Graphic Adjustment] \rightarrow F6 [Window Adjustment] \rightarrow

F3 [Move Window Up]

Description

Moves the window of the graphic simulator upwards.

1.8.8.6.4 Move Window Down (Not Supported)

• Operation Path

"Processing Monitoring" page \rightarrow F8 [Graphic Adjustment] \rightarrow F6 [Window Adjustment] \rightarrow

F4 [Move Window Down]

Description

Moves the window of the graphic simulator downwards.

1.8.8.6.5 Zoom In (Not Supported)

• Operation Path

"Processing Monitoring" page \rightarrow F8 [Graphic Adjustment] \rightarrow F6 [Window Adjustment] \rightarrow

F5 [Zoom In]

Description

This function is the same as 1.7.8.2 [Zoom In].

1.8.8.6.6 Zoom Out (Not Supported)

• Operation Path

"Processing Monitoring" page \rightarrow F8 [Graphic Adjustment] \rightarrow F6 [Window Adjustment] \rightarrow

F6 [Zoom Out]

• Description

This function is the same as 1.7.8.3 [Zoom Out].

1.8.8.7Contour Mode Toggle (Not Supported)

• Operation Path

"Processing Monitoring" page \rightarrow F8 [Graphic Adjustment] \rightarrow F7 [Contour Mode Toggle]

Description

This function switches between "Automatic Contouring" and "Single Block Contouring" modes.

1.8.8.8 Contour Overall Settings

Operation Path •

"Processing Monitoring" page \rightarrow F8 [Graphic Adjustment] \rightarrow [>>] \rightarrow F1 [Contour Overall Settings]

Description •

This function allows you to configure the contouring settings, including the color of the contour, layer color, and background color.

1.9 Help/Alerts

G54 SYS1: Enable S	SYS2: Disa	ble Mai	ntair	n 26	924.12.	09 14	4:12:23		User
F	31 – T	-B	(A	8	D2)			
Date	Time	Svs Ver	`	20	241120	FPG	A Ver	202	30629
PLC Ver. 20241112	2 1135	Kernel V	Ver	20	241120		CA Vor		0
PLC Ver. 20241112	2 1135		r	20	240805	CDU	Type	F	21X
HMI Ver. 20241113	1000					CFU	Type.		
SYS1 X GRID distant	ce 📃	0.000	S	rs2 X	GRID d	istand	e	(0.000
SYS1 Y GRID distant	e	0.000	S	rs2 y	GRID d	istanc	e	(0.000
SYS1 Z GRID distant	ce 📃	0.000	S	(S2 Z	GRID d	istand	e	(0.000
SYS1 A GRID distant	ce	0.000	S	YS2 A	GRID d	listand	ce 🗌	(0.000
SYS1 B GRID distant	ce 📃	0.000	S	rs2 B	GRID d	istand	e	(000.6
SYS1 C GRID distant	ce	0.000	S	S2 C	GRID d	istand	e	(0.000
SYS1 Y GRID distant	e	0.000	S	YS2 P	hase of	Spd.S	Sync.	(0.000
SYS1 X1 GRID distar	nce	0.000	S	rs2 X	1 GRID	distar	nce	(0.000
IP. 192. 168	. 110. 15	1	N	/heel	pulse F	req.			0
Ready	Standby	Alarm		1	Re	ady	Stand	lby	Alarm
Inp			Tip						
<<	Network I	Mcode Tab.	CN Use	VC time	Macro Ta	ib. La	nguage Switch	Auth	ority
Operation Path									
3 P • • • • • • • • •									

Operation Path ullet

"Machine Position" page \rightarrow F5 [Maintenance]

Description •

This page displays system help information, such as the system software version, network IP address, etc.

1.9.1 Network Settings

G54	SYS1:	Enable S	YS2: Disa	ble Ne	twork	2024	.12.09	14::	13:54	User
			S	ystem Ir	nforma	tion				
		Time set	tting							
	0Year	Month	n Day	0 Hour	0 Mir	0 S	ec			
					Dyna	mic I	P Add	ress	<u>g</u>	-
		MAC Ad	dress				IP Add	dres	s	
	14.24	56	192 168 110 151							
		Ready	Standby	Alarm			Ready	/	Standby	Alarm
Inp					Tip					
<<		LAN	MAC Addr.	Time				Intern	et Of C	onfig
		Manger	Read	Setting				Infr	igs	-

• Operation Path

"Maintenance" page \rightarrow F3 [Network Settings]

Description

This function is used for controller IP settings, physical address monitoring, time settings, and more.

1.9.1.1 Network Management

• Operation Path

"Maintenance" page \rightarrow F3 [Network Settings] \rightarrow F2 [Network Management]

• Description

his function is used to read and set the controller's IP address.

1.9.1.1.1 Read IP

• Operation Path

"Maintenance" page \rightarrow F3 [Network Settings] \rightarrow F2 [Network Management] \rightarrow F1 [Read IP]

Description

This function is used to read the controller's IP address.

1.9.1.1.2 Set IP

• Operation Path

"Maintenance" page \rightarrow F3 [Network Settings] \rightarrow F2 [Network Management] \rightarrow F2 [Set IP]

• Description

This function is used to set the controller's IP address.

• Operation Description

- 1. To set the IP address, enter the desired IP address in the IP address input box.
- 2、Press [Set IP], and the controller's IP address will be set to the entered value.

1.9.1.2 Read Physical Address

• Operation Path

"Maintenance" page \rightarrow F3 [Network Settings] \rightarrow F3 [Read Physical Address]

• Description

This function is used to read the controller's network card physical address, which is unique.

1.9.1.3 Time Settings

• Operation Path

"Maintenance" page \rightarrow F3 [Network Settings] \rightarrow F4 [Time Settings]

• Description

This function is used to set the system display time.

1.9.1.3.1 Set Time

• Operation Path

"Maintenance" page \rightarrow F3 [Network Settings] \rightarrow F4 [Time Settings] \rightarrow F1 [Set Time]

• Description

This function is used to set the system time.

1.9.1.4 WIFI Module

• Operation Path

"Help" page \rightarrow F3 [Network Settings] \rightarrow F6 [WIFI]

• Description

This function is used to connect to an external network.

1.9.1.5 Internet of Things (IoT)

• Operation Path

"Maintenance" page \rightarrow F3 [Network Settings] \rightarrow F7 [IoT]

Description

This function is used to connect to an external network.

1.9.1.6 Configuration File

• Operation Path

"Maintenance" page \rightarrow F3 [Network Settings] \rightarrow F8 [Configuration File]

Description

This function is reserved for future use.

1.9.2 M Code Table

G54 SYS1: En	able SYS2:	Disable Mcode Tab	2024.12.09 14:1	5:39 User
General Mcc	ode	Truss		
M00 Pause	M14	M28	M50 SpdC POS Model	M75 SpdB Stop
M01 OPT.STOP	M15 Count+1	M29 Rigid Tapping	M51 SpdC Speed Model	M80 Hide Zero Alarm
M02 Program End	M16	M30 Program End	M55 Preread prevention	M84 Spd Brake
M03 SpdC CW	M17 SafeDoor Close	M31 Spd Virtual Feedback	M60 SpdA POS Model	M85 Cancel M84
M04 SpdC CCW	M18 SafeDoor Open	M32 Cancel M31	M61 SpdA Speed Model	M91 OPT.SKIP
M05 SpnC Stop M19 SpdC.Local		M40 Chip removal forward	M62	M93 Polygon Cut CW
M06 M20 Cancel M19		M41 Chip CCW	M63 SpdA CW	M94 Polygon Cut CCW
M07	M21 Blow On	M42 Chip Stop	M64 SpdA CCW	M95 Polygon Cut Stop
M08 Cut Water On	M22 Blow Off	M43 Feeder Start	M65 SpdA Stop	M99 Program Loop
M09 Cut Water Off	M23	M44 Feeder Waiting	M70 SpdB POS Model	M361 Reference SpdC
M10 Collet1 Loose	M24 Auto.Feeding	M45 Open OPT.SKIP	M71 SpdB Speed Model	M362 Reference SpdA
M11 Collet1 Clamp	M25 Cancel Feeding	M46 Close OPT.SKIP	M72	M363 Reference SpdB
M12 Tail CW	M26 Receiver Open	M47 Collet Unlock Spd	M73 SpdB CW	M505 Spd Local
M13 Tail CCW	M27 Receiver Off	M48 Collet Lock Spd	M74 SpdB CCW	M505 Pos Output Off
R	leady Stand	Iby Alarm	Ready S	tandby Alarm
Inp		Tip		
<< General M code	Truss			

• Operation Path

"Maintenance" page \rightarrow F4 [M Code Table]

Description

This function is used to query commonly used auxiliary M codes for system programming and robotic arm programming.

1.9.3 Controller Lock/Unlock

G5	4 SYS1:	Enable	SYS2:	Disable	Use	Time	2024.12	.09 14	4:16:38	User
					lock	κUi				
	Note:r	emaindD	ays:9	999days	5!					
	passwo	rd:								
		l								
	lockDa	ys:								
	-		and a second							
	remain	dDays:	0							
_										
		Ready	Stan	dby Ala	arm		R	eady	Standby	Alarm
In	o [Tip				
<<	CNC Lock Page	CNC Unlock Pa	Inpu ge Swit	ut CN ch Lo	۹C ck	CNC				

• Operation Path

"Maintenance" page → F5 [Controller Lock/Unlock]

Description

This function is used to display the controller usage period management interface. For detailed instructions, refer to the unlock machine operation document.

1.9.3.1 Lock Machine Page

Description

Used to lock the system's usage period.

• Operation Description

On the lock machine page, enter the user password, lock days, and remaining reminder days. Then, use the Lock Machine button to complete the system's usage period lock.

1.9.3.2 Unlock Page

Description

Used to unlock the system's usage period or to relock the usage period.

• Operation Description

On the unlock page, input the controller serial number into the unlock software. Based on the unlock days (unlock software setting for complete unlock or limited usage days), generate the corresponding unlock code. Enter the generated unlock code into the controller input field along with the remaining reminder days, and then press the Unlock button to complete the unlock or relock.

1.9.3.3 Switch Input Fields

• Description

Used for switching the focus of input fields on the lock machine interface.

1.9.3.4 Lock/Unlock

• Description

Used in conjunction with the controller's lock and unlock functions.

1.9.4 Custom Jump

G54	SYS1:	Enable S	SYS2: Disa	able M	acro T	ab	2024.12.0	9 14:19:	04 F	actory		
	Macro Tab.											
e	Characte	e Charact	e Redefine	A11 F	ile Nar	ne	Priority	Modality	define	e Enat 🔶		
1	М	50	0	М	150.MACF	80	1	0	1			
2	М	85	0	М	85.MACF	80	1	0	1	L		
3	М	92	0	М	92.MACF	80	1	0	1	L		
4	М	93	0	М	93.MACF	80	1	0	1			
5	М	94	0	М	94.MACF	80	1	0	1			
6	М	95	0	М	95.MACF	80	1	0	1	1		
7	М	91	0	М	91.MACF	80	1	0	1			
8	М	60	0	М	60.MACF	80	1	1 0		<u> </u>		
9	М	70	0	М	70.MACF	80	1	0	1			
10	М	55	0	М	M55.MACRO 1		1	0	1			
11	М	19	0	М	19.MACF	80	1	0	1			
12	М	693	0	Me	593.MAC	RO	1	0	1			
13	М	694	0	Me	594.MAC	RO	1	0	1			
		Ready	Standby	Alarr	n		Read	<mark>dy</mark> Sta	ndby	Alarm		
Inp					Tip							
<<	Read List	Save List	Switch SYS	Insert	De	elete						

• Operation Path

"Maintenance" page \rightarrow [>>] \rightarrow F2 [MACRO]

Description

This function is used to set up a macro jump configuration table, for use by developers.

• Operation Description

1. Set the required jump parameters on the configuration table, including the letter, value,

jump type, target file name, priority, whether it is modal, and whether to use the jump.

2、Press F2 [Save Chain] to automatically generate the configuration file.

Note

设 After configuring the table and saving it, a system reboot is required for the changes to take effect.。

1.9.5 Language Switch

• Operation Path

"Maintenance" page → F7 [Language Switch]

• Description

This function is used to switch the language display on the screen. Currently, it supports Simplified Chinese and English.

1.9.6 Permission Management

• Operation Path

"Maintenance" page → F8 [Permission Management]

• Description

This function is used to display the permission management interface. For detailed description, refer to the fourth section on Permission Management.

1.9.7 Alerts

G54 SYS	1: Enable	SYS2: Di	sable	Alarm	2024.12.09	14:21:01	Factory
No.	Chn.	Type Mai	n No.Sub.	No.	Time	Descrip	otion
	Ready	Standb	y Alarm	1	Ready	Standby	Alarm
Inp				Tip			
<< Real.ala	arm Hist.alar	m				Clea	r Alarm

• Operation Path

Method 1: Use the system panel shortcut key [Help/Alerts] to switch to the "Alert Monitoring" page.

Method 2: "Maintenance" page \rightarrow F8 [Alerts]

Description

This page is used to view the controller's current alerts and historical alerts.

1.9.7.1 Current Alerts

• Operation Path

- 1、"Alert Monitoring" page \rightarrow F1 [Current Alerts]
- 2. Use the arrow keys [\uparrow] and [\downarrow] to move the cursor.

3. Use the arrow keys [\leftarrow] and [\rightarrow] to switch between public channel and channel 1 alert displays.

• Description

This function is used to view the alerts currently occurring on the controller.

1.9.7.2 Historical Alerts

Operation Path •

"Alert Monitoring" page \rightarrow F2 [Historical Alerts]

Description •

1. This function is used to view the 200 most recent alerts that occurred on the controller, listed in chronological order from top to bottom, with the most recent alert displayed at the top.

2, Use the arrow keys [\uparrow] and [\downarrow] to move the cursor.

3. Use the arrow keys $[\leftarrow]$ and $[\rightarrow]$ to switch between public channel and channel 1 alert displays.

uispi	ays.											
1.1	0 Stat	tus Mo	onito	ring	966							
G54	SYS1:	Enable S	SYS2:	Disa	ble	10	20	24.12.09	14:24:2	8	User	r
Har	d Inpu	t	Hard	Inpu	ıt	Hard	Ou	itput	Hard	Outp	ut	
100	Crash	Stop 1	111 🔍			000			011 🔍			
I01	۹		I12 🔍			001			012 🔘			
I02	۹		113 🥥			002			013 🔘			
I03	۲		114 🔘			003			014 🔘			
I04	•		115 🔘			004			015 🔘			
105	•		I16 🔘			005			016			
I06	•		117 🔘			006			017 🔘			
I07			I18 🔵			007			018 🔘			
108	•		I19 🔘			008			019 🔘			
109	۲		120 🔘			009			020 🔘			
I10	۰		121 🔘			010			021 🔘			
		Ready	Stan	dby	Alarm			Ready	Star	ndby	Ala	rm
Inp	Crash Sto	op 1				Tip						
<<	I/O 1st.	I/O 2nd			SYS1	SYS2		Macro var.	IOCSA	Var.	Mon.	>>

1.10 Status Monitoring

• Operation Path

"Machine Location" page \rightarrow F6 [Status Monitoring]

Description

This function is used to monitor the controller's software IO, IOCSA, macro variables, auxiliary panel status, and other variables.

1.10.1 Monitoring 1

• Operation Path

"Machine Position" page \rightarrow F6 [State Monitoring] \rightarrow F1 [IO Monitoring 1]

Description

Used for monitoring the status of IO points on the controller's IO status page.

1.10.2 IO Monitoring 2

• Operation Path

"Machine Position" page \rightarrow F6 [State Monitoring] \rightarrow F2 [IO Monitoring 2]

• Description

Used for monitoring the status of additional IO points on the controller's IO status page.

1.10.3 SYS1/SYS2

• Operation Path

"Machine Position" page \rightarrow F6 [State Monitoring] \rightarrow F4 [SYS1] / F5 [SYS2].

• Description

Used for switching between the current monitored channels.

1.10.4 Macro Variables

• Operation Path

"Machine Position" page \rightarrow F6 [State Monitoring] \rightarrow F6 [Macro Variables]

• Description

Used for monitoring and setting the macro variables of the controller.

1.10.5 IOCSA

• Operation Path

"Machine Position" page \rightarrow F6 [State Monitoring] \rightarrow F7 [IOCSA]

• Description

Used for monitoring the status of the controller's software IOCSA.

Hard Input Hard Input Hard Output Hard Output 100 Crash Stop 1 111 111 000 011 011 011 101 Device Variable Channel Type Address Value(Dec) Value(Hex)	Jt
IO0 Crash Stop 1 II1 OO0 OI1 IO1 Device Variable Channel Type Address Value (Dec) Value (Hex) IO2 IO1 IO1 IO1 IO1 IO1 IO1	
IO1 Device Variable Channel Type Address Value(Dec) Value(Hex) IO2 Instrumentary Instrumentary <td></td>	
1 10573828 1 Com 73828 7 7	
103 2 10005049 1 User 5049 0 0	
104 3	
107 108 6	
109	
110 Return (F8)	
Ready Standby Alarm Ready Standby	Alarm
Inp Crash Stop 1 Tip	
< I/O 1st. I/O 2nd SYS1 SYS2 Macro var. IOCSA Var. N	Von. >>

1.10.6 Variable Monitoring

• Operation Path

"Machine Position" page \rightarrow F6 [Status Monitoring] \rightarrow F8 [Variable Monitoring].

• Description

This feature is used to monitor the status of system variables within the controller.

1.11 Extended Functions

1.11.1 Tool Setter

GS	54 SYS1: Enable SYS2: Disable Too	1APP	2024.1	2.09	14:28:27	'	User				
	Name	Valu	ue Uni	t ่	Mechin	~ ~ ~					
1	Turn on the tool setting function, 0= off, 1= on	rn on the tool setting function, 0= 0 - 1X f, 1= on 1Y						90 90			
2	Set the length of the cutter probe box	0.00	MM 00		1Z 1A	0.00	.000				
3	Set the probe square width of the cutter	0.00	MM 00		1B 1C		0.00				
4	Set the height of the cutter probe box	0.00	MM 00	MM Absolut			2 0 00				
5	Probe the maximum tolerance allowed for compensation	0.00	MM 00		1X 1Y	3	315.000				
6	Whether the tool detection exceeds the tolerance alarm, $0=$ alarm, $1=$ no alarm	0	-	12 1A		0.000					
7	Default speed for milling cutter detection (set according to this value	0	1.00		1B 0. 1C 0.						
8	The milling cutter detects the default rotation direction, $0=$ forward, $1=$	0	-	- Relativ - 1X			0.00	90			
In 1,	structions for use: M909 output tool set pendulum.		Cur T N	10:	1Y 1Z	3	15.00	90 90			
2,	M910 output tool set up.		0		1A		0.00	90			
3. 4.	M911 manual knife setting. M912 automatic knife setting.	Ē	Drohe	\cap	1B		0.00	90			
0.00	•		FIODE	\bigcirc	10		0.00	90			
	Ready Standby Alarm		F	Ready	Stand	dby	Alar	'n			
In	Inp Tip										
< <	< Param. Safe Pos. Mon. SYS1	SYS2	Se Safel	t Pos:	Lay down	Pack	cup	>>			

• Operation Path

"Machine Position" page \rightarrow F7 [Extended Functions] \rightarrow F1 [Tool Setter].

Description

This feature enables the use of the tool setter for automatic tool calibration, simplifying the tool setting process. For detailed steps, refer to the Tool Setter operation documentation.

1.11.2 Variable Oscilloscope

1	Tapping pha	se error:	0.0000) cir 1					
Des The A p A r	Tapping pha cription: phase dif ositive nu egative nu	se error: ference bet mber means mber means	0.00000 ween the se that the ta that the sp) cii rvo sh pping axis indle is la	is backward agging behin	l and the s nd, while th	pindle is ah ne attack ax	ead, 1 is is	
10	0 F			· · · · · ·	· · · · ·		-a - B - e		
9	0								
8	0								
6	0								
5	0								
	0								
3	0								
	0								
- -									
	0 C	-00:05	-00:04	-00:0	3	-00:02	-00:01	00:00	
PH2:Chn.:1 Type:User Addr.:0 Prop.:1.000 RUN PB3:Chn.:1 Type:User Addr.:0 Prop.:1.000 RUN PB5:Chn.:1 Type:User Addr.:0 Prop.:1.000 RUN PB5:Chn.:1 Type:User Addr.:0 Prop.:1.000 RUN									
<<	Zoom in (Hori.)	Zoom out (Hori.)	Zoom in (Vert.)	Zoom out (Vert.)	Turn on Var.	Stop the Osc. update	Tap Phase Detect On	Osc. setting	

• Operation Path

"Machine Position" page \rightarrow F7 [Extended Functions] \rightarrow F2 [Variable Oscilloscope].

• Description

This feature is used to monitor variable changes and the phase errors of tapping axes.

1.11.2.1 Horizontal Zoom In

Horizontal Zoom In

[Variable Oscilloscope] page \rightarrow F1 [Horizontal Zoom In].

• Description

Magnifies the data units along the horizontal axis of the oscilloscope.

1.11.2.2 Horizontal Zoom Out

• Operation Path

FINGER CNC

[Variable Oscilloscope] page \rightarrow F2 [Horizontal Zoom Out].

• Description

Shrinks the data units along the horizontal axis of the oscilloscope.

1.11.2.3 Vertical Zoom In

• Operation Path

[Variable Oscilloscope] page \rightarrow F3 [Vertical Zoom In].

• Description

Magnifies the data units along the vertical axis of the oscilloscope.

1.11.2.4 Vertical Zoom Out

• Operation Path

[Variable Oscilloscope] page \rightarrow F4 [Vertical Zoom Out].

• Description

Shrinks the data units along the vertical axis of the oscilloscope.

1.11.2.5 Enable Variable Updates

• Operation Path

[Variable Oscilloscope] page \rightarrow F5 [Enable Variable Updates].

• Description

Activates continuous updates for variables, keeping the oscilloscope waveforms refreshed in real-time.

1.11.2.6 Pause Oscilloscope Updates

• Operation Path

[Variable Oscilloscope] page \rightarrow F6 [Pause Oscilloscope Updates].

Description

Stops oscilloscope updates, allowing detailed observation of waveforms and data at a specific moment.

1.11.2.7 Start Tapping Phase Error Detection

• Operation Path

[Variable Oscilloscope] page \rightarrow F7 [Start Tapping Phase Error Detection].

• Description

This feature is used to detect phase errors for each axis during tapping operations.

1.11.2.8 Oscilloscope Settings

• Operation Path

[Variable Oscilloscope] page \rightarrow F8 [Oscilloscope Settings].

• Description

This feature allows configuration of the oscilloscope interface display, data settings, and channel settings.
1.11.3 Axis Oscilloscope

G54 SYS1:	Enable	SYS2:	Disable	Scope	20	24.12.09	14:31:39		User
Chn.1 Program X Y Z B	Ch 0.000 X 315.000 Y 0.000 Z 0.000 B 0.000 B	n.2 Mechine	0.000 315.000 0.000 0.000	1					
S1	0 RPM		52	0 I	RPM	S	3	0	RPM
222. 900 -222. 900									-107.490 -107.490
148. 600 -148. 600									$-71.660 \\ -71.660$
74. 300 -74. 300									-35, 830 -35, 830
0.000									0, 000 0, 000
-74.300 74.300									35, 830 35, 830
-148.600 148.600									$71.660 \\ 71.660$
-222,900 222,900 0,000) (). 336	0. 672		. 008	1. 344	1 1.	680	107. 490 107. 490
281	RUN 1 CMDX0 Ready	Stan	dby Ala	arm	DP 1 CMD	Ready	Stand	ν	Alarm
Inp				Tip					
<< SYS	Time	Param	Tab Cle	ear Pau	ıse		Si Ci	witch oord	n SYS. .Prog

• Operation Path

[Machine Location] \rightarrow F7 [Extended Functions] \rightarrow F3 [Axis Oscilloscope]

• Description

This feature monitors the command and feedback waveforms of each axis.

1.11.3.1 Channels

• Operation Path

[Machine Location] \rightarrow F7 [Extended Functions] \rightarrow F3 [Axis Oscilloscope] \rightarrow F1 [Channel]

• Description

Adjusts the position and display mode of the waveforms for the four oscilloscope channels.

1.11.3.1.1 PB1

• Operation Path

[Machine Location] \rightarrow F7 [Extended Functions] \rightarrow F3 [Axis Oscilloscope] \rightarrow F1 [PB1]

Description

Allows adjustments to the position and display settings of Channel 1's waveform. The methods for adjusting Channels 2, 3, and 4 are identical and not repeated here.

1.11.3.1.2 PB1 Up

• Operation Path

 $[Machine \ Location] \rightarrow F7 \ [Extended \ Functions] \rightarrow F3 \ [Axis \ Oscilloscope] \rightarrow F1 \ [Channel]$

 \rightarrow F1 [PB1] \rightarrow F1 [PB1 Up]

Description

Moves the waveform of Channel 1 upward.

1.11.3.1.3 PB1 Down

• Operation Path

[Machine Location] \rightarrow F7 [Extended Functions] \rightarrow F3 [Axis Oscilloscope] \rightarrow F1 [Channel]

 \rightarrow F1 [PB1] \rightarrow F2 [PB1 Down]

• Description

Moves the waveform of Channel 1 downward.

1.11.3.1.4 PB1 Zoom In

• Operation Path

[Machine Location] \rightarrow F7 [Extended Functions] \rightarrow F3 [Axis Oscilloscope] \rightarrow F1 [Channel] \rightarrow F1 [PB1] \rightarrow F3 [PB1 Zoom In]

• Description

Vertically enlarges the waveform of Channel 1.

1.11.3.1.5 PB1 Zoom Out

• Operation Path

[Machine Location] \rightarrow F7 [Extended Functions] \rightarrow F3 [Axis Oscilloscope] \rightarrow F1 [Channel]

 \rightarrow F1 [PB1] \rightarrow F4 [PB1 Zoom Out]

• Description

This function vertically shrinks the waveform of Channel 1.

1.11.3.1.6 PB1 Reset Position

• Operation Path

[Machine Location] \rightarrow F7 [Extended Functions] \rightarrow F3 [Axis Oscilloscope] \rightarrow F1 [Channel]

 \rightarrow F1 [PB1] \rightarrow F5 [PB1 Reset Position]

• Description

Adjusts the waveform of Channel 1 to its standard position.

1.11.3.1.7 PB1 Standard Ratio

• Operation Path

[Machine Location] \rightarrow F7 [Extended Functions] \rightarrow F3 [Axis Oscilloscope] \rightarrow F1 [Channel]

 \rightarrow F1 [PB1] \rightarrow F6 [PB1 Standard Ratio]

• Description

Sets the waveform size of Channel 1 to a standard ratio.

1.11.3.1.8 PB1 Show/Hide

• Operation Path

[Machine Location] \rightarrow F7 [Extended Functions] \rightarrow F3 [Axis Oscilloscope] \rightarrow F1 [Channel]

 \rightarrow F1 [PB1] \rightarrow F7 [Show/Hide]

Description

Toggles the display of the waveform for Channel 1.

1.11.3.1.9 PB1 Invert/Non-Invert

• Operation Path

[Machine Location] \rightarrow F7 [Extended Functions] \rightarrow F3 [Axis Oscilloscope] \rightarrow F1 [Channel]

- \rightarrow F1 [PB1] \rightarrow F8 [Invert/Non-Invert]
- Description

Switches between inverted and non-inverted waveform displays for Channel 1.

1.11.3.2 Time Adjustment

• Operation Path

[Machine Location] \rightarrow F7 [Extended Functions] \rightarrow F3 [Axis Oscilloscope] \rightarrow F2 [Time]

• Description

Adjusts the time span of the waveform displayed in the current oscilloscope window for horizontal scaling.

1.11.3.2.1 Horizontal Zoom In

• Operation Path

 $[Machine \ Location] \rightarrow F7 \ [Extended \ Functions] \rightarrow F3 \ [Axis \ Oscilloscope] \rightarrow F2 \ [Time] \rightarrow F3 \ [Axis \ Oscilloscope] \rightarrow F2 \ [Time] \rightarrow F3 \ [Axis \ Oscilloscope] \rightarrow F3 \ [Axis \ Oscillo$

F1 [Horizontal Zoom In]

Description

Horizontally magnifies the waveform display.

1.11.3.2.2 Horizontal Zoom Out

• Operation Path

 $[\text{Machine Location}] \rightarrow \text{F7} \text{ [Extended Functions]} \rightarrow \text{F3} \text{ [Axis Oscilloscope]} \rightarrow \text{F2} \text{ [Time]} \rightarrow \text{F3} \text{ [Axis Oscilloscope]} \rightarrow \text{F2} \text{ [Time]} \rightarrow \text{F3} \text{ [Axis Oscilloscope]} \rightarrow \text{F3} \text{ [Axis Oscilloscope]}$

F2 [Horizontal Zoom Out]

Description

Horizontally shrinks the waveform display.

1.11.3.2.3 Standard Ratio

• Operation Path

 $[\text{Machine Location}] \rightarrow \text{F7} \text{ [Extended Functions]} \rightarrow \text{F3} \text{ [Axis Oscilloscope]} \rightarrow \text{F2} \text{ [Time]} \rightarrow$

F3 [Standard Ratio]

• Description

Adjusts the waveform's horizontal scale to the standard ratio.

1.11.3.3 Overall Settings

• Operation Path

[Machine Location] \rightarrow F7 [Extended Functions] \rightarrow F3 [Axis Oscilloscope] \rightarrow F3 [Overall Settings]

Description

Configures the channels, axes, and pulse types for all four oscilloscope channels. The configuration method for Channel 1 is detailed below, and the process is identical for other channels.

Procedure

Click [Overall Settings] to open the settings table.

- 1, Enter the following for Channel 1:
- Channel: 1
- Axis: X

FINGER CNC

- Type: Command
- 2、Axis options: X, Y, Z, A, B, C, X1–X5, Y1–Y5, Z1–Z5, A1–A5, B1–B5, C1–C5.
- 3、Type options: Command, Feedback, or Voltage.
- 4、Click [Apply] to save the settings.
- 5、 Channel 1's waveform is now set to display the Command pulse for Axis X.
- 6、Additionally, you can configure the following:
- Show/Hide grid.
- Display probe indicators.
- Layout (horizontal or vertical).
- Invert waveforms.
- Linear waveform display.
- Waveform ratio.
- Zero position and colors.

1.11.3.4 Clear

Operation Path

[Machine Location] \rightarrow F7 [Extended Functions] \rightarrow F3 [Axis Oscilloscope] \rightarrow F4 [Clear]

Description

This function clears all waveforms displayed in the oscilloscope window.

1.11.3.5 Pause Oscilloscope

• Operation Path

[Machine Location] \rightarrow F7 [Extended Functions] \rightarrow F3 [Axis Oscilloscope] \rightarrow F5 [Pause]

Description

Pauses waveform updates, freezing the current display for easier observation and analysis.

1.11.3.6 Switch Channel

• Operation Path

[Machine Location] \rightarrow F7 [Extended Functions] \rightarrow F3 [Axis Oscilloscope] \rightarrow F8 [Switch Channel Coordinates & Program]

• Description

This function toggles between displaying channel program coordinates, machine coordinates, and the currently executing program.

1.11.4 Spindle Docking

G54 SYS1: Enab	le SYS2: Disa	ble Spd.Butt	2024.12.09 14:3	2:54 User
Spd 1C (Ba	asic)	Blank	Spd 2C (Follow)
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		Contraction in the local distribution of the		
		100		
	Descrip: M	693 S. Spd CW Butt		
Ţ.	Descrip: M	694 S_ Spd CCW Bu	tt.	V
	Descrip: M	695 cancel Spd Butt	L.	
Spd Angle Value	Unit: Degree	Spd Real-Angle	Unit: Degree	Unit
Spd 1C Angle	0.000	Spd 1C Mechane	0.000	PULSE
Spd 2C Angle	0.000	Spd 2C Mechane	0.000	PULSE
SYS1 Cur Phase	0.000	SYS2 Cur Phase	0.000	PULSE
Rea	dy Standby	Alarm	Ready S	Standby Alarm
Inp		Tip		
< Setting Drive Coord For	en axis Coord ward negation			22.

• Operation Path

[Machine Location] \rightarrow F7 [Extended Functions] \rightarrow F4 [Spindle Docking]

• Description

This function enables spindle docking, which is used for dual-spindle workpiece processing. For detailed procedures, refer to the spindle docking operation manual.

1.11.5 Operation Log

G54 SYS1:	Enable	SYS2:	Disable	Oper.	2024.12.09	14:34:2	6 User
Date			Record	ler			0perat*
1 2024-12-	09 14:29	:24:502	Form_l	Extend_fun	ctionButton0	105	状态改
2 2024-12-	09 14:29	:24:355	Form_l	Extend_fun	ctionButton0	105	状态改
3 2024-12-	09 14:29	:16:888	System	n			0.3.4
4 2024-12-	09 14:29	:16:638	Form_	FoolsetGau	ge_functionB	utton0100)_2 状态改
5 2024-12-	09 14:29	:16:495	Form_	FoolsetGau	ge_functionB	utton0100)_2 状态改
6 2024-12-	09 14:29	:14:722	Form_	FoolsetGau	ge_functionB	utton0102	2_2 状态改
7 2024-12-	09 14:29	:14:513	Form_	FoolsetGau	ge_functionB	utton0102	2_2 状态改
8 2024-12-	09 14:28	:05:169	System	n			0.3.42
9 2024-12-	09 14:28	:04:811	Form_l	Extend_fun	ctionButton0	101	状态改
10 2024-12-	09 14:28	:04:612	Form_l	Extend_fun	ctionButton0	101	状态改
11 2024-12-	09 14:28	:03:475	System	n			0.3.4
12 2024-12-	09 14:28	:02:353	System	n			0. 3. 14
13 2024-12-	09 14:28	:00:905	System	n			0. 3. 20
14 2024-12-	09 14:27	:57:340	System	n			0.3.2
15 2024-12-	09 14:27	:52:736	System	n			0. 3. 14
10001 10	00 14 07	- FO 400	<u> </u>				
	Ready	Stan	dby Ala	irm	Ready	<mark>/</mark> Stan	dby Alarm
Inp	-5 <i>1</i>			Tip			
<<	Search					Auto refresh	Manual refresh

Operation Path

[Machine Location] → F7 [Extended Functions] → F5 [Operation Log]

• Description

Records user operation steps. This feature is useful for troubleshooting or reproducing

issues during after-sales service by tracing improper actions that caused the problem.

1.12 Parameter Settings

G54	SYS1:	Enable S	YS2: D15	able P	aram.	20	24.1	2.09	14	:35:4	6	User	
Cu	rrent Pa	ge 1/4		A11 F	Param.								
0 /	0 ALL Param. 8 User Param.			iram.	16 P	6 Polygon 24 TempComp					np		
1 2	1 X Param. 9 Common Param			17 T	ails	tock			25 Tra	ay		1	
2 1	Y Param.		10 M code 18 IC			0 Pa	ram.			26 10	res	ət	1
3 2	Z Param.		11 Tool Param. 19 G o			cod	е			27 Bu	s Pa	ram.	1
4)	X1 Param.		12 Collet	;	20 T	hrea	ding			28 Ac	c		1
5 /	A Param.		13 Lubric	ant	21 T	appi	ng			29 Fe	eder		1
6 1	B Param.		14 Spd. br	ake	22 D	rill	ing			30 Pro	otec	t Zone	,
7 (C Param.		15 Toolch	anger	23 A	xis	Turre	ət		31 Sp	d. bu	tt	
		Ready	Standhy	Alarm			R	ead	v	Stan	dhv	Δla	rm
Inp		neady	Jeanaby		Tip			icuu	,	bean	aby	7120	
<<			Close	All Para.	Axis Pa	ara.	Proce	ess	Se	IO			
G54 SVS1, Englis SVS2, Displo Param 2024 12 09 14:35:55 User						0							
004	DIDT:	Enable S	YS2: Dis	able P	aram.	20	24.12	2.09) 14	:35:5	5	User	r
All	Param.	X Param	YS2: Dis n. Y Para	able P Im. ZP	aram. Param.	20: Sp	24.12 d.A	2.09 Sp) 14 d.B	:35:5 Spd	5 I.C	User Us	`
All NO.	Param.	X Param	YS2: Dis n. Y Para Name	able P Im. ZP	aram. Param.	20: Sp	24 . 12 d.A sys1	2.09 Sp) 14 d.B	: 35 : 5 Spd sys2	5 I.C	User Us Unit	•
All NO.	Axial	X Param	YS2: Dis n. Y Para Name	able P im. ZP	aram. Param.	20: Sp	24.1: d.A sys1	2.09 Sp) 14 d.B	: 35 : 5 Spd sys2	5 I.C	User Us Unit	-
All NO.	Axial p	X Param parameter resolution	YS2: Dis n. Y Para Name n denomina	able P im. ZP tor (puls	aram. Param. e)	20: Sp 83	24.12 d.A sys1	2.09 Sp	0 14 d.B 83	: 35 : 5 Spd sys2 88608	5 .C	User Us Unit PULSE	·
All NO. 1 2	Axial p X-axis X-axis	A Param X Param parameter resolution resolution	YS2: Dis Name Name n denomina n molecule	able P mm. ZP tor (puls (distanc	aram. Param. e) e)	202 Sp 83	24.12 d.A sys1 888603	Sp	0 14 d.B 83	: 35 : 5 Spd 5YS2 88608 0000	5 .C	User Us Unit PULSE µM	`
All NO. 1 2 3	Param. Axial y X-axis X-axis Y-axis	A Parameter resolution resolution resolution	YS2: Dis n. Y Para Name n denomina n molecule n denomina	able P m. ZP tor (puls (distanc	aram. Param. e) e)	20: Sp 83 1 83	24.12 d.A sys1 888608 10000	Sp	0 14 d.B 83 1 83	: 35 : 5 Spd SYS2 88608 0000 88608	5 .C P	User Us Unit ULSE µM ULSE	
All NO. 1 2 3 4	Axial g X-axis X-axis Y-axis Y-axis	A Parameter resolution resolution resolution resolution	YS2: Dis Name Name n denomina n molecule n denomina n molecule	able P m. ZP tor (puls (distanc tor (distanc	aram. Param. e) e) e)	20: Sp 83 1 83 1 1	24.12 d.A sys1 888608 10000 888608	Sp	9 14 d.B 83 1 83	: 35 : 5 Spd 5Y52 88608 0000 88608 0000	5 .C	User Us Unit ULSE µM ULSE µM	
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All NO. 1 2 3 4 5 6 7 8 9 10 11	Param. Axial g Axial g X-axis X-axis Y-axis Y-axis Z-axis A-axis A-axis B-axis B-axis C-axis	A Parameter resolution resolution resolution resolution resolution resolution resolution resolution resolution resolution resolution resolution	YS2: Dis Name Name Name n denomina n molecule n denomina n molecule n denomina n molecule n denomina n molecule n denomina n molecule	able P m. Z P tor (puls (distanc tor (distanc tor (distanc tor (puls (distanc tor (puls	aram. aram. aram. e) e) e) e) e) e) e) e) e)	201 Sp 83 11 83 12 83 13 83 33 83 33 11	24.12 d.A sys1 388603 10000 388603 10000 388603 60000 388603 60000 10000	Sp Sp 3 3 3 3	 14 d.B 833 11 833 11 833 30 833 31 31 32 31 31 32 31 32 31 32 31 32 33 34 34 35 36 36 37 36 36 37 36 36 37 36 36 37 37 38 38 39 39 30 30 31 31 32 32 34 34 35 36 36	: 35 : 5 Spd 5Y52 88608 0000 88608 0000 88608 50000 88608 50000 88608 50000	5 .C 	User Us Unit ULSE µM ULSE µM ULSE µM ULSE µM	
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• Operation Path

[Machine Location] \rightarrow F8 [Parameter Settings] (Opens the parameter directory by default.)

Description

This function allows the configuration of controller axis control parameters and user-defined parameters.

• Operation Instructions

- 1、 Use the arrow keys [↑], [↓], [←], [→] to navigate the cursor.
- 2、Use [\approx] and [\approx] to scroll pages up and down.
- 3、Press the [Enter] key to input values.

Note

After modifying parameters, press the [Reset] button to apply changes.

1.12.1 Previous Item

Operation Path

[Machine Location] \rightarrow F8 [Parameter Settings] \rightarrow F1 [Previous Item]

Description

Description

This key allows you to switch to the previous parameter item.

1.12.2 Next Item

• Operation Path

[Machine Location] \rightarrow F8 [Parameter Settings] \rightarrow F2 [Next Item]

• Description

This key allows you to switch to the next parameter item.

1.12.3 Open Directory

• Operation Path

[Machine Location] → F8 [Parameter Settings] → F3 [Open Directory]

Description

This key opens the directory page to select the corresponding parameter for modification.

1.12.4 Search by Number

Operation Path

[Machine Location] \rightarrow F8 [Parameter Settings] \rightarrow F5 [Search by Number]

Description

This key searches the parameter number in the current parameter table and jumps to the corresponding line.

1.12.5 Parameter Overview

Operation Path

[Machine Location] → F8 [Parameter Settings]

Description

This key opens the system's parameter directory for quick navigation to specific parameter tables.

1.12.5.1 Parameter Overview Table

• Description

- 1. Displays the system's complete list of functional parameters.
- 2. Use the arrow keys $[\uparrow], [\downarrow], [\leftarrow], [\rightarrow]$ to navigate the cursor.
- 3. Use the [Enter] key to jump to the selected parameter table.

1.12.5.2 Axis Parameters

• Description

- 1. Displays all axis-related functional parameters and acceleration/deceleration parameters.
- 2. Use the arrow keys $[\uparrow], [\downarrow], [\leftarrow], [\rightarrow]$ to navigate the cursor.
- 3. Use the [Enter] key to jump to the selected parameter table.

1.12.5.3 Process Parameters

• Description

- 1. Displays the system's G-code comprehensive parameters and common drilling, tapping, and threading parameters.
- 2. Use the arrow keys $[\uparrow], [\downarrow], [\leftarrow], [\rightarrow]$ to navigate the cursor.
- 3. Use the [Enter] key to jump to the selected parameter table.

1.12.5.4 IO/Mechanism Parameters

• Description

- 1. Displays IO-related and mechanism-related parameters, such as turret, tailstock, spindle brake, lubrication oil, etc.
- 2. Use the arrow keys $[\uparrow], [\downarrow], [\leftarrow], [\rightarrow]$ to navigate the cursor.
- 3. Use the [Enter] key to jump to the selected parameter table.

1.13 System Management

G54 SYS1:	Enable 2	SYS2:	Disable	Position	2024	.12.0	99 14	:37:28	U	ser	
SYS.1	Mechi	ine					Rela 1X	ative	0.	. 000	2
<u> </u>				0.	000)	1Y 1Z		315. Ø.	.000	2 2
○1Y				315.	000)	1A 1B		0.	.000	9
<u> </u>				0.	000)	1C Abso	olute	0.	. 000	9
)			0.	000)	1X 1Y		315	.000	0 0
)			Q	000		1Z 1A		0.	.000	9
DID G)			0.	000	,	1B		0.	.000	9
○1C ⊙)			0.	000)	1C Dist	.To Go	0.	. 000	9
F mm/min	150 0.000 0.000	(Rate) (Order) (Real.)	S	100 RPM 0 RPM	0% (Rea]	1.)	1X 1Y Z1 A1 B1		0 0 0	000 000 000 000	2000
Run Time	0:0:	0: 0	PartNO	• 0	T 000	90	C1		Ø.	.000	9
	Ready	Stand	lby Ala	rm		Rea	dy	Stand	y A	lar	m
Inp				Tip							
<< System Manager	Load mon			Sunshi Robot J	ne OG				Set Zer (Bus)	o	>>

• Operation Path

[Machine Location] \rightarrow [>>] \rightarrow F1 [System Management]

Description

This feature is used for managing backup packages, data backup, data restoration, and restoring factory settings.

Note

To access the system management page, a password is required. The default password is "112233".

1.13.1 Backup Packages

• Operation Path

 $[Machine \ Location] \rightarrow [>>] \rightarrow F1 \ [System \ Management] \rightarrow F1 \ [Backup \ Packages]$

Description

This feature is used to manage the controller's backup packages. It allows you to add,

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delete, edit comments, and copy the backup packages to a USB drive. For detailed descriptions, please refer to the "Controller Backup" document.

1.13.2 Data Backup

Operation Path

[Machine Location] \rightarrow [>>] \rightarrow F1 [System Management] \rightarrow F2 [Data Backup]

• Description

This feature is used to back up the controller-related data and convert it into a package format. For detailed descriptions, please refer to the "Controller Backup" document.

1.13.3 Data Restoration

Operation Path

[Machine Location] \rightarrow [>>] \rightarrow F1 [System Management] \rightarrow F3 [Data Restoration]

• Description

This feature is used to restore the backed-up controller data to the system, effectively updating the system's data. For detailed descriptions, please refer to the "Controller Backup" document.

1.13.4 Restore Factory Settings

• Operation Path

[Machine Location] \rightarrow [>>] \rightarrow F1 [System Management] \rightarrow F8 [Restore Factory

Settings]

Description

This feature is used to clear the controller's data and restore the factory settings.

1.14 Load Monitoring/Feed Rate Monitoring

• Operation Path

[Machine Location] \rightarrow [>>] \rightarrow F2 [Load Monitoring/Feed Rate Monitoring]

Description

This feature is used to toggle the display interface. Pressing this key once will display the load rate of each axis. Pressing it again will show the feed rate (F), spindle speed (S), machining time, part count, and tool number (T).

G54 SYS1:	Enable SYS2:	Disable Pos	sition	2024.12.0	99 14:	40:24	User	r
SYS.1	Mechine				Relat	tive	a aa	30
○1 X			90	200	1Y		315.00	90
			0.0	500	1Ζ 1Δ		0.00	90 90
○1Y			315.0	900	1B		0.00	90
017			0 0	200	1C		0.00	90
			0.0	000	Abso.	lute	0.00	20
			0.0	200	1Y		315.00	00
			0.0		1Z		0.00	90
\bigcirc 1B \odot			0.0	000	1A		0.00	90
					1B 1C		0.00	20
○1C ⊙			0.0	900	Dist	.To Go	0.00	
SVS1-X Load	0%	SVS1-A Load	· · ·	0%	1X		0.00	90
	0%	STST-A LOOU		0%	1Y 71		0.00	90
SYS1-Y Load	0/6	SYS1-B Load		0%	Δ1		0.00	30
SYS1-Z Load	0%	SYS1-C Load		0%	B1		0.00	90
SYS1-X1 Load	0%	SYS1-A2 Load	1 [0%	C1		0.00	90
	Ready Star	ndby Alarm		Rea	dy	Standb	y Ala	rm
Inp			Tip					
<< System Manager	Rate mon		Sunshine Robot JO	e G		S	et Zero (Bus)	33

1.15 Bus Axis Zero Setting

• Operation Path

[Machine Location] → [>>] → F5 [Bus Axis Zero Setting]

• Description

This function is used to set the machine zero point for bus axes.

1.15.1 X Axis Zero Setting

• Operation Path

 $[Machine \ Location] \rightarrow [>>] \rightarrow F8 \ [Bus \ Axis \ Zero \ Setting] \rightarrow F1 \ [X \ Axis \ Zero \ Setting]$

• Description

Set the zero point for the X axis.

1.15.2 Y Axis Zero Setting

Operation Path

[Machine Location] \rightarrow [>>] \rightarrow F8 [Bus Axis Zero Setting] \rightarrow F2 [Y Axis Zero Setting]

• Description

Set the zero point for the Y axis.

1.15.3 Z Axis Zero Setting

• Operation Path

 $[\text{Machine Location}] \rightarrow [\text{>>}] \rightarrow \text{F8} [\text{Bus Axis Zero Setting}] \rightarrow \text{F3} [\text{Z Axis Zero Setting}]$

Description

Set the zero point for the Z axis.

1.15.4 A Axis Zero Setting

Operation Path

[Machine Location] \rightarrow [>>] \rightarrow F8 [Bus Axis Zero Setting] \rightarrow F4 [A Axis Zero Setting]

• Description

Set the zero point for the A axis.

1.15.5 B Axis Zero Setting

• Operation Path

[Machine Location] \rightarrow [>>] \rightarrow F8 [Bus Axis Zero Setting] \rightarrow F5 [B Axis Zero Setting]

Description

Set the zero point for the B axis.

1.15.6 C Axis Zero Setting

• Operation Path

 $[Machine \ Location] \rightarrow [>>] \rightarrow F8 \ [Bus \ Axis \ Zero \ Setting] \rightarrow F6 \ [C \ Axis \ Zero \ Setting]$

Description

Set the zero point for the C axis.

1.15.7 X1 Axis Zero Setting

• Operation Path

[Machine Location] \rightarrow [>>] \rightarrow F8 [Bus Axis Zero Setting] \rightarrow F7 [X1 Axis Zero Setting]

Description

Set the zero point for the X1 axis.

1.15.8 Switch Channel

• Operation Path

[Machine Location] \rightarrow [>>] \rightarrow F8 [Bus Axis Zero Setting] \rightarrow F8 [Switch Channel]

• Description

Switch to the channel where the bus axis absolute zero point needs to be set.

3. Mechanical Operation Panel Description

2.1 Panel Operation Buttons



Power On

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Turns on the controller power, enabling machine operation.



• Power Off

Turns off the controller power, disabling machine operation.



Emergency Stop

Press this button to immediately stop machine motion in case of safety concerns or operational failures. The controller triggers an alarm, and the IO system adjusts controls accordingly.



Activates program lock functionality, preventing program editing.



• Automatic Mode

In this mode, pressing the start button automatically executes the machining program.



Home Mode

This mode moves all axes back to their preset zero positions or mechanical zero points.



MDI Mode

This mode is used to execute on-the-fly programs without the need to load machining files.



• Manual Mode (JOG)

This mode manually drives the selected axis. Ensure the desired axis is selected before operation.



• Operation Method Mode

This mode uses the MPG to drive the selected axis. Ensure the desired axis is selected before operation.

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Inching Mode

This mode allows incremental movement of the selected axis. Ensure the desired axis is

selected before operation.



• Program Simulation

This function allows the MPG to simulate program execution in Automatic or MDI mode,

facilitating verification of machining paths.



• Single-Step Execution

This function enables step-by-step execution of the machining program in Automatic or MDI mode.



Skip Function

This function allows skipping blocks containing the "/1" character during automatic program execution.



Optional Stop (M01) •

This function pauses the program at blocks containing the M01 command during execution in Automatic or MDI mode.



Spindle Forward

Activates the spindle in the forward direction.



Spindle Reverse

Activates the spindle in the reverse direction.



Spindle Stop •

Stops the spindle.



Spindle A/B •

Controls forward rotation of spindles A and B.



Coolant •

Manually toggles the coolant on or off.



Lubrication

Triggers a single lubrication cycle manually.



Tool Magazine Forward/Reverse ۲

Controls forward or reverse rotation of the tool magazine.



Chuck •

Controls the chuck to open or close.



Work Light •

Controls the work light.



Air Blow

Controls the air blow system.



• Spindle Brake

Controls the spindle brake.

2.2System Text Keys Description



- Position: Switches to the machine position page.
- Edit/Program Select: Toggles between the program editing page and the program selection page.
- Tool Offset/Settings: Switches between the wear offset page and the length offset page.
- Monitoring: Switches to the machining monitoring page.
- Help/Alarm: Toggles between the help page and the alarm monitoring page.
- A~Z Keys: Alphabet keys (26 in total).

- 0~9 Keys: Numerical input keys.
- Input: Used for entering letters, numbers, symbols, etc.
- Delete: Backspace key to delete characters.
- Space: Inserts a space.
- Reset: Commonly used to terminate a program, activate parameter changes, or clear alarms after parameter modifications.
- Start of Line/End of Line: Moves the cursor to the beginning or end of the line.
- Switch: Enables input of the subscript characters located in the lower-left corner of number and letter keys when pressed (indicated by a light).
- Start: Initiates program execution.
- Other Common Keys: Commonly used keys not individually detailed.

3.Operation

3.1 System Status

The system displays different status indications based on its current state. The operating status of each channel is displayed separately. Below are the conditions for triggering each status.

3.1.1 Not Ready

The system imposes different restrictions based on various alarms.

- Trigger Conditions:
- 1. There is an active alarm in the system.
- 2. The axis has not returned to the origin.

3.1.2 Ready

The system is ready for operation.

• Trigger Conditions:

- 1. The system alarm has been cleared, and the axis has returned to the origin.
- When the system is in a "Processing" or "Pause" state, pressing the Reset button will switch the system status to "Ready."

3.1.3 Processing

The system is executing a program for machining.

• Trigger Conditions:

When the system is in the "Ready" state and begins executing the machining program,

the system status will change to "Processing."

3.1.4 Pause

The system pauses the machining program during its execution.

• Trigger Conditions

When the system is in the "Processing" state, triggering a pause will switch the system

status from "Processing" to "Pause."

Note

During the pause state, the spindle can still operate normally.

3.2Alarm Status

Indicates whether the system currently has any active alarms.

3.2.1 Flashing Alarm

• Trigger Conditions

The alarm flashes when there is any active warning or error in the system.

3.2.2 Non-flashing Alarm

• Trigger Conditions

The alarm is not flashing when there are no active warnings or errors in the system.

3.3 Machine Preparation

3.3.1 Manual Functions

The controller provides four manual control functions for the axis, which are as follows.

3.3.1.1 Manual Continuous Feed

• Description

- 1. Drives the axis to move continuously in one direction.
- 2、Multiple axes can move simultaneously.
- 3、Allows multiple channels to drive axis movements simultaneously.

• Operating Conditions

- 1. The system has not triggered an emergency stop or serious axis errors.
- 2、The operation mode is set to "Manual Mode."

Operation Method

1. Select the axis keys "X \uparrow , X \downarrow , Y \uparrow , Y \downarrow , Z \rightarrow , Z \leftarrow " to control the corresponding axis continuous movement.

- 2. The feed rate and acceleration/deceleration time can be set through parameters.
- 3、The feed rate is limited by the G00 maximum feed rate.

3.3.1.2 Manual Rapid Feed

• Description

- 1. Drives the axis to move continuously at a G00 rapid feed rate in one direction.
- 2、Multiple axes can move simultaneously.
- 3. Allows multiple channels to drive axis movements simultaneously.
- Operating Conditions

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The system has not triggered an emergency stop or serious axis errors.

All axes have returned to their home positions.

The operation mode is set to "Manual Mode."

• Operation Method:

1. Press and hold the [Rapid] button to activate the function (the button light will turn on).

2、Select the axis keys "X \uparrow , X \downarrow , Y \uparrow , Y \downarrow , Z \rightarrow , Z \leftarrow " to control the corresponding axis rapid movement.

3. The feed rate is adjusted by the G00 maximum feed rate.

4、Acceleration/deceleration time is set through parameters.

3.3.1.3 Incremental Feed

• Description

- 1. Drives the axis to move a fixed distance in one direction.
- 2. Multiple axes can move simultaneously.
- 3. Allows multiple channels to drive axis movements simultaneously.

• Operating Conditions

The system has not triggered an emergency stop or serious axis errors.

The operation mode is set to "Incremental Mode."

• Operation Method

1. Select the axis keys "X \uparrow , X \downarrow , Y \uparrow , Y \downarrow , Z \rightarrow , Z \leftarrow " to control the corresponding axis movement.

- 2、Each press of the key triggers one movement.
- 3. The movement distance for each press is set as follows:
- X1: 0.001 mm per movement
- X10: 0.010 mm per movement
- X100: 0.100 mm per movement
- This setting is shared with the MPG multiplier selection.

3.3.1.4 Operation Method Feed

Description

Drives the axis to move continuously in one direction.

✤ Operating Conditions:

- 1. The system has not triggered an emergency stop or serious axis errors.
- 2、The operation mode is set to "MPG Mode."

3. Only one channel can be selected for axis movement at a time. Multiple channels cannot be selected for axis movement.

• Operation Method

1. Switch the axis on the MPG or select the axis from the auxiliary panel to decide which axis to control with the MPG.

2. Rotate the MPG to drive the corresponding axis. The direction of MPG rotation determines the direction of axis movement.

3、The movement distance per click of the MPG is set as follows:

- ✤ X1: 0.001 mm per rotation
- X10: 0.010 mm per rotation
- X100: 0.100 mm per rotation
- This movement multiplier is shared with the incremental feed distance setting.

3.3.2 Program Processing

3.3.2.1 Automatic Execution

Description

Executes the "Processing Program" automatically.

Operating Conditions

- 1. The system is in a no-alarm state.
- 2. The operation mode is set to "Automatic Mode."
- Operation Method

- 1、 First, press the [Auto] button. The button light will turn on to indicate activation.
- 2、Press the [Start] button, and the system will execute the current processing program.
- 3、The system status will change from "Ready" to "Processing."
- 4、Once the processing program ends, the system status will switch back to "Ready."

5. If the program uses the M99 loop or the fully automatic mode, after the current program ends, the system will trigger the start again and continue the program execution.

3.3.2.2 Single Block Execution "MDI"

• Description

Executes "MDI" (Manual Data Input) processing.

• Operating Conditions

- 1. The system has not triggered an emergency stop, axis errors, or other critical alarms.
- 2、The operation mode is set to "MDI Mode."

• Operation Method

- 1、First, press the [MDI] button. The button light will turn on to indicate activation.
- 2. The system will execute the current single block program content.
- 3、The system status will change from "Ready" to "MDI."
- 4、 Once the program ends, the system status will switch back to "Ready."
- 5. If the M99 loop is used, the system will continue executing the program.

3.3.3 Origin Mode

Processing coordinates are set based on the mechanical origin as a reference. Therefore, after powering on the controller, a return-to-origin operation is required to confirm the mechanical origin. When using a bus absolute value encoder, the return-to-origin operation is not necessary.

• Operating Conditions:

- 1. The system has not triggered an emergency stop, axis errors, or other critical alarms.
- 2、The operation mode is set to "Origin Mode."

• Operation Method

1、 Press the axis keys "X↑, X↓, Y↑, Y↓, Z→, Z←" to move the corresponding axis to its origin position.

2. Once the axis completes the return-to-origin operation and stops, the system will reset the mechanical coordinate for that axis to zero.

3. The return-to-origin method, direction, and speed can be configured through parameters.

Notes

he software limit is invalid during the return-to-origin process for all axes.

3.4 Tool Preparation

While editing the processing program, the relationship between the tool tip and the workpiece is described, without considering the actual tool position or the length differences between different tools. Therefore, tool offset settings need to be properly measured and entered into the controller before processing.

The system provides the following 4 types of offset methods: Tool Length Offset, Tool Wear Offset, Tool Tip Compensation, and Workpiece Coordinate Offset.

• Tool Length Offset:

Tool number is enabled by T-code, and the tool number corresponds to the offset number.

• Tool Wear Offset:

Tool wear compensation is enabled by T-code, often used for tool wear, thermal expansion and contraction, or fine adjustments to tool length calibration.

• Tool Tip Radius Compensation:

Tool number is enabled by T-code, and tool tip radius compensation is activated using G41/G42 in the program.

Workpiece Coordinate System Offset

G54.1P1-G54.1P48, G54-G59 coordinate system settings, and workpiece shift coordinate system settings.

3.4.1 Tool Length Offset

While editing the processing program, the relationship between the tool tip and the workpiece is described, without considering the actual tool position or the length differences between different tools. Therefore, each tool's length offset needs to be carefully measured and entered into the controller before processing.

• Operation Description

Press the shortcut button [Tool Offset/Setting] twice to enter the Length Offset page, or on the "Machine Position" page, press [Offset/Setting] and then press [Length Offset] to enter the Tool Length Offset page.

G54	SYS1: Enable	SYS2: Disable	Offset	2024.12.09	12:15:51	L User
Cur.	Tcode: 0 Turret NO:	SY	/S1-Offse	t	Mechin 1X	e 0.000
Max.:	:999999999Min.:-99	99999		INC	17 17	9.000
	1X	1Y		1Z 📩	1A	0.000
1	0.000	0.000	0	.000	1B	0.000
2	0.000	0.000	0	. 000	1C Absolu	0.000 te
3	0.000	0.000	0	. 000 -	1X	0.000
					1Y	315.000
4	0.000	0.000	0	.000	1Z	0.000
5	0.000	0.000	0	.000	1A 1B	0.000
6	0.000	0.000	0	.000	10 10	0.000
_	0.000	0.000	-	000	Relati	ve
/	0.000	0.000	0	. 000	1X	0.000
8	0.000	0.000	0	. 000	1Y 1Z	0.000
9	0.000	0.000	0	.000	1A 1P	0.000
10	0.000	0.000	0	.000	10 10	0.000
	Ready	Standby Ala	rm	Ready	/ Stand	dby Alarm
Inp			Tip			
< < \	Wear repair Offset	SYS2 Offset Work	shift Tool lif	e ABS	INC	Work Coord. >>

1. Use Arrow Keys $(\uparrow, \downarrow, \leftarrow, \rightarrow)$ to move the cursor to the desired value position.

2. Three Input Methods:

- Absolute Input (= key): The button turns green, the cursor moves to the corresponding position, and you directly input the value. This is generally used for absolute values, such as tool radius compensation or tool length offset.
- ◆ Incremental Input (+ key): The button turns green, the cursor moves to the

corresponding position, and you input the value to be added. The position value will then be the sum of the current value and the input value. This is generally used for tool radius wear compensation or tool wear correction.

- Teach-in Input (X***, Z***, etc.): You can input values using the axis names like X, Z, Y, or X1, X2, etc., where "***" represents the taught value. This method is used for teaching tool length offset (this process is also called tool setting).
- Use the [SYS1] and [SYS2] buttons to switch between tool length offset or wear compensation pages for different channels.
- 3、Compensation Calculation Formula
- Actual G41/G42 Compensation: (Tool Radius Compensation + Tool Radius Wear Compensation)
- Actual Tool Compensation: (Tool Length Compensation + Tool Wear Compensation)
- When using teach-in input, the cursor does not need to move to the correct axis position. It only needs to move to the correct tool number, and the controller will automatically fill in the values based on the taught axis name.
- When teach-in input is completed, the corresponding wear compensation value will be cleared. For example, if the tool length for Tool No. 1 along the X-axis is taught, the wear compensation value for Tool No. 1 along the X-axis will be reset to zero.

3.4.2 Tool Length Measurement

After the T-code is executed, tool compensation takes effect, so the operator must set the tool length data before cutting.

- Before measurement, confirm the following:
- 1. Whether the external offsets are correct.
- 2. Whether the workpiece coordinate system offset is correct.
- 3. Whether the workpiece move coordinate system offset is correct.

3.4.2.1 Z-Axis Tool Length Measurement

Press the shortcut key 【Tool Compensation/Setting 】 twice to enter the length compensation page, or in the "Machine Position" page, press 【Offset/Setting】, then press 【Length Compensation】 to enter the tool "Length Compensation" page.

• Operation Steps

1. Move the cursor to the tool number whose compensation value you wish to modify, e.g., Tool No. 1.

2、Use manual operation to move the tool until the tool tip touches the Z-axis work zero point, which is the origin of the Z-axis program coordinate. Then, use the teach-in input "Z0" to set the current position as the Z-axis work zero point.

• Z-Axis Cutting Measurement Input

It is generally difficult to manually move the tool tip to the Z-axis work zero point. Therefore, cutting is often used to assist in the measurement.

• Operation Example

- 1、Clamp a round bar in the spindle.
- 2. Manually move the tool tip above the workpiece surface and confirm that cutting along the X-axis direction can reach the workpiece.
- 3、Rotate the spindle in the forward direction and manually cut along the X-axis.
- 4、Retract the tool along the X-axis, but do not move the Z-axis.

5. Use the teach-in input "Z0", and the cut surface will be set as the Z-axis work zero point.



Description

When the teach-in input is completed, the corresponding wear compensation value will be cleared. For example, if the Z-axis tool length is set using the teach-in input for Tool No. 1, the wear compensation value for Tool No. 1's Z-axis will be cleared to zero.

3.4.2.2 X-axis Tool Length Measurement

• X-axis Cutting Measurement Input

It is usually difficult to manually move the tool tip to the X-axis work zero point. Therefore, cutting is often used to assist in the measurement.

• Operation Steps

1. Press the shortcut key 【Tool Offset/Setting】 twice to enter the length offset page, or on the "Machine Position" page, press 【Offset/Setting】, then press 【Length Offset】 to enter the tool length offset page.

2 Move the cursor to the tool number whose compensation amount needs to be modified, for example, Tool No. 1.

3. Manually move the tool until the tool tip touches the X-axis work zero point, i.e., the origin of the X-axis program coordinates. Use teach-in input "X0" to set the current work zero point position.

• Operation Example

1. The spindle holds a round bar with a diameter of 10mm.

2. Manually move the tool until the tool tip is less than 5mm away from the center of the workpiece, ensuring that the tool can cut the workpiece when moved along the Z-axis.

3. The spindle rotates forward, and the tool is manually moved along the Z-axis direction to perform turning.

4、Retract the tool along the Z-axis direction, without moving the X-axis.

5、 Use a caliper to measure the diameter "D" of the cut workpiece.

6、Use teach-in input to enter this measurement value, "X+/-D". For example, if the workpiece diameter is measured to be 9mm, input "X9." If using the X radius axis, input "X4.5."

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7. The positive/negative sign is determined by the machine's front or rear tool post. If the tool tip is located at X+ (tool tip is on the centerline), the sign is "+"; if the tool tip is at X-, the sign is "-".



Description

When the teach-in input is completed, the corresponding wear compensation value will be cleared. For example, if the X-axis tool length is set using teach-in input for Tool No. 1, the wear compensation for Tool No. 1's X-axis will be cleared to zero.

3.4.3Tool Wear Compensation

1. Tool Wear Setting is commonly used for adjusting tool wear, thermal expansion and contraction, or fine-tuning tool length calibration. After the tool length is set on a lathe, the tool length value is not randomly modified, but the tool wear setting is used to fine-tune cutting dimensions.

After setting the tool length via teach-in input, the tool wear is automatically set to zero.
 Based on trial cutting results and measured dimensions, if there is any error, tool wear compensation is used to adjust the tool length.

3、Actual Tool Length = Tool Length + Tool Wear.

• Operation Description

1. Press the shortcut key [Tool Offset/Setting] to enter the wear compensation page, or on the "Machine Position" page, press[Offset/Setting] to enter the tool wear compensation page.

2. Use the page-up/down keys (\approx , \approx) or arrow keys (\uparrow , \downarrow , \leftarrow , \rightarrow) to move the cursor to the position where you want to change the value.

Operation Method

1、 Press **[** = Input (Absolute Input)**]** key to make the button turn green. The cursor moves to the corresponding position, and the value can be directly input.

2、Press 【 + Input (Incremental Input) 】 key to make the button turn green. The cursor moves to the corresponding position, and the value to be added is entered. The new value will be the sum of the current value and the input value.

3、Positive/Negative Symbol +/-: The input value can be designated with the symbol "+/-", which determines the direction of the compensation.

- If the tool tip is to be moved in the positive direction, input the plus sign "+".
- If the tool tip is to be moved in the negative direction, input the minus sign "-".

• Example:

If the turning result is 10µm larger than programmed, the tool tip will be adjusted to X-, and then input "-0.010" into the tool wear value. This will add "-10µm" to the current tool wear value, and during the next cutting, the tool tip's cutting path will shift 10µm in the X-negative direction.

• Parameters:

The maximum value for tool wear compensation can be set via parameters to prevent errors during input that could cause collisions.

3.4.4 Tool Tip Radius Compensation

Because the tool tip is rounded, only the precise turning tool length is measured. The tool tip radius is used to compensate for tool tip dimension errors.

• Operation Description:

1. Press the shortcut key [Tool Offset/Setting] to enter the tool tip radius wear compensation/compensation page, or on the "Machine Position" page, press
[Offset/Setting] to enter the tool tip radius wear compensation page, then press [Length Compensation] to switch to the tool tip radius compensation page.

2. Use the page-up/down keys (\approx , \approx) or arrow keys (\uparrow , \downarrow , \leftarrow , \rightarrow) to move the cursor to the position where you want to change the value.

- 3、There are three types of tool tip data:
- Tool Tip Radius: The radius of the tool tip.
- Tool Tip Radius Wear: Tool tip radius wear, where the actual tool tip size = Tool Tip Radius + Tool Tip Radius Wear.
- Tool Tip Direction: The tool tip direction, with eight directions to choose from, based on the shape of the tool tip (please refer to the "Yida Lathe Programming Manual" for more details on G41/G42). Use G41/G42 to activate the tool tip compensation.

3.5 Program Preparation and Execution

This section introduces how to specify the machining program for processing and how to conduct machining tests.

3.5.1 Specify Machining File

• Operating Conditions:

This applies to all modes except "MDI" mode.

• Operation Steps:

- 1、 pecify the current program being edited as the machining program.
- Switch to the "Program Edit" page.
- Click [Load Machining] to switch to the "Machining Monitoring" page.
- The program from the "Program Edit" page will be specified as the machining program.
- 2. Specify a program file from the "File Management" as the machining program.
- Switch to the "Program Selection" page.
- Move the cursor to the program you want to load for machining.

- Click [Load Machining] to switch to the "Machining Monitoring" page.
- The program from the "Program Selection" page will be specified as the machining program.

• Verification:

You can confirm whether the machining program has been successfully specified through the following:

- The program name displayed at the top of the screen.
- The program content displayed in the "Machining Monitoring" page.

3.5.2 Graphic Simulation

The system provides a convenient program content simulation function. After editing the program, it is easy to simulate the machining path of the program. This function also includes a program check feature that helps users quickly detect syntax errors or unreasonable actions in the machining program. It is recommended to check the program content using this function after editing.

• Operation Steps:

- 1. In the "Program Selection" page, choose the program to be edited.
- 2、After editing the program, click 【Graphic Simulation Display】->【Graphic Adjustment】
- -> [Static Tracing] on the "Machining Monitoring" page.
- 3、Scan the program content.

4. Once the scan is complete, the system will begin graphic simulation based on the program content, continuing until the entire program is simulated.

• Description

- 1. In the simulation graphic:
- Solid lines represent cutting paths.
- Dotted lines represent movement paths.

2. If there are any syntax errors or issues in the program during the scan, the system will trigger an alarm and display the error line number.

3.5.3 Test Machining

3.5.3.1 Program Prediction (MPG Simulation)

This section explains how to use the MPG simulation for machining tests.

• Operating Conditions:

Available in "MDI" and "Automatic Execution" modes.

• Operation Steps:

Execute the program machining.

Press the [Program Prediction] key on the control panel.

Turn the MPG to simulate machining.

Turn the MPG clockwise to execute the program from the current line to the next.

Turn the MPG counterclockwise to execute the program from the current line to the previous line. This feature is also known as "MPG Rewind.

• Verification:

- 1. You can confirm if handwheel simulation has been successfully enabled through the following:
- 2. The [Program Prediction] light on the auxiliary panel is on.
- During machining, once the handwheel simulation is activated, the machine immediately slows down to 0, until the handwheel is moved or the simulation is canceled.

3.5.3.2 Single Block Execution

This section explains how to use the single block mode to execute program machining.

• Operating Conditions:

Available in "MDI" and "Automatic Execution" modes.

• Operation Steps:

1、Execute the program machining.

Press the [Single Block Execution] key on the control panel.

After completing the current single block, the system will decelerate and stop at 0, entering the single block stop state.

Press the **[**Start **]** key to resume machining. After completing the next single block, the system will again enter the single block stop state.

3.5.4 Machining Monitoring

This section explains how to manage the workpiece count.

• Operating Conditions:

None.

• Description

1、Total Workpieces:

The total number of workpieces processed by the machine is accumulated.

2、Required Workpieces:

The required number of workpieces specified in a single machining program. When the program runs with M99 for continuous machining, the machine will pause when the specified workpiece count is reached, and a prompt will be issued indicating that the required workpiece count has been reached.

- 3、Workpiece Count:
- When the program runs with M99 for continuous machining, the workpiece count will keep accumulating.
- ↔ Workpiece count reset (cleared to 0) occurs under the following conditions:
 - ① The required workpiece count is reached.
 - 2 The machining program is switched.

③ The required workpiece count is modified, and the new required count is less than the current workpiece count.

④ M16 is executed.

3.6 System Alarm Handling

To avoid errors that could compromise personnel or machine safety, the system or PLC has been configured with numerous protective measures. When these protective conditions are triggered, the system will issue warnings or alarms to alert the user. This section explains how to check and resolve alarms when they occur.

3.6.1 Emergency Stop

When a machine malfunction or unexpected action occurs that could jeopardize personnel or machine safety, pressing the emergency stop button will immediately stop the machine's operation. Once the emergency stop button is pressed, it will be locked. While the specifications may vary depending on the manufacturer, usually rotating the button will unlock it. This button can interrupt the machine's operation, and the issue must be resolved before it can be unlocked.

3.6.2 Alarm Display

Alarms are divided into current alarms and historical alarms. The operation to view these alarms is described in section 1.8.8 "Alarms."

3.6.2.1 Current Alarms

- 1. The current alarm status of the system.
- 2. When an alarm occurs, the controller will pop up an alarm window displaying the alarm content.
- 3. Pressing the back button [《] will cancel the popup.
- 4. If the alarm has not been cleared, pressing 【Reset】 will pop up the alarm window again. Note that for some alarm types, pressing reset may clear the alarm.
- 5. Switching to the "Alarms" page will automatically display the current alarms.

3.6.2.2 Historical Alarms

- 1. Alarms that have occurred in the system previously can be reviewed to help identify potential causes at the time of the alarm.
- 2. Switching to the "Alarms" page and clicking "Historical Alarms" will display past alarms.
- 3. When multiple alarms appear, they will be listed in order of occurrence, with the most recent alarms listed at the top.

4.Permission Management

4.1 Parameter and System Protection

This is used to protect special system functions and operations, making them accessible only to authorized personnel with the correct password. This prevents accidental misuse of system functions that could lead to system malfunctions.

4.1.1 Password Login

G54 SYS	1: Enable	SY	S2: Disa	able	SYS	51 Mon	202	4.12.0	9 14	:53:3	3	User	•
Absolut > 1X > 1Y > 1Z > 1A > 1B > 1C	e 0.000 315.000 0.000 0.000 0.000	Fol	low Erro	0.00 0.00 0.00 0.00 0.00 0.00	00 00 00 00 00	Time/Pie 0: 0: 0 Time/Acu. 0: 0: 7:282 Process Param F 0 mm/min							
F mm/m 0. 1	in .000(Order) .000(Real.) (Sp Sp Sp	Cur Leve Permissi Passwo Exit (L ion: [ord: [(F1)	ogi oj Fac	in perator tory	ogin (F 2)	Acu/ Acu/	/Plan /Warn		0	
	Ready	2	Standby	Ala	rm			Read	dy	Stan	dby	Alar	۲m
Inp 8						Tip							
<< SYS1	Mon SYS2 M	lon	Program Edit	Simula	tion	MDI Inj	put P	rocessing	Re	estart	Grap	hic	>>
G54 SYS	1: Enable	SY	S2: Disa	able	Aut	hority	202	4.12.0	9 14	:50:2	9	User	
	Cur Permis Use	Lev ssio	Pel: n Selec	erm o ct: S F O rd:	iss pe: Sys Sac pe:	ion lo rator Admin Admin toryAo rator	ogir	۲ •					
	Ready		Standby	Ala	rm			Pop	dv.	Stan	dby	A1-r	m
<u>}</u>	ILC G G G		Scanuby	ALG				Real	A Y	Juan	uby	ALG	the second se
Inp	neuuj	_	Scanuby	AId	_	Tip		Real	. y	Juli	uby	AIdi	_

• Operation Path

1 、 Path 1: "Machine Position" page \rightarrow F8 [Parameter Settings] \rightarrow Enter values in the setting field, the system will automatically check the current parameter permissions and pop up the permission interface \rightarrow F1 [Login].

Path 2: "Machine Position" page \rightarrow F5 [Maintenance] \rightarrow F8 [Permission Management] \rightarrow

F1 [Permission Access Interface].

• Description

This function is used to enter the password to obtain operation permissions.

• Operation Description

- 1. Use the system panel's numeric keypad to enter the password.
- Use the [∧][∨] keys to move to the "Permission Selection" and press the [Enter] key to confirm the operation permissions.

Note

If the password is entered incorrectly, the system will display the message "Login failed!!! Incorrect password."

4.1.2 Password Modification

G54 SY	S1: Enable SY	'S2: Disab	1e Aut	hority	2024.1	2.09	14:55:0	3	User	•
		P						1		
		Pas	swor	d Cha	inge					
	Cur Lev	/el:	ope	rator						
	Permissio	n Select	: Sys	Admin		•				
	Old P	assword	:							
	New p	assword	:							
	ew passwo	rd again	:							
					_					
0. 	Ready	Standby	Alarm		F	Ready	Stan	dby	Ala	rm
Inp	ar ar			Tip		1				
<< Perm	et Change ission Password				Log	în	Confirm		laut	
				5-01						

• Operation Path

"Machine Position" page \rightarrow F5 [Maintenance] \rightarrow F8 [Permission Management] \rightarrow F2 [Password Modification Interface].

• Description

This function is used to modify the permission password.

• Operation Description

- Use the system panel's numeric keypad to enter the original password and the new password.
- 2. Press F7 [Confirm Modify Password] to confirm the password change.

• Note

The original password and the new password cannot be the same. If they are, the system will display the message "The new password cannot be the same as the original password."

4.1.2.1 Move Down

• Operation Path

"Password Modification Interface" page \rightarrow Press [\lor] key.

Description

Used to switch the input field and move the focus down.

4.1.2.2 Move Up

• Operation Path

"Password Modification Interface" page \rightarrow Press [\land] key.

• Description

Used to switch the input field and move the focus up.

4.1.2.3 Confirm Password Modification

• Operation Path

"Password Modification Interface" page → F7 [Confirm Modify Password]..

• Description

Confirms the password modification.

5. Appendix

5.1 Software Upgrade/Backup Operation Steps

5.1.1 Software Upgrade Steps

Step 1: Transfer the update package to the USB drive and insert the USB drive into the

CNC. Wait for the system to display the update interface.

	Update management. (Ver:1.6.0.2022/11/01)										
Path: USB - File:20230214_	17-18-53 axBin	kage path	Status :								
Na	ame	Size Date									
20230214_17-18-53.axBin		4.6M 2023/05/25 08	08:29:04								
20230222_12-19-35.axBin	②Select Update B	ankages/of/2508	®₂₄t₃₀axBin)								
20230512_14-06-01.axBin	4	7.0M 2023/05/12 06:	6:08:32								
20230512_15-06-04.axBin	5	9.5M 2023/05/12 07:	7:09:23								
20230512_15-45-16.axBin	4	7.0M 2023/05/12 07:	7:49:48								
20230602_10-21-10.axBin	3	8.5M 2023/06/02 10:	0:28:35								
20230616_15-52-22.axBin	2	8.2M 2023/06/16 15:	5:57:29								
20230628_08-32-55.axBin	3	9.9M 2023/06/28 08:	8:38:34								
20230703_20-30-56.axBin	3	.3M 2023/07/03 20:	0:40:44								
20230707_20-13-00.axBin	3	.3M 2023/07/07 20:	0:14:23								
20230712_15-41-00.axBin	3	.2M 2023/07/12 15:	5:45:03								
20230821_10-32-11.axBin	5	9.5M 2023/08/21 11:	1:29:16								
20230822_18-01-14.axBin	4	.3M 2023/08/22 18:	8:03:34								
20230824_10-20-57.axBin	0	.3G 2023/08/24 02:	2:27:31								
20230911_17-12-14.axBin	3	.5M 2023/09/11 17:	7:13:40								
20230927_19-06-06.axBin	3	.6M 2023/09/27 19:	9:07:38								
20250522_10-25-59.axBin	0	.1G 2025/05/22 10:	0:37:15								
20250606_09-56-03.axBin	0	.1G 2025/06/06 10:	0:07:18								
	③Confirm Update										
Prev. Next	Upgrade Backup Dele	ete Switching Path	Open log file. Cancel								

Step 2: During the update process.		
		10

	_	ι	Jpdate mana	gement. (Ver	:1.6.0.2022/	(11/01)	- 0 ×
Path: FTP 👻	File:打包.axBin						Status :
	N	ame		Size	Date		Update operation will take a few minutes.
打包.axBin		Wai	t for t	о.6к the pr	2023/10/14 1 OCESS	: to	1/8 : Clean tmp path. (1) Waiting for cleaning (2) Clean tmp, path is done. 2/8 : Copy 打包.axBin to tmp, path (1) Waiting for copying (2) Copy 打包.axBin files to tmp. path is done. 3/8 : Decode 打包.axBin (1) Waiting for decoding reach 100%
				3	0%		V V V
Prev.	Next	Upgrade	Backup	Delete S	witching Path	Open log	g file. Cancel

Step 3: After the update is complete: When the update progress reaches 100%, the message "Please restart the system!" will appear. After restarting the system, the update

will be finished.

<u> </u>		ġ	/11/01)			- 0	×				
Path: FTP	- File:打包.axBin						Status :				
	1	Name	Size Date 3/8: Decode 打包.axBin (1) Waiting for decodin (2) Decode 打包.axBin ii 4/8: Copy 打包.axBin files (1) Waiting for copying (2) Copy 打包.axBin to v finished.				「包.axBin or decoding 」包.axBin is done. .axBin files to work or copying J.axBin to work path	path. is	4		
		0		Wa	rning		5/8 : Clean tmp. path. (1) Waiting for cleaning aning tmp. path is done!. environment iting for setting vironment setting is done. tate kernel				
				Please Rest	Cancel	er! I(F8)	date kernel. iting for kernel updating rnel update is done. 's synchronization. iting for synchronizing es synchronization is done! g0% g10%				
							Updating209 Updating309 Updating(syncl Updating809 Updating909 Updating100	% % hronizing)40% % %		-1	
					100%						
P	rev. Next	Upgrade	Backup	Delete	Switching Path	Open log	file. Cancel				

5.1.2 Software Backup Steps

Step 1: Click the "Backup" button to enter the backup interface.

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0	Backup Manager - O ×											
Na	me	Size			Correct the	date.	N	lote:				
- 🗋 20230928	_16-48-24.axBin	40.382 MB	2023-09-28					Name:				
- 🖹 20230928	_16-52-56.axBin	2.895 MB	2023-09-28					20231018_09-44-05.axBin Option:				
- 🗋 20231014	_16-50-13.axBin	3.092 MB	2023-10-14					Noto				
20231018	_09-44-05.axBin	0.000 MB	2023-10-18					Note:				
Click 'Add' to select the required backup file												
Previous	Next	Add D	elete Del	lete all	Edit notes	Copy To Usb disk	Cance	H				
		F										

0		Backup M	anager	Backup Manager								
Name	Path	Status			Information:							
- 🕑 System	/system	8			Start backup							
🕂 🗹 нмі	/usr/hmi	8			(1)Waiting for finishing							
🖶 🕝 Common Chan	/usr/sys0000	•			(2)Clean tmp. path is done!							
🗄 🗹 Channel 1	/usr/sys0001				(1)Wait for collecting							
	Select the required information and click on the 'Backup' button Wait for the process to reach 100%											
			40%									
Previous Ne	ext Unfold	Select Default vi	ew Backup	Unselect all	Return							

Step 2: Select the backup file and perform the backup operation.

Step 3: After the backup is complete, a new data file will be generated.

0	Backup Manager									
Name	Size		Correct the	date.	Note:					
- 🗋 20230928_16-48-24.axBin	40.382 MB	2023-09-28			Name:					
- 🗎 20230928_16-52-56.axBin	2.895 MB	2023-09-28			Option:					
20231014_16-50-13.axBin	20231014_16-50-13.axBin 3.092 MB 2023-10-14									
Generate	a new ackup	backup f	ile after	the	1.2HMI 1.2HMI parameter 2.0Common User variable 2.1Common Mcm variable 2.3Common Sys variable 2.3Common BUS variable 2.4Common BUS variable 2.7Config files 2.8History alarm 2.9User key 2.10operating record 3.0User variable 3.1Mcm variable 3.3Reg variable 3.3Reg variable 3.3FLC 3.6LAD 3.7Custom macro 3.8alarm 3.9User program Note:					
Previous Next	Add D	elete Delete a	Edit notes	Copy To Usb disk	Cancel					

6.Lathe Wiring Description

6.1 System Installation Environmental Requirements

The B-series controller must be installed and used within the following environmental conditions. Using the controller outside these parameters may result in abnormal operation

	Operating	0℃ to 45℃
Surrounding	Temperature	
Environment	Storage or	-20℃ to 55℃
al	Transportati	
Conditions	on	
	Temperature	NL
	Normal	Relative humidity less than 80% RH
Humidity	Conditions	er-cn ^{c.}
	Short-term	Maximum 95% RH
	Conditions	27 77
Vibration	During	Maximum of 0.075 mm at 5 Hz frequency
Limits	Operation	
Naiaa	During	Maximum voltage pulse of 2000V/0.1 x 10^-6 seconds
NOISE	Operation	every 0.01 seconds
Temperature	Rate of	Maximum 1.1°C per minute
Change		cn ^{c.co}
Other		For environments with dust, cutting fluid, and organic
		solvents, please contact the manufacturer.

6.2 Controller Box Design Considerations

- The controller and auxiliary panel boxes must be sealed, preventing dust from entering.
- The internal temperature of the box should not exceed the surrounding environmental temperature by more than 10°C.
- The cable entry and exit points must be sealed.
- To avoid noise interference, the distance between cables, each unit, and AC power sources should be at least 100mm. If there are magnetic fields, the distance must be at least 500mm.
- For servo driver installation, refer to the servo operation manual.

6.3 Internal Temperature Design of the Box

- The internal temperature of the box should not rise more than 10°C above the surrounding environment temperature. When designing the box, the primary factors to consider are heat sources and heat dissipation area. While customers may have limited control over heat sources, the heat dissipation area is an important factor. The allowable temperature rise inside the box can be estimated using the following formula
- With cooling fan: Allowable temperature rise = 1°C per 6W per 1m²
- Without cooling fan: Allowable temperature rise = 1°C per 4W per 1m²
- The rise refers to the internal temperature increase when the box has a heat source of 6W (with cooling fan) or 4W (without cooling fan) and a heat dissipation area of 1m².
- Example 1 (with cooling fan):
- Heat dissipation area = 2m².
- Allowable internal temperature rise = 10°C.
- Maximum allowable heat source = 6W × 2 × 10 = 120W.

- If the heat source inside the box exceeds 120W, additional cooling devices, such as cooling fins, must be added.
- Example 2 (without cooling fan):
- Heat dissipation area = 2m².
- Allowable internal temperature rise = 10°C.
- ✤ Maximum allowable heat source = 4W × 2 × 10 = 80W.
- If the heat source inside the box exceeds 80W, additional cooling devices, such as fans or cooling fins, must be added.

6.4System Wiring



6.5 MPG Wiring

6.5.1 Standard MPG Wiring



6.5.2 6-Axis Multifunctional MPG Wiring





Note: Verify if the multifunctional MPG COM common terminal is powered by 24V.

6.5.3 8-Axis Multifunctional MPG Wiring



1	A1	⊖ A (Yellow)
2	B1	B (White)
8	GND-CN	0V (Black)
9	VCC-CN	5V (Red)
19	1456	Axis selection 1 (Brown)
20	1457	Axis selection 2 (Orange)
21	1458	Axis selection 4 (Light Blue)
22	1459	Axis selection 8(Blue)
23	1460	Magnification 1 (Green/Black)
24	1461	Magnification 12 (Blue/Black)
25	24V	L+(Transparent)
26		COM(Purple)
20	GNDX-CN	L-(Light Purple)



6.5.4 Operation Method Port Pin Definition Diagram



	Operation Method											
			FIN	G. fine	jer-ch	(• 9 • 18 • 26			
PIN	1	2	3	4	5	6	7	8	9			
Defini tion	A1	B1	A2	B2	G31-I O		GND		5V			
PIN	10	11	12	13	14	15	16	17	18			
Defini tion	+12V	-12V	DAC1	DAC2	ADC1	ADC2	G31-I 1	CAN D+	CAN D-			
PIN	19	20	21	22	23	24	25	26				
Defini tion	1456	1457	1458	1459	1460	I461	24V	GND- CN				
		* Pins (* Pin 20	6/7/8 GNI 6 GND-C	D are gro N is grou	ounded founded fo	or 5V/AD r l-point/	C/DAC G31					
L						NC	l.					

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6.6 Interface Definition

P1-P6 Servo Axial										
PIN	9	8	7	6	5	4	3	2	1	
Defini tion	5V	GND	VCM D	Z-	Z+	A-	A+	В-	B+	
PIN	18	17	16	15	14	13	12	11	10	
Defini tion	OUT-*	IN-*	1	2					ADC	
PIN	26	25	24	23	22	21	20	19		
Defini	24VG	241/	OUT-*	INL*	CCW-	CCW	CW-	CW+		
tion	ND	240	001-	111-		+	000-			
	* Pin 8 GND is grounded for 5V/VCMD/ADC									
* Pin 7 VCMD is for a -10V to +10V analog signal										
WWW.fires										

• Opera	Operation Method									
PIN	1	2	3	4	5	6	7	8	9	
Definitio n	A1	B1	A2	B2	G31-I O	NC	GND		5V	
PIN	10	11	12	13	14	15	16	17	18	
Definitio	+12\/	-12\/	DAC	DAC2	ADC1	ADC2	G31-I	CAN	CAN	
n	. 12 V	12 V	1	DAGE	1.001	ND02	1	D+	D-	
PIN	19	20	21	22	23	24	25	26		
Definitio	1456	1457	1458	1459	I460	l461	24V	24VG		

n								ND		
* Pins 6/7/8 GND are grounded for 5V/ADC/DAC										
* Pin 26 24VGND-CN is grounded for I-point/G31										

• Spir	• Spindle voltage command control - paired with the frequency inverter										
PIN	9	8	7	6	5	4	3	2	1		
Defini tion	5V	GND	VCM D	Z-	Z+	A-	A+	B-	В+		
PIN	18	17	16	15	14	13	12	11	10		
Defini	Rever										
tion	se										
PIN	26	25	24	23	22	21	20	19			
Defini	24VG	2417	Forwa	Alorm	Cho						
tion	tion ND rd Alarm										
* Pin 8 GND is grounded for 5V/VCMD/ADC											
* Pin 7 VCMD is for a 0V to +10V analog signal											

• S	• Spindle voltage command control - paired with the servo driver									
PIN	9	8	7	6	5		3	2	1	
Defini tion	5V	GND	VCM D	Z-11	Z+	A-	A+	B-	B+	
PIN	18	17	16	15	14	13	12	11	10	
Defini										
tion										

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PIN	26	25	24	23	22	21	20	19		
Defini		24V	SVO	ALM						
tion			_							
*Pin 8 GND is grounded for 5V/VCMD/ADC										
	*Pin 7: VCMD for analog signal in the range of -10V to 10V									
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 Spir mot 	Spindle pulse command control - paired with the servo driver - asynchronous motor										
PIN	9	8	7	6	5	4	3	2	1		
Defini		GN		7.	7+	Δ.	Δ+	B	R+		
tion		D		2-	21	A -		0-	Ъ		
PIN	18	17	16	15	14	13	12	11	10		
	Positi			N.finge	5						
Defini	on		W	412							
tion	contro										
	I										
PIN	26	25	24	23	22	21	20	19			
Defini	24VG	24	Speed	Alorm	сс	ccw	CW	CW/+			
tion ND V control W- +											
* Pin 8 GND is grounded for 5V/VCMD/ADC											

• Spindle pulse command control - paired with the servo driver - servo motor									
PIN	9	8	7	6	5	4	3	2	1
Defini tion		GND		Z-	Z+	A-	A+	В-	B+
PIN	18	17	16	15	14	13	12	11	10
Defini tion			3	WW.FIC	9				
PIN	26	25	24	23	22	21	20	19	
Defini	24VG	24V	Enabl	Alarm	CCW-	CCW	CW-	CW+	

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tion	ND		е			+				
	* Pin 8 GND is grounded for 5V/VCMD/ADC									

注 Note:

The pin definitions for each servo axis are the same except for the IO points. The pins marked with a "*" in the above table represent IO points. Pin 8 is for 5V power ground, voltage command ground, etc.; Pin 26 is for interface IO and 24V GND. It is prohibited to connect the GND pins (Pin 8 and Pin 26) together.

Pin position	P1	P2	P3	P4	P5	P6
23	1384	1386	1388	1390	1392	1394
17	1385	1387	1389	1391	1393	1395
24	O384	O386	O388	O390	O392	O394
18	O385	O387	O389	O391	O393	O395

The IO point definitions for each axis are as follows::

6.7 IO Board Wiring

6.7.1 Wiring Diagram



6.7.2 I/O Points Function Definition

	I Points Definition		O Points Definition
10	Emergency Stop	00	Cutting Fluid
11	Foot Switch	01	Lubricating Oil
12	External Start	02	Collet Loosen
13	External Pause	O3	Collet Tighten
14	Oil Injection Machine Abnormality	O4	Lighting
15	Hydraulic Abnormality	O5	Red Light
16	Insufficient Lubrication Pressure	O6	Green Light
17	X-Axis Home Position	07	Yellow Light
18	X-Axis Positive Limit	O8	Hydraulic Station Start
19	X-Axis Negative Limit	09	Spindle Brake Tighten
110	Y-Axis Home Position	O10	X-Axis Brake
111	Y-Axis Positive Limit	011	Y-Axis Brake
l12	Y-Axis Negative Limit	O12	Spindle Torque Reduction
I13	Z-Axis Home Position	O13	Blow Air On
114	Z-Axis Positive Limit	O14	Z-Axis Brake
I15	Z-Axis Negative Limit	O15	Spindle Stop Positioning
I16	Cutting Fluid Abnormality (Reserved)	O16	Spindle Brake Loosen
117	Reserved	017	Reserved
I18	Reserved	O18	Tailstock Advance
119	Safety Door Signal	O19	Tailstock Buffering
120	Feeding Machine Feeds to Position	O20	Tailstock Retreat
121	Feeding Machine Shortage	O21	Reserved
122	Feeding Machine Alarm	O22	Part Catcher Extend
123	Spindle Home Position Signal 1	O23	Safety Door Closed
124	Spindle Home Position Signal 2	O24	Safety Door Open

125	Tailstock Advance Knob	O25	Chuck 2 Tightened
126	Tailstock Retreat Knob	O26	Chuck 2 Released
107	Spindle Brake/Chuck Tightened	027	Ecoding Machina Start
127	Position Signal	027	
128	Spindle Brake Release Position Signal	O28	Reserved
120	Feeding Machine Material Change	020	Deserved
129	Completed	029	Reserved
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6.8 Spindle Control Wiring

Note: The following spindle control wiring methods are all PNP.

6.8.1 Voltage Command Type

A. With Inverter

Voltage Command Control - Open-Loop Wiring:



Note: For detailed pin definitions of the driver, please refer to the corresponding driver manual. The system axis connector is a 26-pin female header, so the spindle wiring plug must be a 26-pin male header.

B. With Servo Driver

Spindle Voltage Command Control:



Note: For detailed pin definitions of the driver, please refer to the corresponding driver manual. The system axis connector is a 26-pin female header, so the spindle wiring plug must be a 26-pin male header.

6.8.2 Pulse Command Type

A. With Servo Driver - Asynchronous Motor (e.g., Ultra-Synchronous Spindle)

Spindle (servo) position mode and speed mode wiring:



Note: For detailed pin definitions of the driver, please refer to the corresponding driver manual. The system axis connector is a 26-pin female header, so the spindle wiring plug must be a 26-pin male header.

B. With Servo Driver - Servo Motor (e.g., Yaskawa Spindle)

Spindle (servo) pulse command control:



Note: For detailed pin definitions of the driver, please refer to the corresponding driver manual. The system axis connector is a 26-pin female header, so the spindle wiring plug must be a 26-pin male header.

6.9 The wiring diagram for the drive motor brake.



6.9.1 I7 Drive brake wiring

Note: The parameters PA50F for Axis A and PB50F for Axis B in the I7 dual-axis driver cannot be set to the same value, otherwise, the brake output signal will be invalid.

6.10 Wiring Precautions

- Wiring Terminals: When wiring the machine, ensure that the wire ends are properly terminated or soldered.
- Wiring Accuracy: If non-standard servo cables (not Yida standard) are used, make sure to measure the correctness of all connection pins before powering up. Incorrect wiring can lead to abnormal controller command outputs and potentially cause controller malfunction.

- External 24V DC Power Supply: For the external 24V DC power supply used in wiring, make sure it has safety certifications and protective functions to avoid faults caused by wiring errors. (Recommended specifications: must meet EN60950 & UL1950 requirements).
- MECHATROLINK-III: If using the MECHATROLINK-III function, to ensure smooth network communication and avoid noise interference, it is recommended to use network cables of CAT5e or CAT6 specifications.
- Grounding Wire Description:

A. The size of the grounding wire should follow the technical standards of electrical equipment. The shorter the grounding wire, the better.

B. The controller's grounding wire should not share the same ground as high current loads such as welding machines or high-power motors. They must be grounded separately to avoid interference or damage to the system.

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