

Application system: MACH3  
The MACH3 Remote instructions



**MODEL**

40 meters wireless distance without electronic handwheel  
**WHB04-L**

40 meters wireless distance with electronic handwheel  
**LHB04**

With 5 m USB cable with electronic handwheel

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## RF Performance Description

- The RF is Standard with 2.4G ISM ,the Tx power is 0DB and the RX sensitivity is -98DB
- The RF has 64 channels,the channel gap is 1Mhz
- The protocol Designed with high performance; Low power consumption; Automatic learning ID Number
- To jump frequency Adaptively when noised ,which can work with 2.4G wireless Mic ,Wlan and Bluetooth etc. devices.
- 64 sets Wireless Handle work fine at the same time in one room ,with no-interference each other
- has the function of the hand wheel, 100PPR the manual pulse generator output
- display, real-time display of the machine the workpiece coordinates, mechanical coordinates. Coordinates X, Y, and Z three-axis with the screen display

## Structure Description



WHB04

- 40 meters wireless distance with electronic handwheel



WHB04

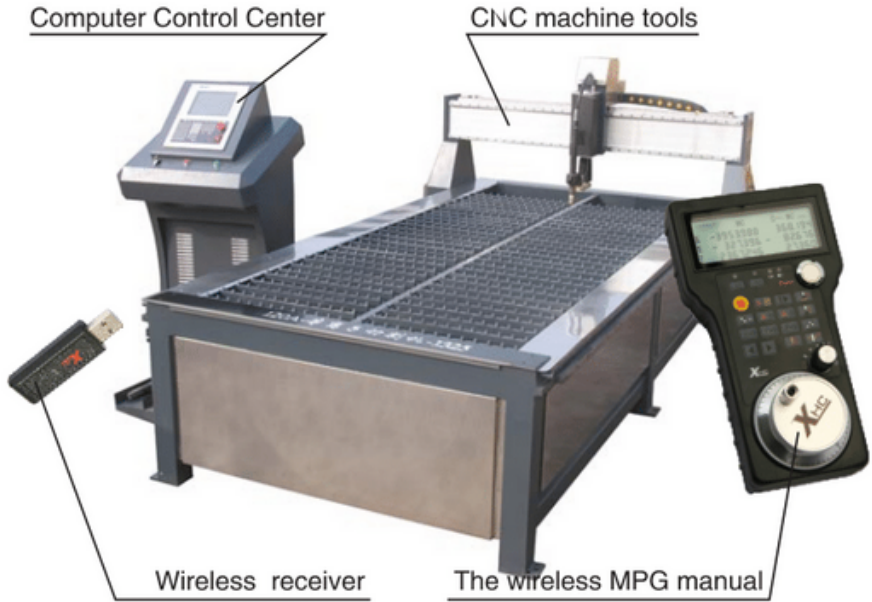
- 40 meters wireless distance without electronic handwheel



LHB04

- USB shielded cable with 5 m

Use of schematic



**Note:** In order to signal stability of the receiver to be installed outside the chassis

## XHC–ShuttlePro Installation

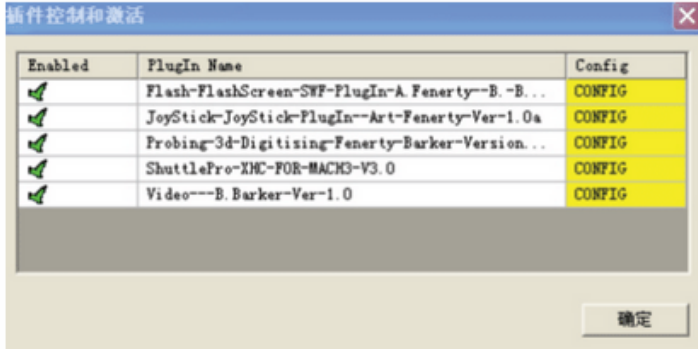
- 1 Before using the hand wheel, install the driver file, mode of operation is as follows:

When Mach3 is installed , there will be a folder created named "PlugIns" in the Mach3 folder. This folder is the location to put and Plugin files that you want Mach3 to know about. Place "XHC–ShuttlePro.dll" in the \Mach3\PlugIns folder. Check and make sure it is there

- 2 Setup diver for Probe Z surface function; M930.m1s copy the installation directory to the MACH3 ..\Mach3\macros\Mach3Mill
- 3 Now that the XHC–ShuttlePro.dll file is in \Mach3\PlugIns, the next step is to connect the ShuttlePro. If you are certain that your ShuttlePro is working and your hardware is working then you can simply plug in the ShuttlePro to one of the USB ports

Once the ShuttlePro is connected, start Mach3 and go to the "Config" menu choice and select "ConfigPlugins" . You should see the ShuttlePro choice with a green checkmark in front of it. If it is not checked, you can check it. The checkmark means that Mach3 found the ShuttlePro on tartup. Click the "CONFIG" in yellow and set the buttons as you wish

- 4 Once you have the proper button selected in the Mach3 ShuttlePro Plugin CONFIG menu, your Shuttle device should be working properly

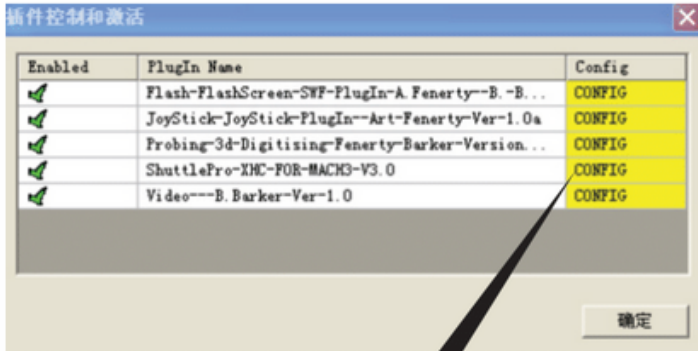


## Plug-in configuration instructions

### Reset ToDefault

start Mach3 and go to the "Config" menu choice and select "ConfigPlugins". You should see the ShuttlePro choice with a green checkmark in front of it. If it is not checked, you can check it.

The checkmark means that Mach3 found the ShuttlePro on tartup. Click the "CONFIG" in yellow and set the buttons as you wish.



ShuttlePro-XHC-FOR-MACH3  
Select "ShuttlePro-XHC-FOR-MACH3"



Configuration interface










## handwheel key function

Icon	Function		
	Reset		Stop
	Go to zero		Start/pause program
	return to the program start		Probe Z surface
	Spindle On/off		go to Z safehigh
	Go home		Macro-code
	Macro-code		Macro-code
	Macro-code		Macro-code
	coordinate Divided by 2, Determine the coordinates X, Y, Z, A-axis through the position of the band switch		coordinate Clear, Determine the coordinates X, Y, Z, A-axis through the position of the band switch
	Step cycle regulation		And JOG work to MPG mode



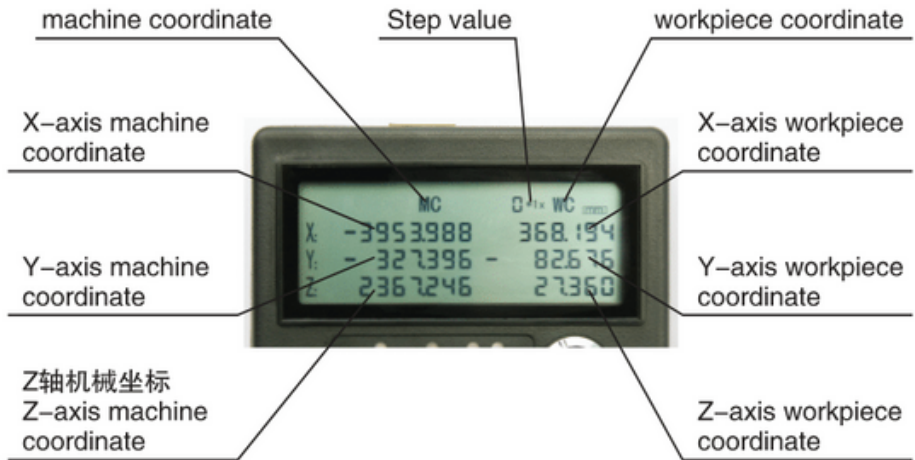
### Band switch function

Through the stalls of the band switch switch to control the various functions of the hand wheel

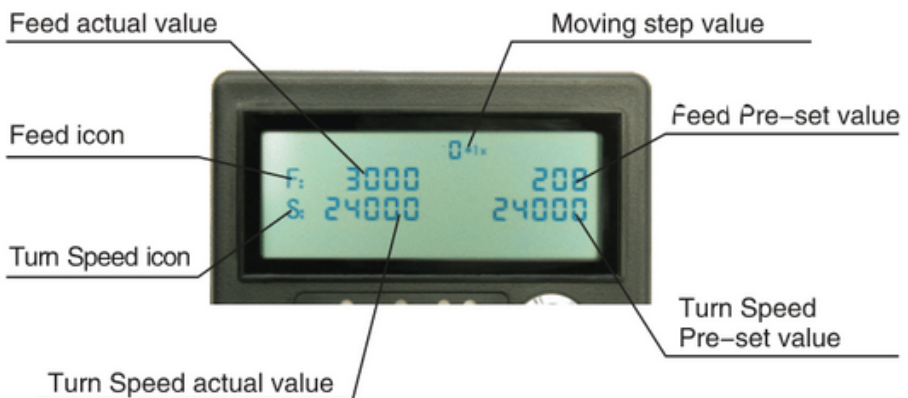
Icon	Function
	Close the hand wheel
	Positioning the band switch to the stall, shaking the hand wheel on the X-axis movement control: the distance traveled according to the magnification
	Positioning the band switch to the stall, shaking the hand wheel on the Y-axis movement control: the distance traveled according to the magnification
	Positioning the band switch to the stall, shaking the hand wheel on the Z-axis movement control: the distance traveled according to the magnification
	Positioning the band switch to the stall, shaking the hand wheel on the A-axis movement control: the distance traveled according to the magnification
	The band switch to locate the stall by shaking the hand wheel, spindle speed of adjustment
	The band switch to locate the stall by shaking the hand wheel, Feed adjustment

## LCD Display Description

- When the band switch in the X, Y, Z, A gear display coordinate information



- When the band switch position in the  and  position display feed and spindle Information





## DC Description

Name	Voltage	Current	Note
Wireless USB Receiver	4.5V ~ 5.0V	Less than 50mA	
Wireless Handle	1.5V ~ 3.0V	Average Current Less than 2mA	Use of time More than 2 months USE Two 2000MAH Battery

**Note:** Wireless Handle Need Two AA Battery, When the Low voltage indicator LED light, the battery is completely, Proposed to replace the battery

## RF Performance Description

No.	Performance or Parameters Description
1	The RF is Standard with 2.4G ISM ,the Tx power is 0DB and the RX sensitivity is -98DB
2	The RF has 64 channels,the channel gap is 1Mhz
3	The transmission distance is further than 15 meters with no barrier
4	The protocol Designed with high performance, Low power consumption, Automatic learning ID Number
5	To jump frequency Adaptively when noised ,which can work with 2.4G wireless Mic, Wlan and Bluetooth etc. devices.
6	32 sets Wireless Handle work fine at the same time in one room ,with no -interference each other

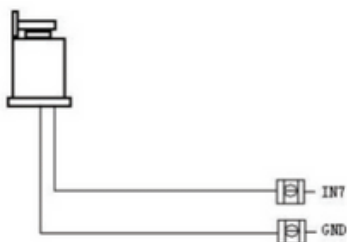
# 1(Attachment 1)

## Probe Z surface

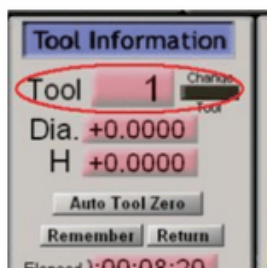
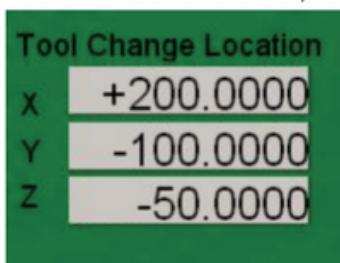
★ 1.

目录..\Mach3\macros\Mach3Mill下

Copy the file M930.m1s to MACH3 the directory  
\Mach3\macros\Mach3Mill



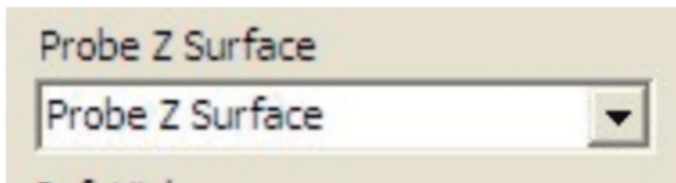
Input the z offset the Tool change location. Notice:the z offset(-63.000 mm) is higher 5-10MM than the surface (-68.000 mm) of the probe. Set Probe Z surface Value, we can "program" screen "MDI" box, enter "M930" ENTER to proceed; Prior to this, please select the number of the tool, as shown in



- ★ 4. Define the MACH3 Probe pin.; In the config :ports and pins.define probe pin

Signal	Enabled	Port #	Pin Number	Active Low	Emulated	HotKey
Input #2		0	0			0
Input #3		0	0			0
Input #4		1	24			0
Probe		1	7			0
Index		0	0			0
Limit Ovrd		0	0			0
EStop		1	8			0
THC On		0	0			0
THC Up		0	0			0
THC Down		0	0			0

- ★ 5. in my plugin define the key function " Probe Z Surface"



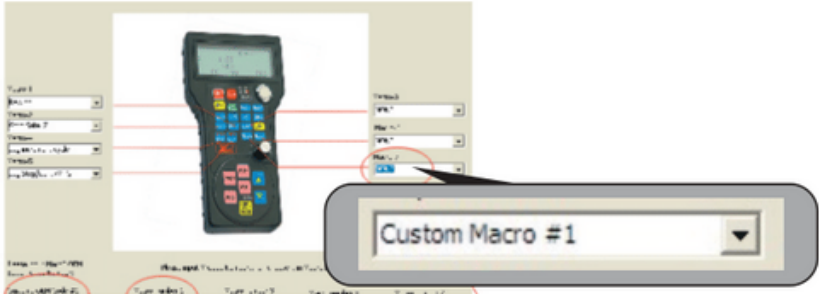
It will auto probe z surface when you press the key

## (Attachment 2)

### Macro-code

#### Custom Macro #1

- ★ 1. select the plug-in configuration M #; such as the example to select the Custom Macro # 1



- ★ 2. In my plugin setting,you input number in the “custom macro number1” ,the number is M code.then choose “Custom macro #1” function in the key combox,, you get the M8 function when you press the key



use VB Scripting to do M code:To activate an output5, you should enable output#5 in ports and pins config.then write the following script:  
 ActivateSignal(OUTPUT5)

Then you save it as m200.m1s (to signify the output active) in the directory C:\Mach3\macros\Mach3Mill

To deactivate an output, you write the following script:

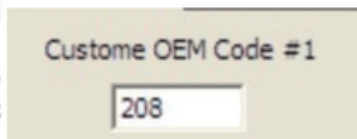
DeactivateSignal(OUTPUT5)

Then you save it as m201.m1s (to signify the output inactive) in the directory C:\Mach3\macros\Mach3Mill

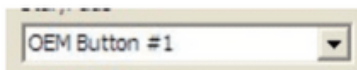
then you could define the m code number 200 and 201 in the “macro number” box.

### Custom Oem code setting

- ★ 1. In my plugin setting, you input number in the "Custom OEM CODE #1", the number is mach3 OEM code. then choose "OEM button #1" function in the key combobox,, you get the code 208 function when you press the key



Clear Z tool offset (Turn) Key define:



## (Attachment 3)

### Macro-Codes Function

M-code	Functions	M-code	Functions
M0	Program stop	M8	Flood on
M1	Optional program stop	M9	Mist & flood off
M3/M4	Rotate spindle clockwise/ counterclockwise	M30	Program end and rewind
M5	Stop spindle rotation	M47	Repeat program from first line
M6	Tool change (by two macros)	M48	Enable speed and feed override
M7	Mist on	M98	Call subroutine
		M99	Return from subroutine/repeat

### Custom M-code\*

M-code	Functions	Custom M-code*	Functions
M200	Output 5 on	M208	Output 9 on
M201	Output 5 off	M209	Output 9 off
M202	Output 6 on	M210	Output 10 on
M203	Output 6 off	M211	Output 10 off
M204	Output 7 on	M212	Output 11 on
M205	Output 7 off	M213	Output 11 off
M206	Output 8 on	M214	Output 12 on
M207	Output 8 off	M215	Output 12 off