

**LNC woodworking Series**

**Version : V1.1**

**MW Woodworking Machinery**

**MW Woodworking Machine System Operation Manual**

***Enable Intelligent Machine***



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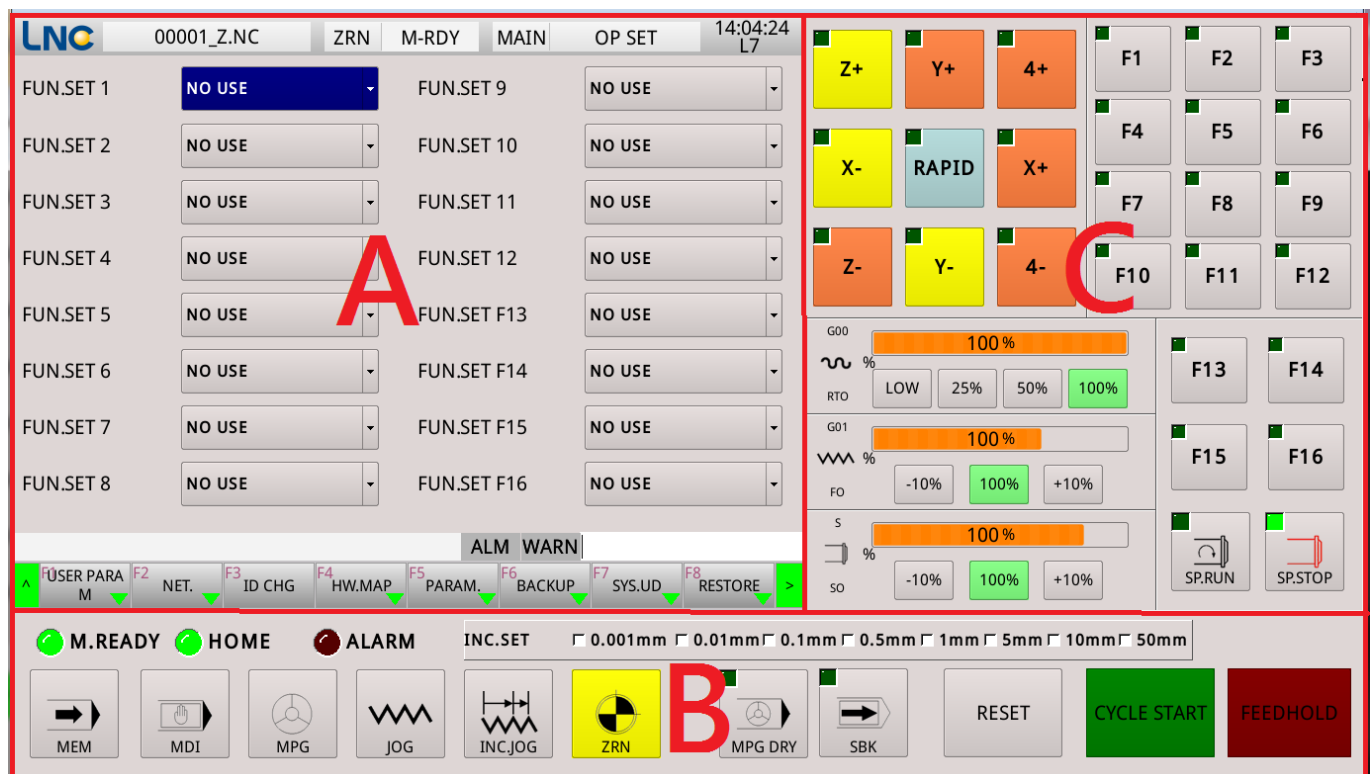
# 1. Operation Panel

At present, the woodworking machine system is divided into four major systems: MW2200, MW2800, MW2900 and MW5800. Among them, MW2800 and MW2900 are the same series. Therefore, they are only divided into three series actually, and each series has some differences with others. The following is the introduction of each series.

## 1.1. MW2200 Series

The MW2200 screen is shown in the figure below and is divided into three major areas. The instructions for each area are as follows:

- **A** : Main screen area      Please refer to 1.1.1. MW2800 is similar or identical to this part of MW5800.
- **B** : Mode area              Please refer to 1.1.2, and this part is the exclusive screen of MW2200.
- **C** : Operating area        Please refer to 1.1.3, and this part is the exclusive screen of MW2200.



## 1.1.1. Main screen area

LNC		00001_Z.NC	ZRN	M-RDY	MON	MON.INFO	14:20:51 L7
ABSOLUTE		MACHINE		T1			
X	-593.000	X	0.000	G04P200			
Y	-292.000	Y	0.000	M03S18000			
Z	76.328	Z	0.000	G00 Z25.00 F10000			
C	0.000	C	0.000	G00 X239.50 Y109.50 F55000			
		DIST TO GO		G01 X209.50 Y109.50 Z-0.10 F6000			
				G01 X189.50 Y109.50 F8000			
				G01 X189.50 Y3.50 F8000			
				G01 X395.50 Y3.50 F8000			
				G01 X395.50 Y109.50 F8000			
				G01 X239.50 Y109.50 F12000			
				G01 X189.50 Y109.50 F4000			
				G00 Z25.00 F10000			
				G00 X612.50 Y109.50 F55000			
				G01 X582.50 Y109.50 Z-0.10 F6000			
				G01 X562.50 Y109.50 F8000			
				G01 X562.50 Y3.50 F8000			
				G01 X748.50 Y3.50 F8000			
				G01 X748.50 Y109.50 F8000			
				G01 X612.50 Y109.50 F12000			
				G01 X562.50 Y109.50 F4000			
CNT.NOW	1521	RUN	00:00:00				
CNT.MAX	0	ALL RUN	0 D 07:10:02				
F	0	F	500.0000				
SP.SPEED	0	S	0				
FO	100%	SP.T.NO.	0				
RTO	100%	STBY.T.NO	0				
SO	0%						
				LN 1			
				SBK	MLK	MST	BDT
				OPS	DRN	F0	
R21001::				ALM WARN			
F1	F2	F3	F4	F5	F6	F7	F8
COORD	SET CNT	FILE	USB DISK IM	MDI	GRAPH	SCAN OPEN	PROG.RST
			P				

The main screen area is mainly divided into three parts, as explained below:

- **Caption:** display the currently selected processing file, system mode, system status, selected page, time, and user level.

LNC	00001_Z.NC	ZRN	M-RDY	MON	MON.INFO	14:20:51 L7
-----	------------	-----	-------	-----	----------	----------------

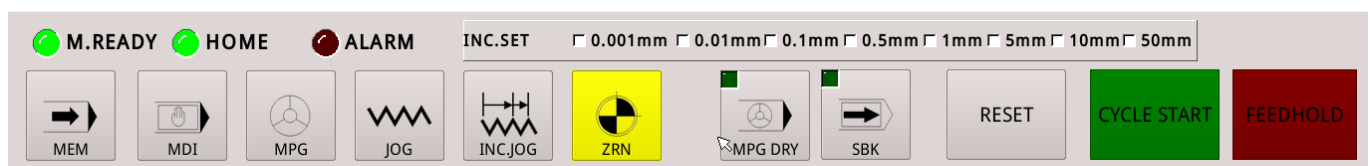
- **Page:** : display the content information of the currently selected page, which will have different content as the selection of different pages.

ABSOLUTE		MACHINE		T1
X	-593.000	X	0.000	G04P200
		Y	0.000	M03S18000
Y	-292.000	Z	0.000	G00 Z25.00 F10000
		C	0.000	G00 X239.50 Y109.50 F55000
Z	76.328		0.000	G01 X209.50 Y109.50 Z-0.10 F6000
			0.000	G01 X189.50 Y109.50 F8000
C	0.000		0.000	G01 X189.50 Y3.50 F8000
			0.000	G01 X395.50 Y3.50 F8000
			0.000	G01 X395.50 Y109.50 F8000
			0.000	G01 X239.50 Y109.50 F12000
			0.000	G01 X189.50 Y109.50 F4000
			0.000	G00 Z25.00 F10000
			0.000	G00 X612.50 Y109.50 F55000
			0.000	G01 X582.50 Y109.50 Z-0.10 F6000
			0.000	G01 X562.50 Y109.50 F8000
CNT.NOW	1521	RUN	00:00:00	G01 X562.50 Y3.50 F8000
CNT.MAX	0	ALL RUN	0 D 07:10:02	G01 X748.50 Y3.50 F8000
F	0	F	500.0000	G01 X748.50 Y109.50 F8000
SP.SPEED	0	S	0	G01 X612.50 Y109.50 F12000
FO	100%	SP.T.NO.	0	G01 X562.50 Y109.50 F4000
RTO	100%	STBY.T.NO	0	LN
SO	0%			1
				SBK MLK MST BDT OPS DRN F0
R21001::				ALM WARN

- **Button menu:** : available for page switching and function selection. The left ^ (up arrow) represents the previous menu; the right > (right arrow) represents the next menu.



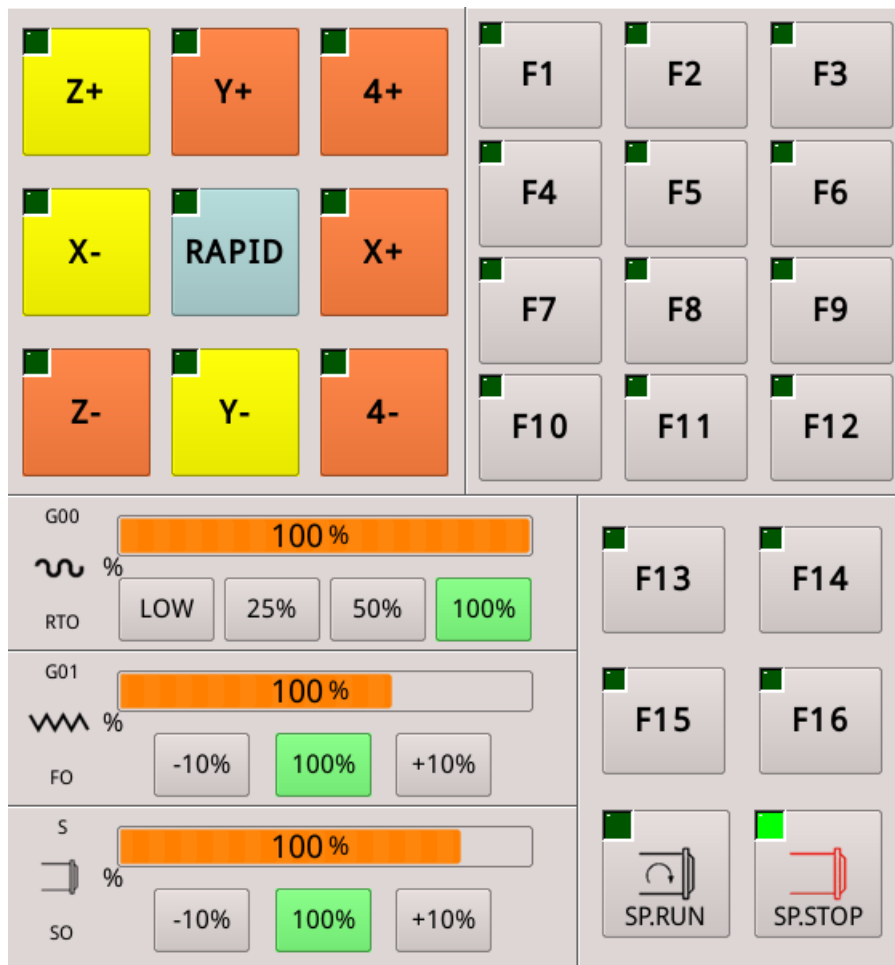
### 1.1.2. Mode area



The mode area is divided into 5 parts

- **Lamp signal:** There are three lamp signals, which are the system preparation completion, the ZRN completion and the system alarm.
- **Incremental inch setting:** For the incremental inch function, eight different length settings are provided, and the system mode is automatically switched to the incremental inch mode after setting.
- **Mode switching:** Six modes are available: auto, MDI, handwheel, inch, incremental Inch and origin.
- **Processing accessibility:** Two functions are available, namely handwheel simulation and single section execution.
- **Operation button:** Three operation buttons are provided, which are system reset, starting of processing, and program pause.

### 1.1.3. Operating area



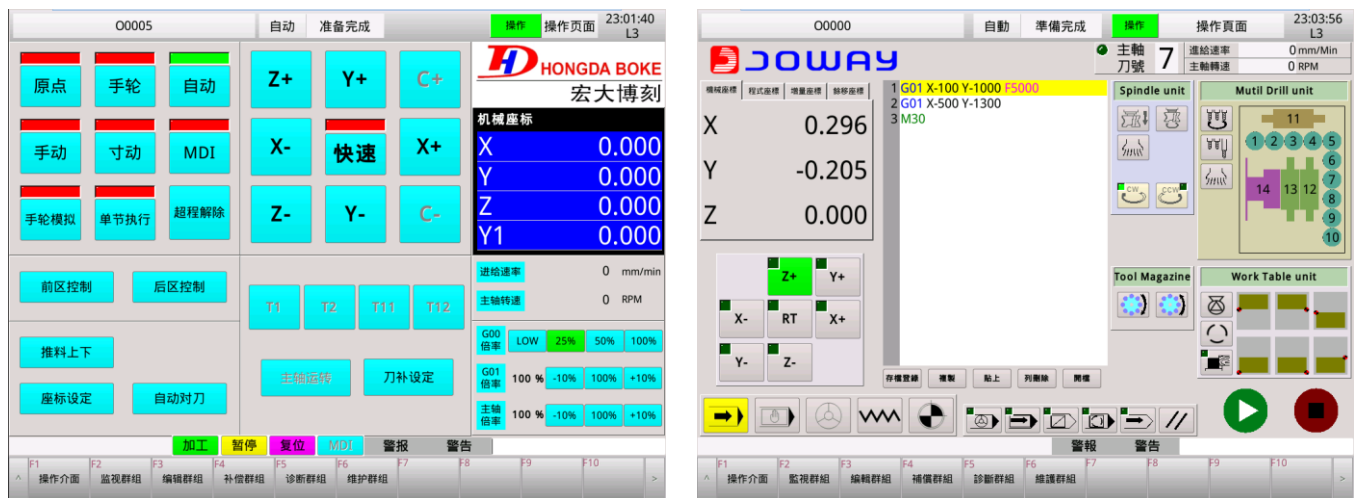
Operating area is divided into four parts

- **Arrow buttons:** Provides selection buttons for each axial movement during manual operation (inching/incremental inching). The selection button of the rapid positioning (RAPID) mode is in the middle. When clicking in the inching mode, it becomes the fast forward mode, and then return to the inching mode when clicking again.
- **Override adjustment:** Provides three override adjustment modes of fast forward override, feedrate override and spindle override.
- **Selectable function buttons:** F1-F12 is a customized operation menu, which can be selected according to the actual machine configuration.
  - Select the path set: Maintenance Group > Next Page > Item Setting
- **Fixed function buttons:** Six fixed function buttons are provided, namely vacuum pump, positioning, tool changer forward rotation, tool changer reversal, spindle startup and spindle stop.

## 1.2. MW2800 / MW2900 Series

The MW2800 / MW2900 series is a model that provides a customized operation interface for the machinery factories, so it will have one more operation interface than other models; the following figure

shows different operation screens designed for the needs of various manufacturers:



Since there will be one more page of operation screen developed by the mechanical manufacturer, there will be a button for the operation interface in the button menu part of the bottom, which is convenient for the user to switch back to the main operation screen quickly.

The other operating parts are basically similar to the MW2200, which are operated by a keyboard and mouse. The only difference is that the MW2800 series does not have a software operation panel resident on the screen.

### 1.3. MW5800 Series

The MW5800 series is a model with standard screen. The appearance and screen of the system are as follows. It is identical to the main screen area of the MW2200. Also the button positions for all functions are the same.





## 2. Group Description

The system is divided into five groups, which are monitoring group, editing group, compensation group, diagnosis group and maintenance group, which are described as follows:

### 2.1. Monitoring Group

This group is mainly used to monitor the machining information, motor load, program restart, MDI program input, machining settings of the machine and execution status of the machining program. All buttons in this group are listed as follows:

- **Switch coordinates**: Switch the displayed coordinates, which are displayed as program coordinates → relative coordinates → machine coordinates → residual movements, and repeat the cycle.
- **Machining setting**: Provides machining time accumulation clearing, machining parts accumulation clearing, setting the current machining workpieces and setting the maximum machining workpieces.
- **Open old files**: Open the machining program existing in the system for editing and processing, which is the same as the opened files in the edit mode.
- **U-disk import**: The processing program is imported into the system through the U-disk, which is the same as the U-disk import in the edit mode.
- **MDI**: Opens the simple programming interface of MDI mode.
- **Graph**: Displays a graphical preview of the current machining program.
- **Scan code to open files**: Display the input box to open files by of scanning code. For detailed instructions, please refer to 3.1.
- **Program restart**: Open the setting interface of the breakpoint restart of the machining program. For detailed instructions, please refer to 3.2.
- **Variables**: Displays the current values of # variables and @ variables used in the machining program.
- **Processing information**: Display the current system G code status, MST code status and the cutter compensation and cutter number in use.
- **Load**: Displays the current motor load status. This function is limited to bus drives.

### 2.2. Edit Group

This group is mainly used for machining program editing, macro program editing, processing program file management and machining program preview. All buttons in this group are listed below:

- **Open old files**: Open the machining program existing in the system for editing and processing.
- **Archive**: Save the modified machining program.
- **Graphics**: A graphical preview of the machining program.
- **Editing**: Perform editing actions related to the machining program, such as copying, pasting, replacing, etc.
- **File management**: Import and export of machining programs. Please refer to 3.3 for detailed

instructions.

- **Sorting processing:** Provides the user to process the machining program after scheduling. For detailed instructions, please refer to 3.4.
- **Graphic setting:** Set the relevant parameters when the program graphics are previewed.
- **Manufacturer Macro:** Edit the macros used inside the system.  
※This button needs to be switched to level 5 to appear.
- **Open new files:** Open a new processing program on the system for users to write.

## 2.3. Compensation Group

This group is mainly used for coordinate system setting, tool compensation setting, automatic tool setting, centering function and tool changer setting. All buttons in this group are listed below:

- **Tool management:** Set the tool length compensation and wear compensation, that is, set the tool compensation table.
- **Teaching input:** Set the mechanical coordinate of the corresponding axis into the selected coordinate system.
- **Relative Clearing:** Clear relative coordinates.
- **Centering function:** Set the origin position of the system coordinate system by finding the optical edge of the workpiece.
- **Automatic tool setting:** Automatic tool setting function is performed according to the parameters set on the page. For detailed instructions, please refer to 3.5.
- **Gang tool setting:** Set the relevant parameters for the gang tool changer. For detailed instructions, please refer to 3.6.1.
- **Bamboo hat type type tool magazine:** Set the relevant parameters for the bamboo hat type type tool magazine. For detailed instructions, please refer to 3.6.2.
- **Drilling setting:** Set the offset of the drilling tool magazine. For detailed instructions, please refer to 3.6.3.

## 2.4. Diagnosis Group

This group is mainly used to view system warnings, alarms, PLC ladder diagrams, IO point status, system information and operation history. All buttons in this group are listed below:

- **Alarm:** Displays the current alarm status of the system.
- **Warning:** Displays the current warning status of the system.
- **Ladder Diagram:** Displays PLC ladder diagram that is currently running of the system.
- **IOCSA:** Displays the status of each point of I, O, C, S, and A used in the PLC of current system.
- **Timer and counter:** Displays the status of the timer and counter used internally by the system PLC.
- **System Information:** Display internal current information about the system. Currently, it provides mechanical coordinates, encoder values, servo error values, origin grille quantity, system final output commands and handwheel encoder values.

- **Alarm history:** Displays the alarm process that has occurred in the system.
- **Operation history:** Display the relevant operation process of the user's operating system.

## 2.5. Maintenance Group

This group is mainly used to set system parameters, system backup, system upgrade, IO point setting, network setting, language setting and quick restore. All buttons in this group are listed below:

- **User parameters:** Set the relevant parameters of the PLC writing function. For detailed instructions, please refer to 5.1.
- **Network setting:** Set the IP related information for the system to connect with external devices.
- **Identity change:** User level change, the password of level 3 defaults to 7777.
- **Hardware Contact:** Set the corresponding address of the system and I/O board card and display the current I/O usage status.  
※This button needs to be switched to level 5 to appear.
- **Parameters:** Set the system built-in standard parameters, such as: processing effect debugging, hardware usage, axial motion function, etc., please refer to 5.2 for detailed instructions.
- **Backup:** Perform system data backup operation. For details, please refer to 3.7.
- **System update:** Perform system software version update operation. For details, please refer to 3.8.
- **Quick Restore:** Perform quick backup and quick restore of system data. For detailed instructions, please refer to 3.9.  
※This button needs to be switched to level 5 to appear.
- **Service life:** Set up and cancel the installment of the machinery factory and the agent.
- **Language setting:** Switch the language system. For details, please refer to 3.10.
- **Password change:** User level password modification.
- **Version information:** View the software version number and version information used in the current system.
- **System function:** View the internal functions that are currently open in the system.  
※This button needs to be switched to level 5 to appear.
- **Project setting:** Set the internal parameters corresponding to each type of system according to different system types.  
※This button needs to be switched to level 5 to appear.

## 3. Screen Function Description

### 3.1. Scanning Code to Open Files

- **Function path:** monitoring group > scanning code to open files

LNC		00001_Z.NC	ZRN	M-RDY	MON	MON.INFO	15:03:45 L7
ABSOLUTE		MACHINE		T1			
X	-593.000	X	0.000	G04P200			
Y	-292.000	Y	0.000	M03S18000			
Z	76.328	Z	0.000	G00 Z25.00 F10000			
C	0.000	C	0.000	G00 X239.50 Y109.50 F55000			
DIST TO GO		0.000		G01 X209.50 Y109.50 Z-0.10 F6000			
		0.000		G01 X189.50 Y109.50 F8000			
		0.000		G01 X189.50 Y3.50 F8000			
		0.000		G01 X395.50 Y3.50 F8000			
		0.000		G01 X395.50 Y109.50 F8000			
		0.000		LN 1			
		0.000		SBK MLK MST BDT OPS DRN F0			
		0.000		SCAN OPEN			
CNT.NOW	1521	RUN	00:00:00	1. 00001_Z.NC			
CNT.MAX	0	ALL RUN	0 D 07:10:02	2. 0510.NC			
F	0F	500.0000		3. 111.NC			
SP.SPEED	0S	0		4. 13123.NC			
FO	100%SP.T.NO.	0		5. 2.NC			
RTO	100%STBY.T.NO	0					
SO	0%						
R1181012		ALM WARN\					
F1	F2	F3	F4	F5	F6	F7	F8
COORD	SET CNT	FILE	USB DISK IM	MDI	GRAPH	SCAN OPEN	PROG.RST

1. The function of scanning code to open files provides 5 sets of temporary storage functions for pre-scanning files.
2. Use the up and down buttons to select the name of the program files to be executed. Press the Enter key (Enter) to open the corresponding files.
3. If there is no corresponding file, the system will issue a "Processing program does not exist" alarm.
4. If it's required to delete the file name already entered, press the Backspace button on the keyboard or the CAN button on the MDI (Operation Panel) to delete the entered file name.

## 3.2. Breakpoint Re-start

➤ Function Path: Monitoring Group > Program Re-start

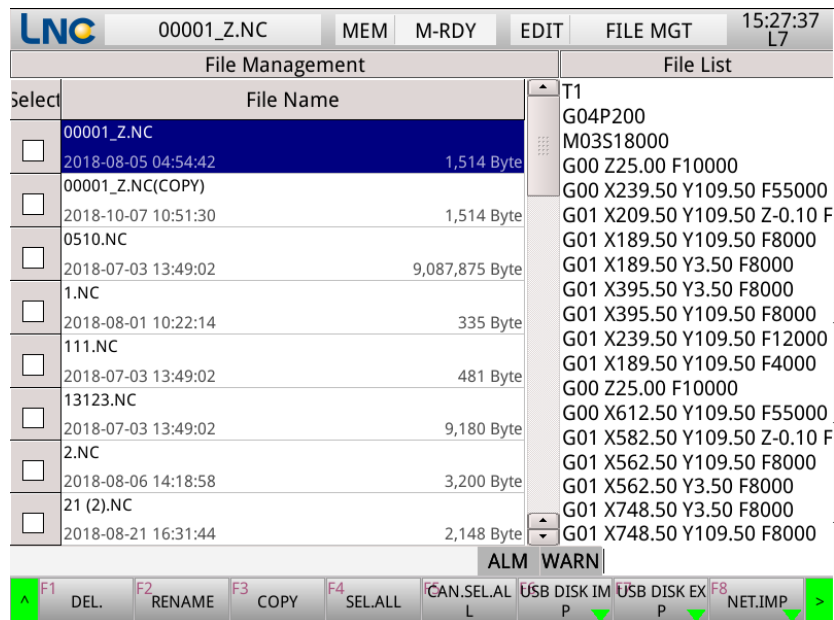
LNC		00001_Z.NC	MEM	M-RDY	MON	MON.INFO	19:53:24 L7
RESTART COORD		MACHINE		T1			
X	0.000	X	0.000	G04P200			
Y	0.000	Y	0.000	M03S18000			
Z	0.000	Z	0.000	G00 Z25.00 F10000			
C	0.000	C	0.000	G00 X239.50 Y109.50 F55000			
DIST TO GO		0.000		G01 X209.50 Y109.50 Z-0.10 F6000			
		0.000		G01 X189.50 Y109.50 F8000			
		0.000		G01 X189.50 Y3.50 F8000			
		0.000		G01 X395.50 Y3.50 F8000			
		0.000		G01 X395.50 Y109.50 F8000			
		0.000		G01 X239.50 Y109.50 F12000			
		0.000		G01 X189.50 Y109.50 F4000			
		0.000		G00 Z25.00 F10000			
		0.000		G00 X612.50 Y109.50 F55000			
		0.000		G01 X582.50 Y109.50 Z-0.10 F6000			
		0.000		G01 X562.50 Y109.50 F8000			
		0.000		G01 X562.50 Y3.50 F8000			
PROG.RST.POINT		LN -1		G01 X748.50 Y3.50 F8000			
L.NO. 1		L.NO.BRE/ 19		G01 X748.50 Y109.50 F8000			
		S		G01 X612.50 Y109.50 F12000			
		T		G01 X562.50 Y109.50 F4000			
				LN 1			
				SBK MLK MST BDT OPS DRN F0			
R21001::		ALM WARN					
F1	F2	F3	F4	F5	F6	F7	F8
L.NO.SRCH	NO.SRCH	LINE BREAK	M SRCH	T SRCH	GRAPH		

1. The breakpoint re-start function is divided into 5 ways to search for the restarting point.
  - i. Line number search: Search for the breakpoint based on the line number of the machining

- program entered by the user.
- ii. Number search: The tool breakpoint search is performed according to the machining program N number input by the user.
  - iii. Breakline search: The breakpoint search is performed according to the breakpoint recorded by the system.
  - iv. M code search: The breakpoint search is performed according to the M code input by the user.
  - v. T code search: The breakpoint search is performed according to the T code input by the user.
2. After searching for the specified position, press the **start machining** to start the breakpoint position recovery action, and the system will move to the top of the breakpoint.
  3. The height above the breakpoint is set by user parameter 8052.
  4. After moving to the top of the breakpoint, machining startup is pressed again, and the program processing will start.
  5. Note:
    - i. Before using the breakpoint to restart, it must be confirmed that the machine has returned to the origin, otherwise the function will not take effect (the set breakpoint cannot be found).
    - ii. When restarting with a breakpoint, it's required to switch the operating mode to automatic (MEM) mode.

### 3.3. File Management

➤ Function Path: Edit Group > File Management



This function is used to manage the machining procedures in the system, which mainly divided into three parts.

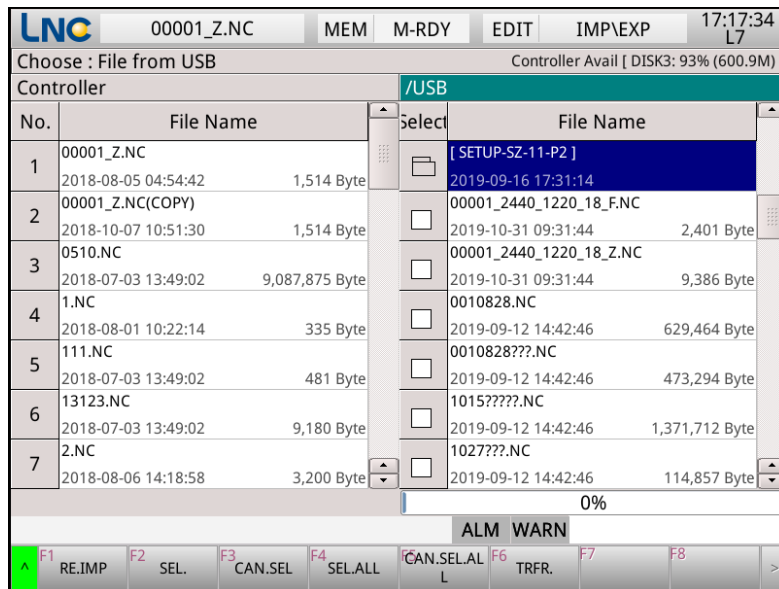
#### 3.3.1. Delete / rename / copy



- Delete: Used to delete the machining program owned by the system. There are three ways to select files: single selection, multiple selection and select all.
- Rename: Rename the file name of the selected program in the system.
- Copy: Copy the selected machining program into a new file, and the new machining program needs to be named during the copying process.
- Select All: Select all machining programs in the system.
- Deselect All: Cancels all selected machining programs.

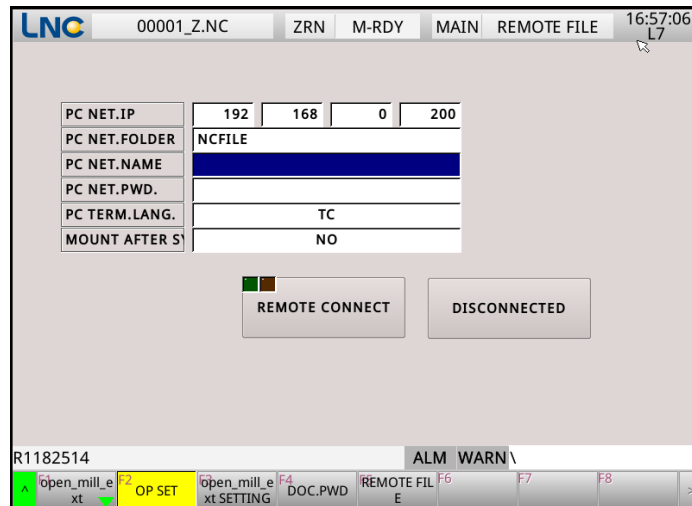
### 3.3.2. U-disk import / export

- After the user inserts the U-disk into the USB port of the system, the U-disk internal processing program is imported into the system through the U-disk import and export function, or the processing program in the computer is exported to the U-disk.
- As shown in the figure below, the left side of the screen is all the machining programs in the system, and the right side is all the machining programs in the folder selected in the U disk.




### 3.3.3. Network disk import / export

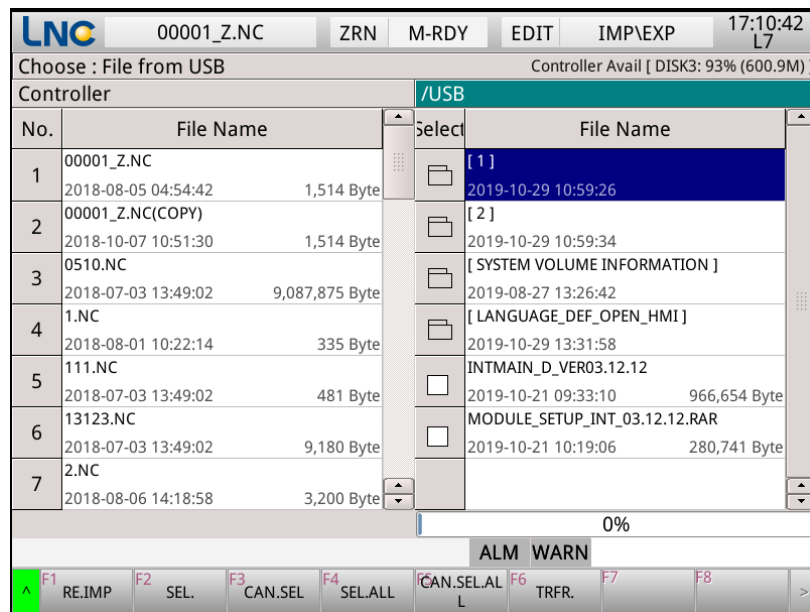
- Users can directly import the machining program from the computer to the system or export the machining program in the system to the computer through the sharing method of network disk.
- It's required to set the computer IP and computer folder name to provide the shared folder on the system. The parameter setting path is: Maintenance Group > Project Settings > Shared Document (require to switch to level 5).
- The user name and passwords of the PC may not be input (the shared folder on the computer side cannot be set to use the passwords).



- iv. When the network disk import/network disk export is pressed, the system will automatically online.

After the connection is successful, an  icon will appear in the system title bar, indicating that both parties have completed online.

- v. As shown in the figure below, the left side of the screen is all the machining programs in the system, and the right side is all the machining programs in the shared folder of the computer.



### 3.4. Scheduling Machining


- Function Path: Edit Group > Scheduling machining

1. The scheduling processing screen is as follows, divided into left and right two screens, the left screen shows all current machining programs of the system; the right screen shows the machining program and scheduling sequence selected for scheduling.
2. There are three modes of scheduling processing, which are described as follows:
  - Manual starting: Using the scheduling processing, the system will automatically start the next

machining program of the schedule after each execution of the machining program, but the user must manually press to start machining.

- Automatic start(discontinuous cycle): Open the user parameters → system value R8053 set 2 (cycle), The system will automatically start the next processing program of the schedule after each execution of the processing program, and automatically start processing until all the scheduled programs are completed then stop.
- Automatic start(continuous cycle): Open the user parameters →system value R8053 set 4 (automatic cycle)

Each time the machining program is executed, the system automatically starts the next machining program of the schedule and automatically starts the machining until the reset button or the program pause button is pressed.



00001\_Z.NC

ZRN

M-RDY

EDIT HEDULE WORKIN

14:40:58 L7

PATH:1 Dir.0 NC Files

No.	Files	
<input type="checkbox"/> 1	00001_Z.NC Dir.0 2018-08-05 04:54:42 1,514 Byte	
<input type="checkbox"/> 2	00001_Z.NC(COPY) Dir.0 2018-10-07 10:51:30 1,514 Byte	
<input type="checkbox"/> 3	0510.NC Dir.0 2018-07-03 13:49:02 9,087,875 Byte	
<input type="checkbox"/> 4	1.NC Dir.0 2018-08-01 10:22:14 335 Byte	
<input type="checkbox"/> 5	111.NC Dir.0 2018-07-03 13:49:02 481 Byte	
<input type="checkbox"/> 6	13123.NC Dir.0 2018-07-03 13:49:02 9,180 Byte	
<input type="checkbox"/> 7	2.NC Dir.0 2018-08-06 14:18:58 3,200 Byte	
<input type="checkbox"/> 8	21 (2).NC Dir.0 2018-08-21 16:31:44 2,148 Byte	
<input type="checkbox"/> 9	21.NC Dir.0 2018-08-21 15:14:56 1,890 Byte	

Schedule Curr. 1 Total 4

No.	Files	Stn.
<input type="checkbox"/> 1	91 Dir.0 36 Byte WorkCnt: 5	1
<input type="checkbox"/> 2	92 Dir.0 36 Byte WorkCnt: 5	1
<input type="checkbox"/> 3	93 Dir.0 36 Byte WorkCnt: 5	1
<input type="checkbox"/> 4	XXXXXXXXXXXXXXXXXXXXXXXXXXXX Dir.0 1,514 Byte WorkCnt: 0	1

ALM WARN

ADD.SCHED ULE

DEL.SCHED ULE

GOTO FILE 1

NEXT FILE

SEL.ALL

CAN.SEL.AL L

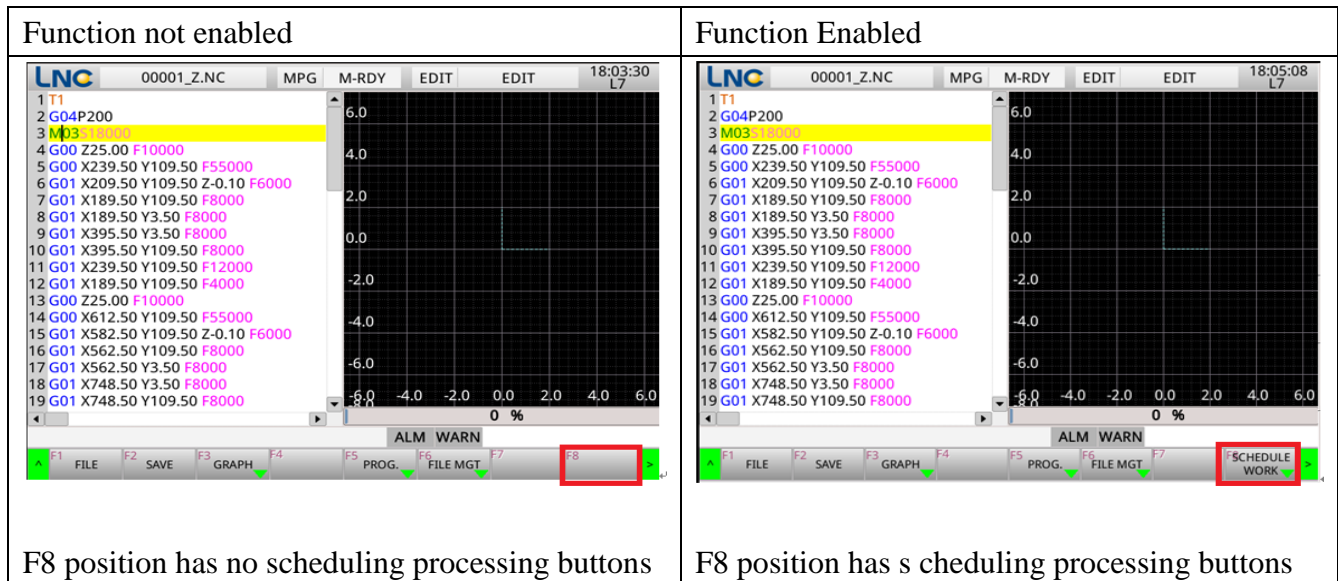
MANUALLY

AUTO

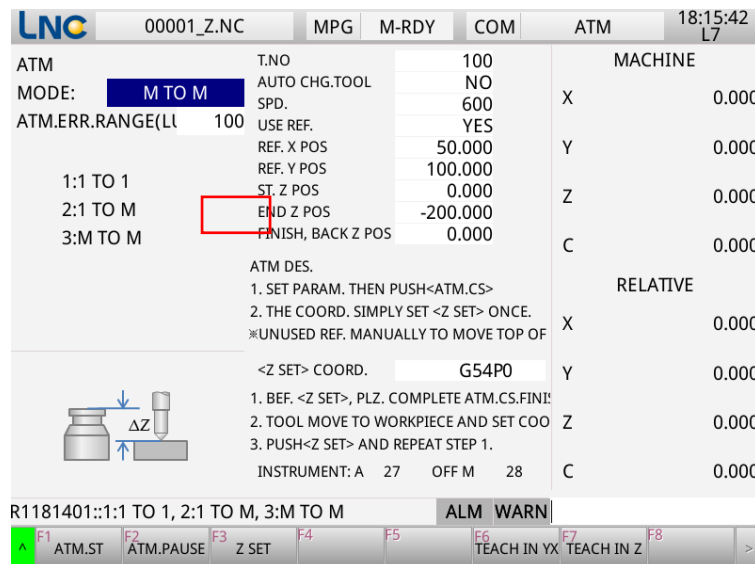
✖ Note:

- The scheduling processing function only needs to be enabled after the parameter is turned on. It is necessary to start the parameter → operating parameter R1181393 to set 1 (enabled).
- The use path will appear when enabled, as the below image:





### 3.5. Automatic Tool Setting



#### ➤ Function Path: Compensation Group > Automatic Tool Setting

- The automatic tool setting function provides three tool setting modes as follows:
  - Single-tool single workpiece: only one tool and one workpiece are processed during machining.
  - Single-tool multi-tasking workpiece: Only one tool is used for machining, but there are different machining workpieces.
  - Multi-tool multi-tasking workpiece: tool change will be carried out during machining, and there will be a variety of different machining workpieces. Generally, woodworking machines are of this type.
- Multi-tool multi-tasking tool-setting steps:
  - Perform the tool-setting first (press the tool-setting on the screen to start).
  - The tool-setting operation is started for the parameters set on the screen.
  - Manually move the tool to the workpiece surface (or the machining platform) after the tool-setting

is completed.

- iv. Set the Z drop (press the Z drop on the screen, only the first tool needs to be set).

3. Note:

- i. The Z drop of the first tool must be set, and the user can modify the coordinate system of the Z drop (The preset is G54).
- ii. It is not necessary to set the Z drop from the second tool, and only the tool-setting action is required.
- iii. When using the tool compensation, the machining program must use the coordinate system set by the Z drop (The preset is G54).
- iv. If different workpiece surfaces are used, the corresponding Z-drop coordinate system needs to be modified.

## 3.6. Tool Magazine Setting

### 3.6.1. Gang tool setting

LNC		00001_Z.NC		MEM	M-RDY	COM	ROW.TOOL	20:10:10 L7
ROW.TOOL.TYPE SET		FIXED		SP.T.NO.		0		
1st F(LU/min)		0		2nd F		0		
SETTING OFFSET	X OFFSET		Y OFFSET		Z OFFSET			
T.CHG.OFFSET	0.000		0.000		0.000			
RETURN TOOL C	0.000		0.000		0.000			
MAG PUSH&BACK CHECK		NUL		T.NUM		12		
T.NO	XCOORD		YCOORD		ZCOORD			
1	0.000		0.000		0.000			
2	0.000		0.000		0.000			
3	0.000		0.000		0.000			
4	0.000		0.000		0.000			
5	0.000		0.000		0.000			
R3312032::T1 XCOORD								
ALM WARN								
F1	F2	F3	F4	F5	F6	F7	F8	>
ROW.TOOL1	ROW.TOOL2	SRCH.T.NO.	TEACH IN	FAST.SET	CLR.	CLR.ALL		

➤ Function Path: Compensation Group > Next Page> Gang Tool Setting

- If the gang tool magazine is used, the related settings of tool magazine can be performed via this page.
- The tool-changing coordinate of gang tool is the actual tool-changing position. If it is necessary to perform the tool-changing offset, it needs to be set in the offset parameters.
- Note: The value of the first speed and second speed of the tools must be set, otherwise the system will give an alarm when the tool is changed.



2. This screen provides 9 straight drill control interfaces, users can click the mouse or use the arrow keys + ENTER button to perform related motion control.
3. The drilling tool number starts from T21, the straight drill is T21 – T40, the horizontal drill is T41 – T60, and the saw blade is T61.

#### 3.6.4. Tool number setting of the Carousel style tool magazine

➤ Function Path: Maintenance Group > User Parameters > Project Parameters

1. Set the user parameter first 9005: the Carousel style tool magazine sets the origin spindle tool number, 9006: the Carousel style tool magazine sets the origin standby tool number.
2. In the origin mode, I407 is triggered: the tool number corrects the input signal.
3. The system will immediately set the spindle tool number and the standby tool number to the parameters and set values.

### 3.7. Backup

➤ Function Path: Maintenance Group > Backup

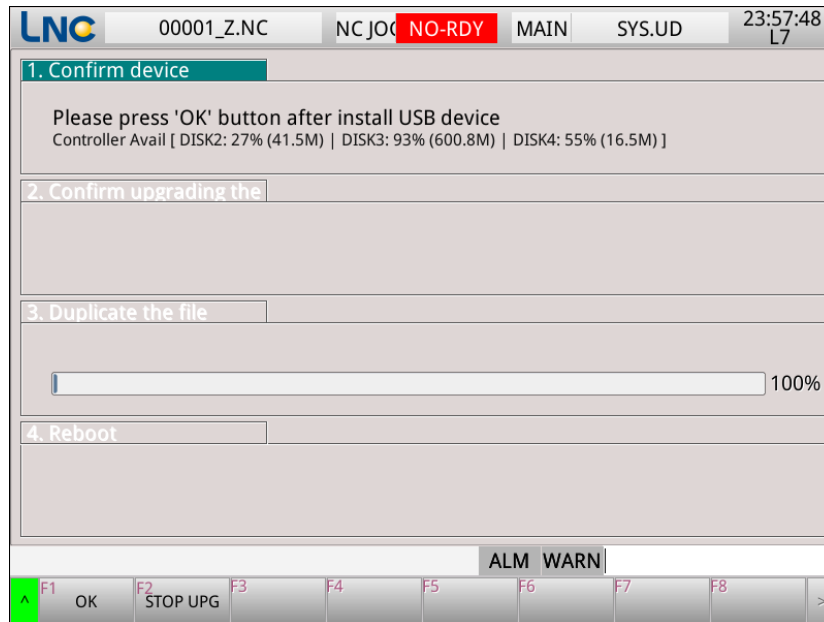
Select	No.	File Name	Output	Input
<input type="checkbox"/>	1	Backup All machine	L3	L3
<input type="checkbox"/>	2	DI/DO Map (iomap_di.dat;iomap_do.dat;iomap_ai.dat;ior	L3	L3
<input type="checkbox"/>	3	Hard Pameter (param_hwif.dat)	L3	L3
<input type="checkbox"/>	4	Com Pameter (param_com.dat)	L3	L3
<input type="checkbox"/>	5	Path Pameter (param_int.dat)	L3	L3
<input type="checkbox"/>	6	Axis Pameter (param_mot.dat;param_mot2.dat)	L3	L3
<input type="checkbox"/>	7	HMI Pameter (param_hmi.dat)	L3	L3

1. Use U-disk for system backup and restore actions:
  - i. Backup: After inserting the USB flash drive, check **the export to USB**, select **all data backup**, press the **transfer** and select the U-disk folder. After selecting it, press **OK** to start the backup and wait for a few seconds until the system prompts the transfer to complete. After the backup is completed, the backup folder will appear, and the files inside will be the backup files.
  - ii. Restore: After inserting the USB-disk, check the **USB import**, select the upper layer folder where the backup folder is placed in the USB-disk, and press the **transfer** to start restoring the system data after the selection. After the restoring is complete, you must restart the system to restore the original backup state.
2. Note: This feature must be performed after an emergency stop has been pressed to prevent the

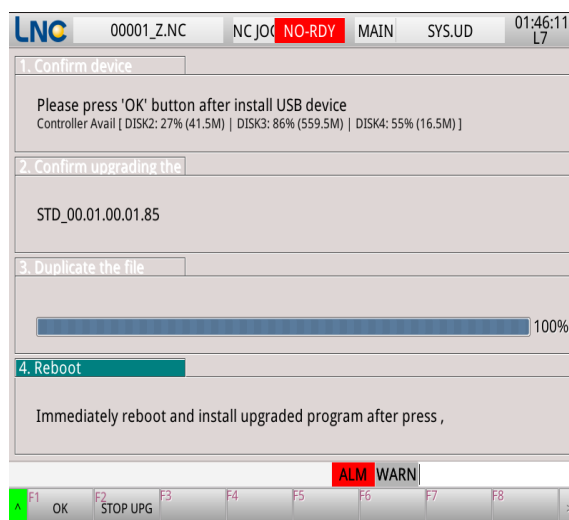
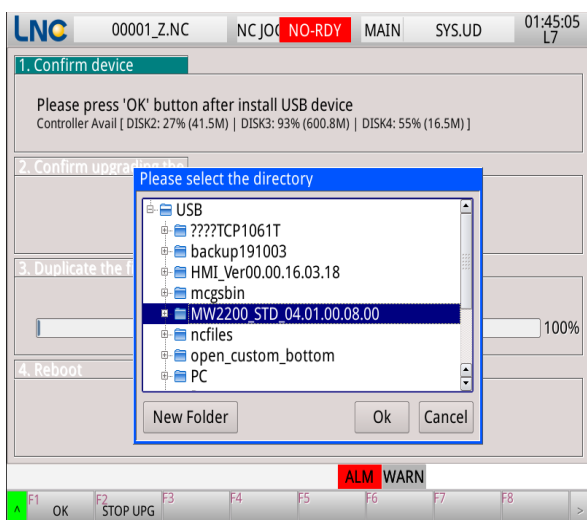
machine from unpredictable conditions during the backup process.

### 3.8. System Update

➤ Feature Path: Maintenance Group > System Update



1. Use a U-disk to update the system. Insert the U-disk into the system and press **OK**. The system will immediately mount the U-disk. After the mounting is successful, the U-disk content will appear. If not, the system will display a prompt of **failure to mount the USB**.
2. After selecting the folder where the upgrade package is placed, press **OK**.
3. Confirming the location of the upgrade version will result in the software version to be upgraded. The upgrade file will be copied after **OK** is pressed again.
4. After the copy is complete, press **OK** to automatically restart the system and complete the system update.



5. Note: This function must be performed by pressing the emergency stop to prevent the machine from unpredictable conditions during the system update process.

### 3.9. Quick Restore

- Function Path: Maintenance Group > Quick Restore (It's required to switch the system level to 5)

No.	File Name
1	An available backup file( 2018-10-07 11:19 ) can be restored.
2	No backup file.
3	No backup file.

0%

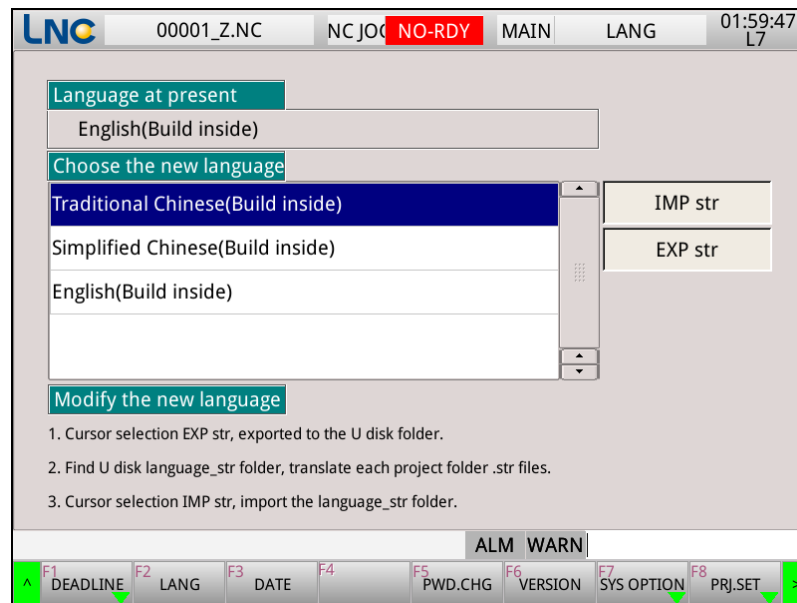
ALM WARN

^ F1 BACKUP F2 RCY. F3 F4 F5 F6 F7 F8 >

1. The system provides quick restore and backup functions, allowing the machinery factory to set the factory default value when the machine is shipped. When the user is in operation error, it can quickly restore the factory default value of the machinery factory, reducing the need for personnel to be on-site for after-sales service.
2. Select the number to backup/restore, press the Backup/Restore button, and wait a few seconds for the operation to complete.
3. Note: This function must be performed by pressing the emergency stop to prevent the machine from unpredictable conditions during the backup/restore process.

### 3.10. Language Setting

- Function Path: Maintenance Group > Next Page> Language Settings



There are three languages in the system, which are Traditional Chinese, Simplified Chinese, and English. Select according to your needs. Use the up and down buttons on the keyboard to select the language and press ENTER. After waiting for 10 seconds, the language will be changed immediately without restarting the system.

## 4. Built-in Function Description

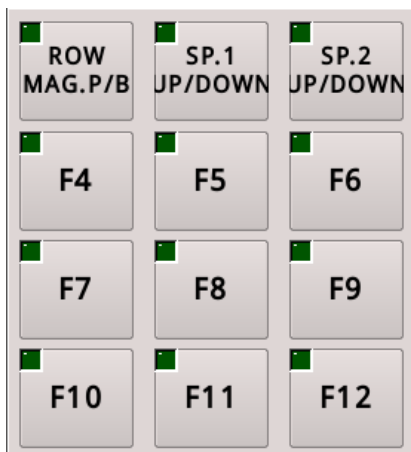
### 4.1. Automatic Loading And Unloading

1. The system provides three operating procedures of standard automatic loading, automatic uploading and automatic loading and unloading.
2. There are two ways to use automatic loading. The first type is M-code calling, the M-code number is M15, and the second type is one-key loading.
3. There are two ways to use automatic uploading. The first type is M-code calling, the M-code number is M17, and the second type is one-key uploading.
4. There are two ways to use automatic loading and unloading. The first type is M-code calling, the M-code number is M16; the second type is one-key loading and unloading.
5. The relevant parameters setting of the loading and unloading are located in the project parameters of the user parameters.

Parameter No.	Parameter Content
8319	[Unloading function] Feeding machine detection time (seconds)
8324	[Unloading/dusting function] Pushing the dusting cylinder up and down in-place to check (0: no inspection, 1: up in-place, 2: down in-place, 3: up and down in-place)

8331	[Unloading function] Uploading movement speed (KLU/MIN)
8332	[Unloading function] Mechanical coordinate (LU) of the starting point of the uploading
8333	[Unloading function] Machine coordinate (LU) at the end point of the uploading
8334	[Loading / unloading function] Loading and unloading direction (0:X axis, 1:Y axis)
8335	[Loading function] Loading movement speed (KLU/MIN)
8337	[Loading function] Mechanical coordinate (LU) of the starting point of loading of the first stage
8338	[Loading function] Mechanical coordinate (LU) of the end point of loading of the first stage
8339	[Loading function] Mechanical coordinate (LU) of the starting point of loading of the second stage
8340	[Loading function] Mechanical coordinate (LU) of the end point of loading of the second stage
8341	[Loading function] Loading cylinder up and down in-place to check (0: no check, 1: up in-place, 2: down in-place, 3: up and down in-place)
8342	[Loading function] Loading and unloading in-place to check (0: no inspection, 1: loading inspection, 2: uploading inspection, 3: loading and uploading inspection)

6. Note: When using the one-key operation function, you need to select the relevant function in the **optional function buttons**, as shown below.



## 4.2. Spindle Function

### 4.2.1. Spindle speed correlation

1. The system provides the judgment method of the spindle speed arrival and zero speed arrival. The parameter setting method can be used to select the method of calculating the number of seconds or the system spindle speed arrival and zero speed arrival can be notified by using the external signal.



2. The parameter setting is located in the system value of the user parameters.

Parameter No.	Parameter Content
8312	Waiting time for arrival of first spindle speed (seconds, -1: external signal notification)
8313	Waiting time for arrival of second spindle speed (seconds, -1: external signal notification)
8314	Waiting time for arrival of third spindle speed (seconds, -1: external signal notification)
8315	Waiting time for arrival of forth spindle speed (seconds, -1: external signal notification)
8343	[Spindle function] Waiting time for arrival of zero speed of first spindle (seconds, -1: external signal notification)
8344	[Spindle function] Waiting time for arrival of zero speed of second spindle (seconds, -1: external signal notification)
8345	[Spindle function] Waiting time for arrival of zero speed of third spindle (seconds, -1: external signal notification)
8346	[Spindle function] Waiting time for arrival of zero speed of forth spindle (seconds, -1: external signal notification)

3. The M-code setting of the spindle speed related is located in the M-code setting in the user parameters.

Parameter No.	M-code Content	Default Value
9421	[M-code Setting] The second spindle rotates forward	103
9422	[M-code Setting] The second spindle reverses	104
9423	[M-code Setting] The second spindle stops	105
9428	[M-code Setting] The third spindle rotates forward	113
9429	[M-code Setting] The third spindle reverses	114
9430	[M-code Setting] The third spindle stops	115
9431	[M-code Setting] The forth spindle rotates forward	123
9432	[M-code Setting] The forth spindle reverses	124
9433	[M-code Setting] The forth spindle stops	125

#### 4.2.2. Spindle cylinder

1. The system provides the function of judging whether the inspection is in-place when using the spindle cylinder. If there is no inspection mechanism, the function can be turned off by parameters.
2. The parameter setting is located in the system value in the user parameters.

Parameter No.	Parameter Content
8070	Inspection form of the first spindle up and down in-place (0: no inspection, 1: up in-place, 2: down in-place, 3: up and down in-place)
8071	Inspection form of the second spindle up and down in-place (0: no inspection, 1: up in-place, 2: down in-place, 3: up and down in-place)
8072	Inspection form of the third spindle up and down in-place (0: no inspection, 1: up in-place, 2: down in-place, 3: up and down in-place)
8073	Inspection form of the forth spindle up and down in-place (0: no inspection, 1: up in-place, 2: down in-place, 3: up and down in-place)

3. The M-code setting of spindle cylinder related is located in the M-code setting in the user parameters.

Parameter No.	M-code Content	Default Value
9424	[M-code Setting] First spindle up	26
9425	[M-code Setting] First spindle down	25
9426	[M-code Setting] Second spindle up	41
9427	[M-code Setting] Second spindle down	40
9434	[M-code Setting] Third spindle up	43
9435	[M-code Setting] Third spindle down	42
9436	[M-code Setting] Forth spindle up	45
9437	[M-code Setting] Forth spindle down	44

#### 4.2.3. Spindle Suction Hood

1. The system provides the function of judging whether the inspection is in-place when using the spindle suction hood. If there is no inspection mechanism, the function can be turned off by parameters.
2. The parameter setting is located in the system value in the user parameters.

Parameter No.	Parameter Content
8320	Spindle 1 suction hood up and down in-place inspection (0: no inspection, 1: up in-place, 2: down in-place, 3: up and down in-place)
8321	Spindle 2 suction hood up and down in-place inspection (0: no inspection, 1: up in-place, 2: down in-place, 3: up and down in-place)

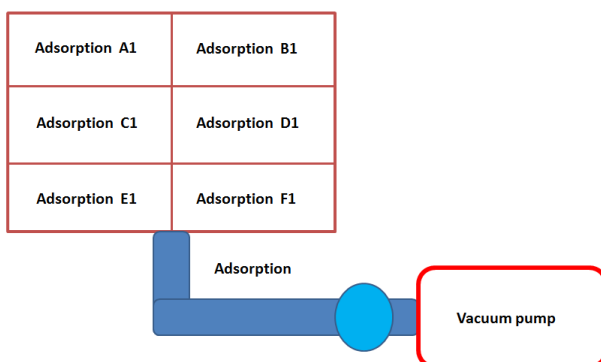
8322	Spindle 3 suction hood up and down in-place inspection (0: no inspection, 1: up in-place, 2: down in-place, 3: up and down in-place)
8323	Spindle 4 suction hood up and down in-place inspection (0: no inspection, 1: up in-place, 2: down in-place, 3: up and down in-place)

3. The M-code setting of spindle suction hood related is located in the M-code setting in the user parameters.

Parameter No.	M-code Content	Default Value
9438	[M-code Setting] First spindle suction hood up	140
9439	[M-code Setting] First spindle suction hood down	141
9440	[M-code Setting] Second spindle suction hood up	142
9441	[M-code Setting] Second spindle suction hood down	143
9442	[M-code Setting] Third spindle suction hood up	144
9443	[M-code Setting] Third spindle suction hood down	145
9444	[M-code Setting] Forth spindle suction hood up	146
9445	[M-code Setting] Forth spindle suction hood down	147

### 4.3. Adsorption Function

1. The system provides two types of adsorption, one is the partition adsorption control on the worktable surface; the other is the adsorption control of the entire worktable, as shown in the following diagram:



2. The adsorption related parameter setting is located in the system value in the user parameters.

Parameter No.	Parameter Content
8309	Maintenance time (ms) of vacuum destruction 1
8310	Maintenance time (ms) of vacuum destruction 2

3. The adsorption related M-code setting is located in the M-code setting in the user parameters.

Parameter No.	M-code Content	Default Value
9408	[M-code Setting] Adsorption 1 on	90
9409	[M-code Setting] Adsorption 1 off	91
9410	[M-code Setting] Adsorption 2 on	96
9411	[M-code Setting] Adsorption 2 off	97
9412	[M-code Setting] Vacuum pump 1 on	10
9413	[M-code Setting] Vacuum pump 1 off	11
9414	[M-code Setting] Vacuum pump 2 on	20
9415	[M-code Setting] Vacuum pump 2 off	21

## 4.4. Positioning

1. The system provides a total of 6 sets of positioning controls, which can be used by the user for related positioning, or for side pushing or back pushing during the loading and unloading actions.
2. The adsorption-related M-code setting is located in the M-code setting in the user parameters.

Parameter No.	M-code Content	Default Value
9400	[M-code Setting] Positioning 1 on	8
9401	[M-code Setting] Positioning 1 off	9
9402	[M-code Setting] Positioning 2 on	18
9403	[M-code Setting] Positioning 2 off	19
9404	[M-code Setting] Positioning 3 on	61
9405	[M-code Setting] Positioning 3 off	62
9406	[M-code Setting] Positioning 4 on	63
9407	[M-code Setting] Positioning 4 off	64
9456	[M-code Setting] Positioning 5 on	36
9457	[M-code Setting] Positioning 5 off	37

9458	[M-code Setting] Positioning 6 on	38
9459	[M-code Setting] Positioning 6 off	39

## 4.5. Dust-removal

### 4.5.1. Dust-removal of single station

1. The dust-removal actions in the single-station system is the same as the uploading actions. When used, it is to call M17 or trigger one-key uploading button.
2. The related parameters setting of single-station dust-removal is located in the project parameters in the user parameters.

Parameter No.	Parameter Content
8324	[Unloading/dust-removal function] Pushing dust-removal cylinder up and down in-place inspection (0: no inspection, 1: up in-place, 2: down in-place, 3: up and down in-place)
8325	[Dust-removal function] Dust-removal speed (KLU/MIN)
8332	[Unloading function] Mechanical coordinates of the starting point of uploading (LU)
8333	[Unloading function] Mechanical coordinates of the end point of uploading (LU)
8334	[Loading / unloading function] Loading and unloading direction (0:X axis, 1:Y axis)
8336	[Dust-removal function] Dust-removal direction (0: X axis, 1: Y axis)

### 4.5.2. Double-station dust-removal

4. There are two modes for double-station dust-removal.
  - i. When the machine is standby, the dust-removal of the station will be performed immediately after pressing the dust-removal button corresponding to the station.
  - ii. When machining, press the dust-removal button corresponding to the non-machining station, and wait until the tool lifting during machining (Z-axis position is greater than the set value), the dust-removal action will be performed in the non-machining zone. After the dust-removal is completed, the original state will be restored to continue the unfinished machining.
5. The setting of the relevant parameters of the double station dust-removal is located in the project parameters in the user parameters.

Parameter No.	Parameter Content
8324	[Unloading/dust-removal function] Pushing dust-removal cylinder up and down in-place inspection (0: no inspection, 1: up in-place, 2: down in-place, 3: up and down in-place)

8325	[Dust-removal function] Dust-removal speed (KLU/MIN)
8326	[Dust-removal function] Allow dust-removal Z-axis coordinates (LU) during machining
8327	[Dust-removal function] Machine coordinate (LU) of the dust-removal starting point of station 1.
8328	[Dust-removal function] Machine coordinate (LU) of the dust-removal end point of station 1.
8329	[Dust-removal function] Machine coordinate (LU) of the dust-removal starting point of station 2.
8330	[Dust-removal function] Machine coordinate (LU) of the dust-removal end point of station 2.
8336	[Dust-removal function] Dust-removal direction (0: X axis, 1: Y axis)

## 5. Parameters Setting

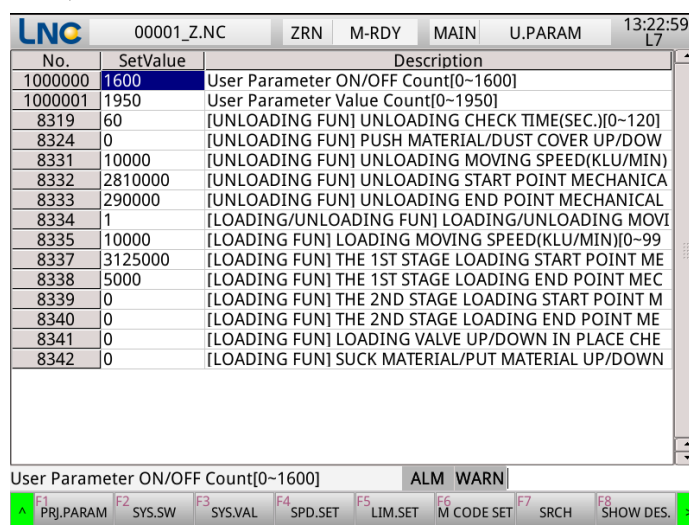
### 5.1. User Parameters

- Function Path: Maintenance Group > User Parameters (it's required to switch the system level to 5)

**Note:** The contents of the user parameters will vary depending on the model version, but not all models of the woodworking machine are the same.

User parameters are divided into 6 items, respectively, as follows:

- **Project parameters:** The parameters in this area include loading and unloading parameters, tool magazine-related parameters, etc.



No.	Set Value	Description
1000000	1600	User Parameter ON/OFF Count[0~1600]
1000001	1950	User Parameter Value Count[0~1950]
8319	60	[UNLOADING FUN] UNLOADING CHECK TIME[SEC.] [0~120]
8324	0	[UNLOADING FUN] PUSH MATERIAL/DUST COVER UP/DOW
8331	10000	[UNLOADING FUN] UNLOADING MOVING SPEED(KLU/MIN)
8332	2810000	[UNLOADING FUN] UNLOADING START POINT MECHANICA
8333	290000	[UNLOADING FUN] UNLOADING END POINT MECHANICAL
8334	1	[LOADING/UNLOADING FUN] LOADING/UNLOADING MOVI
8335	10000	[LOADING FUN] LOADING MOVING SPEED(KLU/MIN)[0~99
8337	3125000	[LOADING FUN] THE 1ST STAGE LOADING START POINT ME
8338	5000	[LOADING FUN] THE 1ST STAGE LOADING END POINT MEC
8339	0	[LOADING FUN] THE 2ND STAGE LOADING START POINT M
8340	0	[LOADING FUN] THE 2ND STAGE LOADING END POINT ME
8341	0	[LOADING FUN] LOADING VALVE UP/DOWN IN PLACE CHE
8342	0	[LOADING FUN] SUCK MATERIAL/PUT MATERIAL UP/DOWN

User Parameter ON/OFF Count[0~1600]    ALM    WARN

F1 PRJ.PARAM   F2 SYS.SW   F3 SYS.VAL   F4 SPD.SET   F5 LIM.SET   F6 M CODE SET   F7 SRCH   F8 SHOW DES.   >

- **System switch:** switch setting of related functions in the system, for example: whether it's priority to return to the origin after power on, whether the Z axis is preferentially returned to the origin, whether to use air pressure detection, etc.

LNC

00001\_Z.NC

ZRN

M-RDY

MAIN

U.Param2

13:24:54  
L7

No.	SetValue	Description					
8000.0	0	RETURN HOME FIRST(0:YES,1:NO)[0~1]					
8000.1	1	Z AXIS RETURN HOME FIRST(0:YES,1:NO)[0~1]					
8000.2	0	SET ABS HOME SWITCH(0:OFF,1:ON)[0~1]					
8000.3	0	MPG DRY BACK(0:NO, 1:YES)[0~1]					
8000.20	0	VACUUM PUMP NO USING WARNING(0:NO,1:YES)[0~1]					
8000.21	1	USE AIR PRESSURE CHECK(0:NO,1:YES)[0~1]					
8000.25	0	RETURN HOME SPEED RESTRICTED BY OVERRIDE(0:YES,1:N					
8001.0	0	MULTI-SPINDLE INVERTER TYPE(0:INDEPENDENT,1:SHARE)[					
8001.1	0	FOUR SPINDLE SHARE INVERTER TYPE(0:SINGLE,1:DUAL)[0~					
8010.0	1	WHETHER TO ENABLE HIDDEN MODE(0:NO,1:YES)[0~1]					
8010.4	0	THE 6TH AXIS SYNCHRONIZE X AXIS(0:NO,1:YES)[0~1]					
8010.5	1	THE 6TH AXIS SYNCHRONIZE Y AXIS(0:NO,1:YES)[0~1]					
RETURN HOME FIRST(0:YES,1:NO)[0~1]							
		ALM WARN					
F1	F2	F3	F4	F5	F6	F7	F8
PRJ.PARAM	SYS.SW	SYS.VAL	SPD.SET	LIM.SET	M CODE SET	SRCH	SHOW DES.

- **System value:** The setting of the relevant function value in the system, for example: the waiting time of the spindle speed arrival, the waiting time of the spindle zero speed arrival, the inspection type of the spindle up and down in-place, etc.

LNC

00001\_Z.NC

ZRN

M-RDY

MAIN

U.Param3

13:39:03  
L7

No.	SetValue	Description
8052	10000	PROGRAM RESTART,Z AXIS SAFETY POS.(LU)[-99999999~99999999]
8053	2	USE WORKING SCHEDULE FUNCTION(0:NO,1:MANUAL,2:AUTO)
8067	50	Z AXIS SERVO OFF DELAY TIME(MS)[0~100000]
8070	0	SP.#1 UP/DOWN IN PLACE CHECK TYPE(0:NOT CHECKED,1:CHECKED)
8071	0	SP.#2 UP/DOWN IN PLACE CHECK TYPE(0:NOT CHECKED,1:CHECKED)
8072	0	SP.#3 UP/DOWN IN PLACE CHECK TYPE(0:NOT CHECKED,1:CHECKED)
8073	0	SP.#4 UP/DOWN IN PLACE CHECK TYPE(0:NOT CHECKED,1:CHECKED)
8078	20	Z AXIS BRAKE CANCELED DELAY TIME(MS)[0~10000]
8098	5	LUBRICATION ENABLE MAINTAIN TIME(SEC.)[0~60]
8099	3600	LUBRICATION ENABLE INTERVAL TIME(SEC.)[0~86400]
8130	10	X AXIS INC-JOG DISTANCE(LU)[1~99999999]
8131	10	Y AXIS INC-JOG DISTANCE(LU)[1~99999999]
8132	10	Z AXIS INC-JOG DISTANCE(LU)[1~99999999]
8210	1	OPERATION MODE TYPE(0:KNOB,1:KEY)[0~1]
8211	1	G01 OVERRIDE TYPE(0:KNOB,1:KEY)[0~1]
8212	1	G00 OVERRIDE TYPE(0:KNOB,1:KEY,2:ADD/SUB)[0~2]
8213	1	SP.SPEED OVERRIDE TYPE(0:KNOB,1:KEY)[0~1]
8214	0	RAPID KEY TYPE(0:PRESSING IS RAPID MODE,RELEASING IS STOP)
8309	1000	VACUUM BREAK 1 MAINTAIN TIME(MS)[0~10000]
PROGRAM RESTART,Z AXIS SAFETY POS.(LU)[-99999 ALM WARN]		

F1

F2

F3

F4

F5

F6

F7

F8

PRJ.PARAM

SYS.SW

SYS.VAL

SPD.SET

LIM.SET

M CODE SET

SRCH

SHOW DES.

- **Speed:** The related speed setting of the manual mode in the system, for example: F0 speed, JOG speed, fast forward speed, etc.

LNC		00001_Z.NC	ZRN	M-RDY	MAIN	U.Param4	13:44:57 L7
No.	SetValue	Description					
8050	100000	MPG DRY OVERRIDE[1~99999999]					
8051	0	RAPID 0%(F0)SPEED(KLU/MIN)[0~99999]					
8100	15000	X AXIS JOG SPEED(KLU/MIN)[0~99999]					
8101	15000	Y AXIS JOG SPEED(KLU/MIN)[0~99999]					
8102	6000	Z AXIS JOG SPEED(KLU/MIN)[0~99999]					
8105	45000	X AXIS RAPID SPEED(KLU/MIN)[0~99999]					
8106	45000	Y AXIS RAPID SPEED(KLU/MIN)[0~99999]					
8107	8000	Z AXIS RAPID SPEED(KLU/MIN)[0~99999]					
8135	500	X AXIS INC-JOG SPEED(KLU/MIN)[1~99999]					
8136	500	Y AXIS INC-JOG SPEED(KLU/MIN)[1~99999]					
8137	500	Z AXIS INC-JOG SPEED(KLU/MIN)[1~99999]					
8301	1000	MPG OVERRIDE(0.01%)[0~10000]					
8316	10000	SET MPG MAGNIFICATION 1(0.0001%)[0~999999999]					
8317	100000	SET MPG MAGNIFICATION 10(0.0001%)[0~999999999]					
8318	1000000	SET MPG MAGNIFICATION 100(0.0001%)[0~999999999]					
		MPG DRY OVERRIDE[1~99999999]					
		ALM WARN					
F1	F2	F3	F4	F5	F6	F7	F8
PRJ.PARAM	SYS.SW	SYS.VAL	SPD.SET	LIM.SET	M CODE SET	SRCH	SHOW DES.

- **Limit:** Set the limit type of the system hardware and the set value of the software limit of each axis.

LNC		00001_Z.NC	ZRN	M-RDY	MAIN	U.Param5	13:51:44 L7
No.	SetValue	Description					
8061	0	X AXIS HARDWARE LIMIT TYPE(0:NOT USED,1:SINGLE,2:DOUBLE)[0~2]					
8062	0	Y AXIS HARDWARE LIMIT TYPE(0:NOT USED,1:SINGLE,2:DOUBLE)[0~2]					
8063	0	Z AXIS HARDWARE LIMIT TYPE(0:NOT USED,1:SINGLE,2:DOUBLE)[0~2]					
8110	1675000	[SOFT.LIMIT] X AXIS POSITIVE SOFTWARE LIMIT VALUE(LU)[-					
8111	-2000	[SOFT.LIMIT] X AXIS NEGATIVE SOFTWARE LIMIT VALUE(LU)[-					
8112	3155000	[SOFT.LIMIT] Y AXIS POSITIVE SOFTWARE LIMIT VALUE(LU)[-					
8113	-2000	[SOFT.LIMIT] Y AXIS NEGATIVE SOFTWARE LIMIT VALUE(LU)[-					
8114	10000	[SOFT.LIMIT] Z AXIS POSITIVE SOFTWARE LIMIT VALUE(LU)[-					
8115	-250000	[SOFT.LIMIT] Z AXIS NEGATIVE SOFTWARE LIMIT VALUE(LU)[-					
		X AXIS HARDWARE LIMIT TYPE(0:NOT USED,1:SING					
		ALM WARN					
F1	F2	F3	F4	F5	F6	F7	F8
PRJ.PARAM	SYS.SW	SYS.VAL	SPD.SET	LIM.SET	M CODE SET	SRCH	SHOW DES.

- **M-code setting:** The M-code value setting of the woodworking machine related functions, for example: positioning on and off, vacuum pump on and off, adsorption on and off, etc. If the user forgets the M-code of related function, it can also be viewed on this page.



LNC		00001_Z.NC	ZRN	M-RDY	MAIN	U.Param6	13:52:49 L7								
No.	SetValue	Description													
9400	8	[M CODE SET] POSITION 1 ON[-1~299]													
9401	9	[M CODE SET] POSITION 1 OFF[-1~299]													
9402	18	[M CODE SET] POSITION 2 ON[-1~299]													
9403	19	[M CODE SET] POSITION 2 OFF[-1~299]													
9404	61	[M CODE SET] POSITION 3 ON [-1~299]													
9405	62	[M CODE SET] POSITION 3 OFF[-1~299]													
9406	63	[M CODE SET] POSITION 4 ON[-1~299]													
9407	64	[M CODE SET] POSITION 4 OFF[-1~299]													
9408	90	[M CODE SET] SUCKER 1 ON[-1~299]													
9409	91	[M CODE SET] SUCKER 1 OFF[-1~299]													
9412	10	[M CODE SET] VACUUM PUMP 1 ON[-1~299]													
9413	11	[M CODE SET] VACUUM PUMP 1 OFF[-1~299]													
9418	27	[M CODE SET] TOOL SETTER AIR BLOW ON[-1~299]													
9419	28	[M CODE SET] TOOL SETTER AIR BLOW OFF[-1~299]													
9420	30	[M CODE SET] COUNT OF WORKPIECES[-1~299]													
9421	103	[M CODE SET] SP.#2 CW[-1~299]													
9422	104	[M CODE SET] SP.#2 CCW[-1~299]													
9423	105	[M CODE SET] SP.#2 STOP[-1~299]													
9424	26	[M CODE SET] SP.#1 UP[-1~299]													
[M CODE SET] POSITION 1 ON[-1~299]		ALM WARN													
F1	PRJ.PARAM	F2	SYS.SW	F3	SYS.VAL	F4	SPD.SET	F5	LIM.SET	F6	M CODE SET	F7	SRCH	F8	SHOW DES.

## 5.2. System Parameters

➤ Function Path: Maintenance Group > Parameters (It's required to switch the system level to 5)

The parameter setting is divided into 2 major parts and a total of 9 items, which are described as follows:  
Part 1: Common parameter settings; this part sorts out the common parameters inside the system, which is convenient for machine debugging.

Part 2: Servo parameters and advanced parameters; this part is the drive parameters and all parameters of the system.

- **Operation parameters:** Set the relevant function parameters within the system, such as: preset feed rate, G31 related parameters, etc.

LNC		00001_Z.NC	ZRN	M-RDY	MAIN	OP PARAM	13:54:18 L7								
NO.	SET VAL.	DESCRIPTION													
R 50048	5	1st Path G02 G03 Arc Error Range(1~32767LU)													
R 50054	0	1st Path Comment Type(0:N/A,1:(...))													
○ 50066	5000	1st Path Defaults Value Of Feedrate(1~2100000000KLU/MIN)													
R 50114	0	1st Path Interference check of tool radius compensation(0:Avoid,1:Alarm,2:Error)													
160000	2000	Mill 1st Path G31 P1 Defaults Value Of Feedrate(1~2100000000KLU/MIN)													
160001	0	Mill 1st Path G31 P1 Contact Type(0:Rising,1:faling)													
160002	1	Mill 1st Path G31 P1 Single Source Type(0:Local I,1:PATH PLC I,2:AXIS PLC I)													
160003	1	Mill 1st Path G31 P1 Single Source Local I(1~2)													
160004	47	Mill 1st Path G31 P1 Single Source PLC I(0~4095)													
160010	0	Mill 1st Path Escape Direction OF G76/G87(0~3)													
160020	0	Mill 1st Path Drill Type of G81(0:Normal,1:High)													
160030	200	Mill 1st Path Clearance Value OF Deep Drilling G73(LU)													
160031	200	Mill 1st Path Clearance Value OF Deep Drilling G83(LU)													
1181393	1	SCHEDULE WORK BUTTON FUNCTION(0:Disabled, 1:Enable, 2:PRJ)													
R50048::1st Path G02 G03 Arc Error Range(1~3276		ALM WARN													
F1	OP PARAM	F2	SYS.PARAM	F3	AXIS BASE	F4	AX.SV	F5	E.GEAR SET	F6	SPD.SET	F7	HSHP	F8	

- **System parameters:** Set hardware connection parameters related to the system, such as hardware type (host type), CIO setting (bus IO board), etc.

LNC 00001\_Z.NC ZRN M-RDY MAIN SYS.PARAM 13:55:56 L7

NO.	SET VAL.	DESCRIPTION
40030	5	Motion Card Type(0:NA,2:5882,3:5868D2,4:5868D1,10:3380,11:3370,12:3
40023	10	COM3(0:N/A,10:CommIO)
40009	10	COM3(0:N/A,10:CIO)
40180	1	CIO Enable Mode(0:Auto Scan and Write PR40181,1:Depend on PR40180)

USE CIO	1.ST	2.ND	3.RD	4.TH	5.TH	6.TH	7.TH	8.TH
SET(0:N,1:Y)	0	0	0	0	0	0	0	0

- **Axis group configuration:** Set the corresponding path of each axis, hardware axis number and axis name.

LNC 00001\_Z.NC ZRN M-RDY MAIN AXIS BASE 14:04:29 L7

SOFT.AX	X (1)	Y (2)	Z (3)	C.S2 (4)	(5)	(6)	S1 (7)
PATH	1	1	1	1	0	0	1
AX.NAME	100	200	300	2600	0	0	1000
HW.PORT	1	2	3	4	0	0	6

AXIS: O O O O	x000 Ex: 1000=S, 2000=S2	0x00:AXIS NAME 1 2 3 4 5 6 7 8 9 SHOW X Y Z A B C U V W 00xx:1~32 Ex: 101:X1, 202:Y2, 308:Z8, 603:C3
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R70532::

ALM WARN

F1 OP PARAM F2 SYS.PARAM F3 **AXIS BASE** F4 AX.SV F5 E.GEAR SET F6 SPD.SET F7 HSHP F8 >

- **Setting of each axis:** Set the relevant parameters of each axial direction, for example: whether to use encoder, drive command format, origin searching method, etc.

LNC

00001\_Z.NC

ZRN

M-RDY

MAIN

AX.SV

14:06:52  
L7

NO.	DESCRIPTION	X	Y
70501	Absolute Encoder Type of 02nd Axis(0:N/A,1:Multi-Turn Used,2:0		0
71533	02nd Axis Motion Type(0:Linear Axis,1~7:Rotary Axis 1~7)	0	0
70033	02nd Axis Command Type in Position Mode(0:A/B,1:CW/CCW,2:0		0
70096.1	02nd Axis Command Reversion in Position Mode(0:No,1:Reverse	0	0
70101	02nd Axis Position Loop Gain in Position Mode(0.1/s)	500	500
70201	02nd Axis Command Type in Speed Mode(0:A/B,1:CW/CCW,2:P		0
70097.1	02nd Axis Command Reversion in Speed Mode(0:No,1:Reverse	0	0
70365	02nd Axis Encoder Signal Type(0:A/B,1:CW/CCW,2:Pulse/Dir,3:3		3
70098.1	02nd Axis Encoder Signal Reversion(0:No,1:Reverse)	0	0
70401	Corresponding Hardware Number of 02nd Axis MPG(0:N/A,1~5		7
70099.1	02nd Axis Corresponding MPG Signal Reversion(0:No,1:Reverse		0
77001	02nd Axis Reference Position Return Method(0:Force,1:DOG,2:1		0
77197.1	02nd Axis Retry Method of Reference Position Return(0:Machin	0	0
77097.1	02nd Axis Reference Position Return Direction(0:+,1:-)	1	1

R70501::Absolute Encoder Type of 02nd Axis(0:N/A,1:Multi-Turn Used,2:0

F1

F2

F3

F4

F5

F6

F7

F8

OP.PARAM

SYS.PARAM

AXIS BASE

AX.SV

E.GEAR SET

SPD.SET

HSHP

- **Gear ratio setting:** Set parameters such as gear ratio and screw pitch for each axial direction. The parameter page is divided into two parts, one for the servo axis and the other for the spindle.

LNC

00001\_Z.NC

ZRN

M-RDY

MAIN

E.GEAR SET

14:10:20  
L7

E.GEAR CMR\DMR SERVO SET

AX.	X (1)	Y (2)	Z (3)
CMR(NUM)	10000	10000	10000
CMR(DEN)	10000	10000	10000
DMR(NUM)	10000	10000	10000
DMR(DEN)	10000	10000	10000
MOTOR ENCODER(P/REV)	2500	2500	2500
PITCH(LU)	10.000	10.000	10.000
GEAR(NUM)	1	1	1
MOTOR.GEAR(DEN)	1	1	1

R1182005::

ALM WARN

F1

F2

F3

F4

F5

F6

F7

F8

SETX

SETY

SETZ

SETC

LNC

00001\_Z.NC

ZRN

M-RDY

MAIN

E.GEAR SET

14:13:24  
L7

E.GEAR CMR\DMR SP.SET

AX.	C.S2(4)	S1 (7)	
CMR(NUM)	4	10000	
CMR(DEN)	360000	24000	
DMR(NUM)	360000	360000	
DMR(DEN)	4	1	
SP.V(mV)	1	10000	
SP.SPD(rpm)	1	24000	
ENCODER POS	MOTOR	MOTOR	
MOTOR ENCODER(P/REV)	1	1	
MOTOR.GEAR	1	1	
SP.GEAR	1	1	

R1182161::

ALM WARN

F1

F2

F3

F4

F5

F6

F7

F8

>

^

SETS2

SETS1

- **Speed setting:** Set the speed-related parameters for each axial direction, such as acceleration/deceleration time, G00 maximum speed, G01 maximum speed, and so on. The parameter page is divided into two parts, one for the servo axis and the other for the spindle.

LNC

00001\_Z.NC

ZRN

M-RDY

MAIN

SPD.PARAM

14:21:20  
L7

SERVO SPEED PARAM SETTING

SERVO AX.	X (1)	Y (2)	Z (3)
G00 MAX.FEEDRATE(KLU/min)	40000	40000	10000
G00 LINEAR ACC/DEC(ms)	600	600	600
G00 BELL ACC/DEC(ms)	20	20	20
G01 MAX.FEEDRATE(KLU/min)	20000	20000	5000
G01 LINEAR AFTER ACC/DEC(ms)	80	80	80
G01 BELL AFTER ACC/DEC(ms)	0	0	0
MPG ACC/DEC(ms)	100	100	100
MPG MAX.FEEDRATE(KLU/min)	50000	50000	50000
SERVOLAG RANGE(LU)	50000	50000	50000
STATIC SERVOLAG RANGE(LU)	500	500	500
JOG SPD.(KLU/min)	15000	15000	6000
FAST POS.SPD.(KLU/min)	45000	45000	8000
INC MOVE DIS.(LU)	10	10	10
INC MOVE SPD.(KLU/min)	500	500	500

R60286::01st Axis Rapid Max. Feedrate(KLU/min)

ALM WARN

F1 SERVO AX.

F2 SP.

F3

F4

F5

F6

F7

F8

>

LNC

00001\_Z.NC

ZRN

M-RDY

MAIN

SPD.SET

14:23:08  
L7

SP.SPEED PARAM SETTING

SP.	C.S2 (4)	S1 (7)	
LINEAR ACC/DEC(ms/1000rpm)	0	100	
S CURVE ACC/DEC(ms)	0	50	
MAX.CLAMP SPD.(MLU/min)	0	24000	
MIN.CLAMP SPD.(MLU/min)	0	0	
S CODE DEF.VALUE	0	18000	
F.SHOW MODE(0:CMD ,1:FBK)	0	0	

R72132::01st Axis Linear Acc/Dec Time in Speed Mode

ALM WARN

F1

F2

F3

F4

F5

F6

F7

F8

>

SERVO AX.

SP.

- **High-speed & high-precision:** Set the relevant parameters of the machining effect. The parameter page is divided into two parts, one is the path parameters and the other is the axis parameters.

LNC

00001\_Z.NC

ZRN

M-RDY

MAIN

PATH PARAM

14:25:32  
L7

NO.	SET VAL.	DESCRIPTION
60100	600	1st Path Cutting Feed Linear Acc/Dec Time(ms)
60106	50	1st Path Cutting Feed Bell Acc/Dec Time(ms)
60112	2000	1st Path Cutting Feed 5mm Arc Max. Feedrate(KLU/min)
60118	1	1st Path Cutting Feed Arc Clamping Min. Feedrate(KLU/min)
60130	1000	1st Path Cutting Feed Corner Referential Feedrate(KLU/min)
60172	20000	1st Path Max. Cutting Feedrate(KLU/min)
60178	0	1st Path Tolerance for Curve Fitting(LU,0:No Use)
60184	0	1st Path NC Program Correction(LU,0:No Use)
60322	0	1st Path High Precision Level(0:OFF,1:Lowest Precision Level,10:Highest Precision Level)
R60100::1st Path Cutting Feed Linear Acc/Dec Time ALM WARN		

F1 PATH PARAM

F2 AX.PARAM

F3

F4

F5

F6

F7

F8

LNC	00001_Z.NC	ZRN	M-RDY	MAIN	AX.PARAM	14:26:44 L7
NO.	DESCRIPTION			X	Y	
70100	01st Axis Position Loop Gain in Position Mode(0.1/s)			500	500	
71500	01st Axis Rapid Traverse Acc/Dec Type in Position Mode(0:Linear, 2			2		
71132	01st Axis Rapid Traverse Linear Acc/Dec Time in Position Mode(600			600		
71164	01st Axis Rapid Traverse Bell shaped Acc/Dec Time in Position Mode(20			20		
71200	01st Axis Cutting Feed Linear Acc/Dec Time in Position Mode(n 80			80		
71232	01st Axis Cutting Feed S Curve Acc/Dec Time in Position Mode(r 0			0		
60414				0	0	
</						

- **Servo parameters:** This is used for the bus driver, and the driver can be adjusted directly on the system. The pulse driver is not suitable (the MW2200A is a driver equipped with pulse).
- **Advanced parameters:** Advanced parameters: all parameters inside the system, if not required, it's unnecessary to use. All parameters of the system are divided into six categories, namely hardware parameters, system, axis, path, man-machine interface and macro parameters.

F1 HW.PARAM	F2 SYS	F3 AXIS	F4 PATH	F5 HMI	F6 MAC.PARAM	F7 SRCH	F8 >
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