



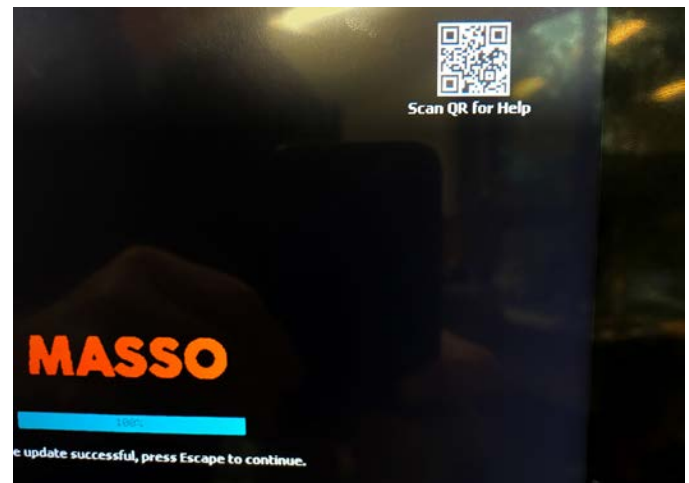
## MASSO Touch Controller G3 Setup

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### MASSO Documentation

The MASSO controller monitor and the stepper motors have QR codes. You can scan either code with you cell phone and it will take you directly to the MASSO website where you can find detailed MASSO documentation.



*The QR code on the MASSO control monitor takes you to Loading Software to MASSO-G3 documentation.*



*The QR code on the MASSO stepper motor power supply takes you to the MASSO Controllers documentation.*

### Starting up the MASSO Touch Controller G3

1. Insert the USB flash drive into the USB port.
2. Power on the controller (see Figure 1).



FIGURE 1—The red arrows show the locations of the Power and the USB port at the base of the monitor. See Figure 75 on page 19 for the functions of the buttons on the bottom of the monitor.

3. Tap the screen while the controller is powering up.
  - A. The software load screen should come up. If it doesn't, power off, and power back on while the controller is powering up.
  - B. If the software load screen comes up, touch the software that you wish to load, and then touch "Enter."



FIGURE 2—The software load screen

- C. The software progress bar should show the software loading. Do not power off the controller while the software is loading (see Figure 3).

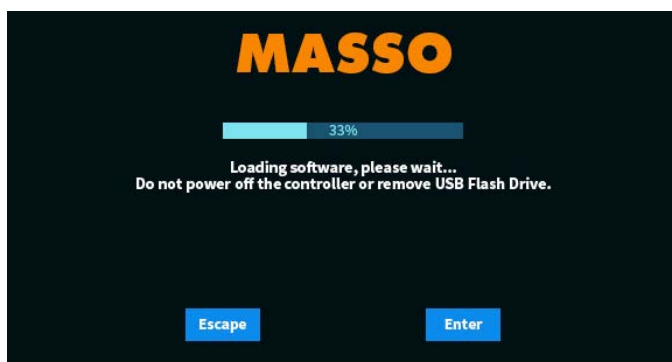


FIGURE 3

- D. When the load bar reaches 100%, touch "Escape" and the controller will reboot (see Figure 4).

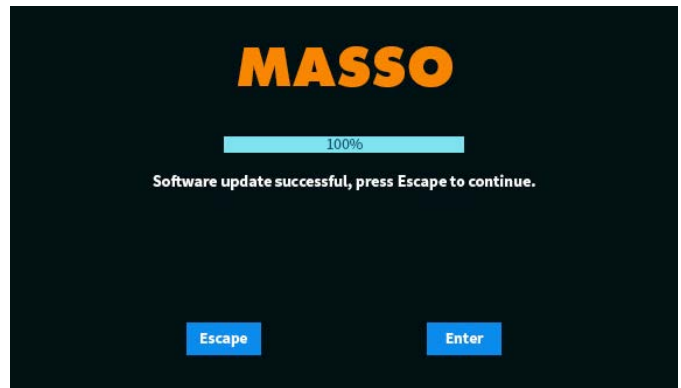


FIGURE 4

- E. Release the E-stop button. Tap the entry bar for the User Login Password. Enter your password (sp) lower case. **NOTE:** If you do a software upgrade, the password (sp) may not work. MASSO uses password (HTG) as a default on software upgrades. Then "touch and hold" the "Home" button on the Jog screen. Double-tap the Home button and your machine will home out in all axes.

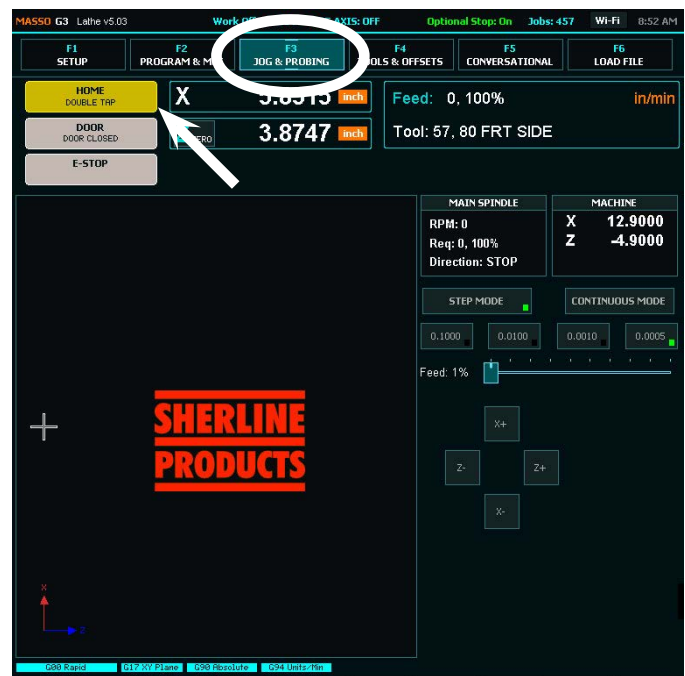


FIGURE 5—The white oval highlights the F3 JOG & PROBING function and the white arrow indicates the Home button.

## Notes on Using the Shift Key and the Touch Keyboard

1. With the shift key blank (default setting), the letters are all lower case.

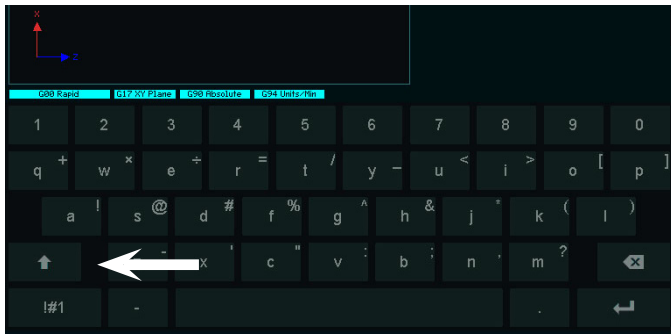


FIGURE 6—The shift key is not highlighted and the keys are set to lower case.

2. Touch the shift key once and the arrow will light up. In this mode the next key that you touch will be “upper case.” Then the shift key will go back to lower case.

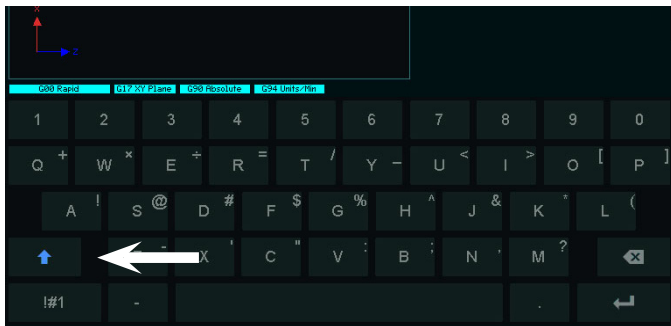


FIGURE 7—The up-arrow on the shift key is highlighted and the keys have switched to upper case.

3. If you touch the shift key twice, the entire key will light up. This locks the keyboard in upper case (see Figure 8).

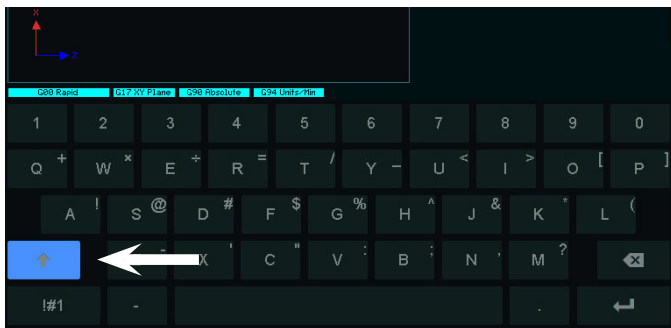


FIGURE 8—The whole shift key is highlighted and the keys have switched to upper case.

4. The older G2 control board would default to upper case when you turned on the machine. The new G3 board that is in the Touch Control defaults to lower case. If you want to save some time, change the password to lower case.
5. If you press any key on the touch screen once, it will input the main letter or number on that key.

6. If you press and hold the key, it will input the symbol that is on that key.

## Passwords

1. The password for your control when you receive it is: sp (lower case).
2. The password for the F1 Setup page is: 3235

## How to Change Your Password

1. When you power up the controller, enter your password and before you touch Enter, touch the box that says “Change Password.”

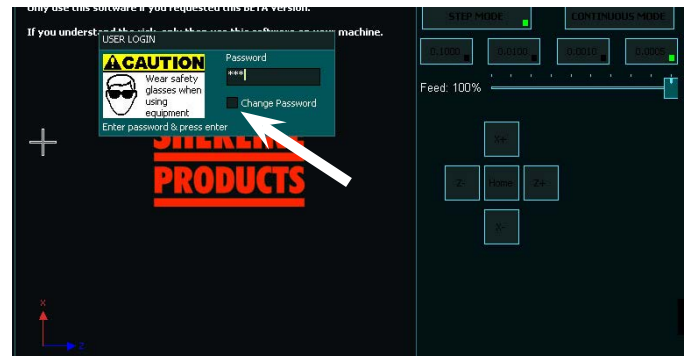


FIGURE 9—Check the “Change Password” box as indicated by the white arrow.

2. Then hit enter. After you hit enter, the “User Login” box will open. Enter your new password and confirm it. Then touch “OK.” The next time you turn on the control, it will accept your new password.

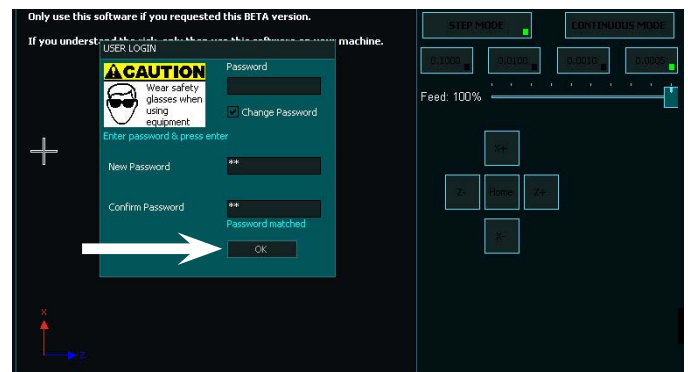


FIGURE 10

## What to do If Your Password Doesn't Work

1. There are generally two reasons that your password is not working. The first is that you typed it in wrong. Try again.
2. The second reason happens when you reinstall software or do a software update. Sometimes when you do a software update, the software is set up to use the MASSO password, which is (HTG) all caps. Type in HTG and follow the direction above to change the password. Then touch “OK.” You may also need to use the password HTG on the F1 screen the first time as well. The next time you power up the controller, use the changed password.



### Screen Orientation

1. If the screen comes up in the Horizontal orientation (see Figure 10), do the following steps to change it to Vertical orientation.

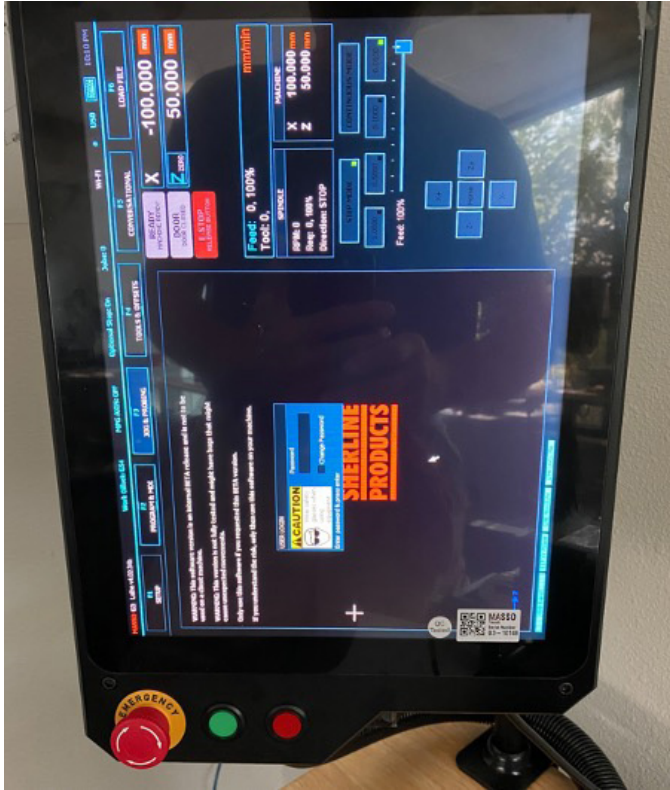


FIGURE 11—The screen is in the horizontal orientation.

2. The horizontal orientation does not have a “keypad” at the bottom of the screen. If you choose to use the controller in the horizontal orientation, you will need to connect a wireless keyboard and mouse “set” to the controller.
  - A. First, remove the USB flash drive.
  - B. Power off the controller (see Figure 1).
  - C. Open the controller by removing the four corner screws on the controller face.
  - D. Connect the wireless keyboard/mouse dongle to the top USB port on the G3 board (see Figure 12).

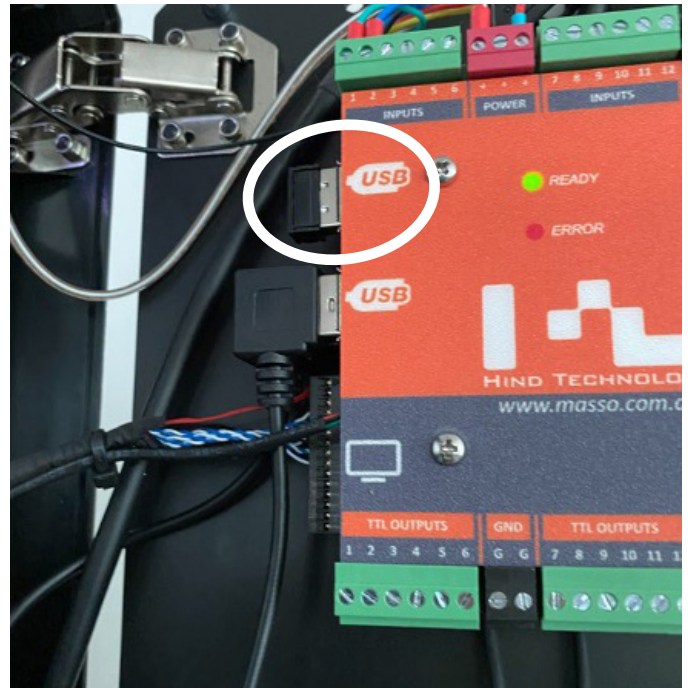


FIGURE 12—The white oval shows the top USB port.

3. Now close the controller cabinet. Insert one of the controller screws to secure the front cover in place. Then power on the controller.
4. With the controller on, now input the password using the keyboard.
5. E-stop off.
6. Touch the F1 “Setup” (see Figure 13).
7. Touch the password bar for the “ADMIN LOGIN.” Using the keyboard, input the password (3235).

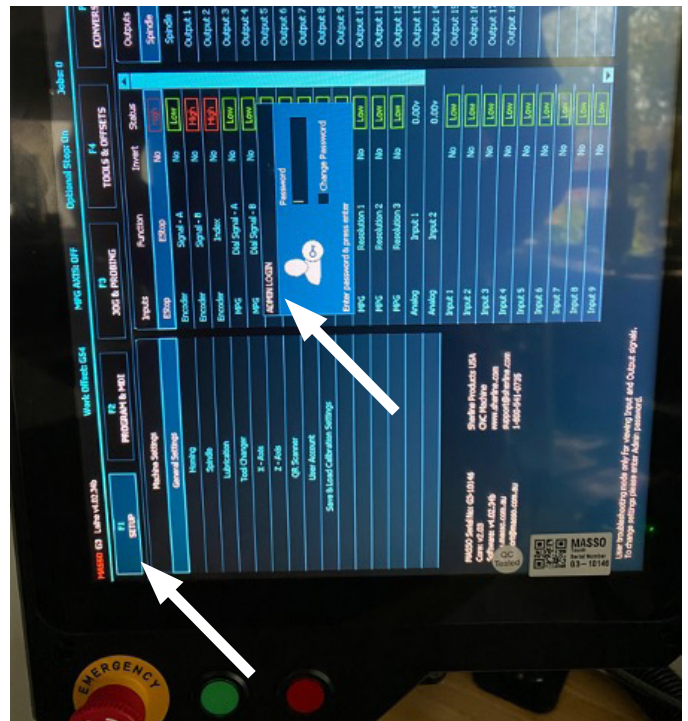


FIGURE 13—The white arrows point to the F1 Setup and the ADMIN LOGIN box.

8. Double touch “General Settings,” which are under the “Machine Settings” column.

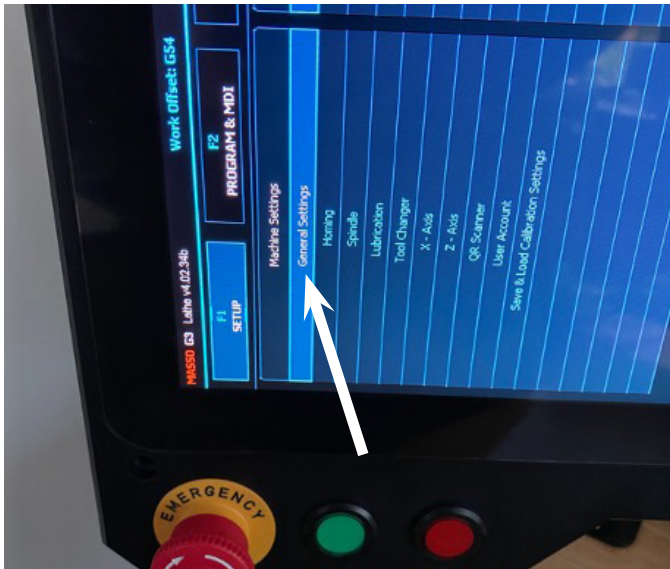


FIGURE 14

9. Change “Horizontal” to “Vertical” and touch “Save.”
10. Power off, and remove the keyboard/mouse dongle from the G3 board.

**NOTE:** If you want to use the keyboard/mouse with the controller, then leave the dongle in the G3 board.

Then close the controller and tighten all (4) screws to “Snug.” **Do Not Over Tighten!**

11. Power on, and the controller screen should now be in the “vertical” orientation.

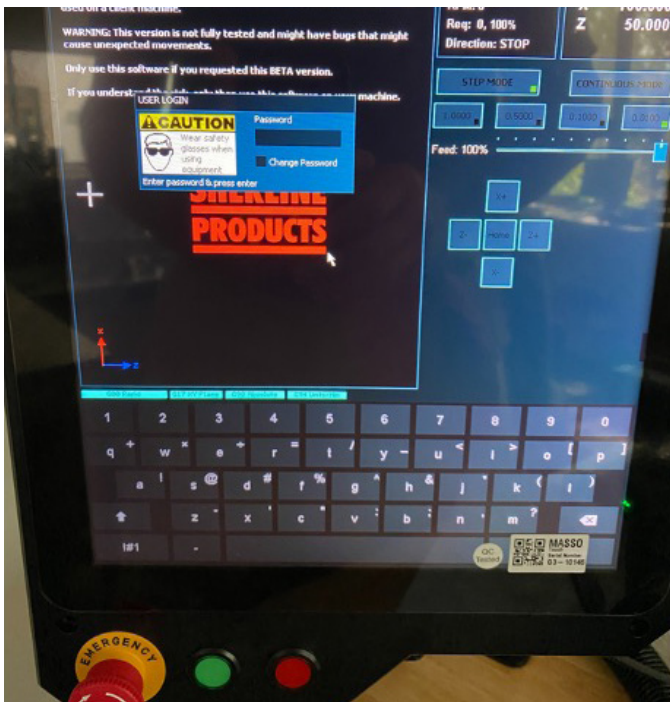


FIGURE 15—Vertical orientation

### Setting the Function Inputs on the Touch Controller

1. Double click on the “General Settings” again.

- A. Set the machine units to “Inch or Metric.”
- B. Set screen to Vertical.
- C. Check the box next to “Limit maximum feed rate.”
- D. Input 70.0” (1778 mm) in the box for “Maximum allowed feed rate.”
- E. Choose the language on the “Keyboard Layout” box.
- G Hit “Save.”

2. Now go to the “Function” column. Cursor down to Inputs 13 and 14. On the Lathe and the Chucker Lathe, #13 should be “X-Home Sensor Input” and #14 should be “Z-Home Sensor Input.” The “Invert” column should be “Yes.” When the homing sensor/limit switch is not activated, the “Status” should be “LOW” (see Figure 16).

MASSO G3 Lathe v4.02.34b															
F1 SETUP				F2 PROGRAM & MDE				F3 G & PROBE				F4 T & OFFSETS			
Machine Settings				Inputs				Function				Invert			
General Settings				MPG	Resolution 3			No	Low			Spindle			
Homing				Analog	Input 1			0.00v				Spindle			
Spindle				Analog	Input 2			0.00v				Output 1			
Lubrication				Input 1				No	Low			Output 2			
Tool Changer				Input 2				No	Low			Output 3			
X - Axis				Input 3				No	Low			Output 4			
Z - Axis				Input 4				No	Low			Output 5			
QR Scanner				Input 5				No	Low			Output 6			
User Account				Input 6				No	Low			Output 7			
Save & Load Settings				Input 7				No	Low			Output 8			
				Input 8				No	Low			Output 9			
				Input 9				No	Low			Output 10			
				Input 10				No	Low			Output 11			
				Input 11				No	Low			Output 12			
				Input 12				No	Low			Output 13			
				Input 13	X - Home Sensor Input			Yes	Low			Output 14			
				Input 14	Z - Home Sensor Input			Yes	Low			Output 15			
				Input 15				No	Low			Output 16			

FIGURE 16—Lathe inputs. The four white arrows at the top point to the four columns: Inputs, Function, Invert, and Status.

On the Mill, the Inputs are different. Input 13 is X, 14 is Y, 15 is Z, and 16 is the A-axis. In addition to these input settings, Input 23 should be “Tool Setter Input” and 24 should be “Probe Input Signal” (see Figure 17).

MASSO G3 Mill 4-Axis v4.02.31a															
F1 SETUP				F2 PROGRAM & MDE				F3 G & PROBE				F4 T & OFFSETS			
Machine Settings				Inputs				Function				Invert			
General Settings				Analog	Input 2			0.00v				Spindle			
Homing				Input 1	Cycle Start Button Input			No	Low			Spindle			
Spindle				Input 2	Cycle Stop Button Input			No	Low			Output 1			
Lubrication				Input 3				No	Low			Output 2			
Tool Changer				Input 4				No	Low			Output 3			
X - Axis				Input 5				No	Low			Output 4			
Y - Axis				Input 6				No	Low			Output 5			
Z - Axis				Input 7				Yes	High			Output 6			
A - Axis				Input 8				No	Low			Output 7			
Touch Probe				Input 9				No	Low			Output 8			
Auto Tool Zero				Input 10				No	Low			Output 9			
Multi-Head				Input 11				No	Low			Output 10			
QR Scanner				Input 12				No	Low			Output 11			
User Account				Input 13	X - Home Sensor Input			Yes	Low			Output 12			
Save & Load Settings				Input 14	Y - Home Sensor Input			Yes	Low			Output 13			
				Input 15	Z - Home Sensor Input			Yes	Low			Output 14			
				Input 16	A - Home Sensor Input			Yes	Low			Output 15			
				Input 17				No	Low			Output 16			
				Input 18				No	Low			Output 17			
				Input 19				High	High			Output 18			
				Input 20				Yes	Low						

FIGURE 17—Mill inputs.

- A. To change the functions if needed, double touch the desired Input line. The “Assign Function” window will appear.



- B. If the function name for #13 or #14 are blank (which they were when we powered up the controller for the first time), you will need to find out if these functions are on a different input line. Then double click on them to change the function to “Not Used.” This will add the needed function back onto the list of available functions and make the current input number “blank” (see Figure 18).

Machine Settings	Inputs	Function	Invert	Status	Outputs
General Settings	Analog	Input 2		0.00v	Spindle
Homing	Input 1		No	Low	Spindle
Spindle	Input 2		No	Low	Output 1
Lubrication	Input 3		No	Low	Output 2
Tool Changer	Input 4		No	Low	Output 3
X - Axis	Input 5		No	Low	Output 4
Z - Axis	Input 6		No	Low	Output 5
QR Scanner	Input 7		No	Low	Output 6
User Account	Input 8		No	Low	Output 7
Feed & Load Settings	Input 9		No	Low	Output 8
	Input 10		No	Low	Output 9
	Input 11		No	Low	Output 10
	Input 12		No	Low	Output 11
	Input 13		Yes	Low	Output 12
	Input 14		Yes	Low	Output 13
	Input 15		No	Low	Output 14
	Input 16		No	Low	Output 15
	Input 17		No	Low	Output 16
	Input 18		No	Low	Output 17

FIGURE 18—#13 and #14 are blank.

- C. Double click on the Input 13 line. Then “double touch” “X-Home Sensor Input” and touch “Select.” This will change #13 to X-Home Sensor input (see Figure 19).

Input 3	No	Low	Output 2
Input 4			
Input 5			
Input 6			
Input 7			
Input 8			
Input 9			
Input 10			
Input 11			
Input 12			
Input 13			
Input 14			
Input 15			
Input 16			
Input 17			
Input 18			
Input 19			
Input 20			
Input 21	No	Low	
Input 22	No	Low	

FIGURE 19—The white arrow is pointing to the “Select” button.

- D. If you need to change the “Invert and Status” for any input line, just touch the input bar “Once” to

highlight the Input line. Then touch the “Space Bar” to change the “Invert and Status” for that input number (see Figures 209 and 21).

Axis	Input 3	No	Low	Output 4
Axis	Input 4	No	Low	Output 5
Scanner	Input 5	No	Low	Output 6
Account	Input 6	No	Low	Output 7
Head Settings	Input 7	No	Low	Output 8
	Input 8	No	Low	Output 9
	Input 9	No	Low	Output 10
	Input 10	No	Low	Output 11
	Input 11	No	Low	Output 12
	Input 12	No	Low	Output 13
	Input 13	X - Home Sensor Input	No	High
	Input 14	Z - Home Sensor Input	Yes	Low
	Input 15		No	Low
	Input 16		No	Low
	Input 17		No	Low
	Input 18		No	Low
	Input 19		No	High
	Input 20		No	High
	Input 21		No	Low
	Input 22		No	Low

FIGURE 20—Invert and Status are “No and High.”

Axis	Input 3	No	Low	Output 4
Axis	Input 4	No	Low	Output 5
Scanner	Input 5	No	Low	Output 6
Account	Input 6	No	Low	Output 7
Head Settings	Input 7	No	Low	Output 8
	Input 8	No	Low	Output 9
	Input 9	No	Low	Output 10
	Input 10	No	Low	Output 11
	Input 11	No	Low	Output 12
	Input 12	No	Low	Output 13
	Input 13	X - Home Sensor Input	Yes	Low
	Input 14	Z - Home Sensor Input	Yes	Low
	Input 15		No	Low
	Input 16		No	Low
	Input 17		No	Low
	Input 18		No	Low
	Input 19		No	High
	Input 20		No	High
	Input 21		No	Low
	Input 22		No	Low

FIGURE 21—Hit the space bar. This changes to the Input and Status to “Yes and Low” respectively.

- E. When all of the changes on the settings are finished the screen should look like image as seen in Figure 22. **NOTE:** This information is for our Lathe. The following image is for our Mill (see Figure 22). On the mill, Inputs 13, 14, 15, and 16 are for X, Y, Z, and A-axis respectively. They should all be set to “Yes & Low.”

Axis	Input 5	No	Low	Output 4
Axis	Input 6	No	Low	Output 5
anner	Input 7	No	Low	Output 6
account	Input 8	No	Low	Output 7
ad Settings	Input 9	No	Low	Output 8
	Input 10	No	Low	Output 9
	Input 11	No	Low	Output 10
	Input 12	No	Low	Output 11
	Input 13 X - Home Sensor Input	Yes	Low	Output 12
	Input 14 Z - Home Sensor Input	Yes	Low	Output 13
	Input 15	No	Low	Output 14
	Input 16	No	Low	Output 15
	Input 17	No	Low	Output 16
	Input 18	No	Low	Output 17
	Input 19	No	High	Output 18
	Input 20	No	High	
	Input 21	No	Low	
	Input 22	No	Low	
	Input 23	No	Low	
	Input 24	No	Low	

FIGURE 22—Lathe settings.

Axis	Input 5	No	Low	Output 4
Axis	Input 6	No	Low	Output 5
Axis	Input 7	Yes	High	Output 6
Axis	Input 8	No	Low	Output 7
Probe	Input 9	No	Low	Output 8
ool Zero	Input 10	No	Low	Output 9
H-Head	Input 11	No	Low	Output 10
anner	Input 12	No	Low	Output 11
account	Input 13 X - Home Sensor Input	Yes	Low	Output 12
ad Settings	Input 14 Y - Home Sensor Input	Yes	Low	Output 13
	Input 15 Z - Home Sensor Input	Yes	Low	Output 14
	Input 16 A - Home Sensor Input	Yes	Low	Output 15
	Input 17	No	Low	Output 16
	Input 18	No	Low	Output 17
	Input 19	No	High	Output 18
	Input 20	Yes	Low	
	Input 21	Yes	Low	
	Input 22	Yes	High	
	Input 23 Tool Setter Input	Yes	High	
	Input 24 Probe Input Signal	No	High	

FIGURE 23—Mill settings.

- If you have a “Door Alarm,” this is how to fix it. Our machines don’t have “door’s or door sensors.” Sometimes the “Door Sensor Input” will show up on one of the function input settings. This is common on the initial startup of a new controller which has factory default settings, or sometimes when you reinstall the software. You need to remove it in order to get rid of the alarm.

A. Go to the F1 Setup screen.

B. Cursor down to the Inputs on the Function settings and see if one of the inputs says “Door Sensor Input” (see Figure 24 as shown on Input #10).

Axis	Input 5	No	Low	Output 4
Axis	Input 6	No	Low	Output 5
anner	Input 7	No	Low	Output 6
account	Input 8	No	Low	Output 7
ad Settings	Input 9	No	Low	Output 8
	Input 10 Door Sensor Input	No	Low	Output 9
	Input 11	No	Low	Output 10
	Input 12	No	Low	Output 11
	Input 13 X - Home Sensor Input	Yes	Low	Output 12
	Input 14 Z - Home Sensor Input	Yes	Low	Output 13
	Input 15	No	Low	Output 14
	Input 16	No	Low	Output 15
	Input 17	No	Low	Output 16
	Input 18	No	Low	Output 17
	Input 19	No	High	Output 18
	Input 20	No	High	
	Input 21	No	Low	
	Input 22	No	Low	
	Input 23	No	Low	
	Input 24	No	Low	

FIGURE 24

C. Double click on the Input #10 line. The “Assign Function” box will come up. Touch “Not used.” Then touch “Select.”

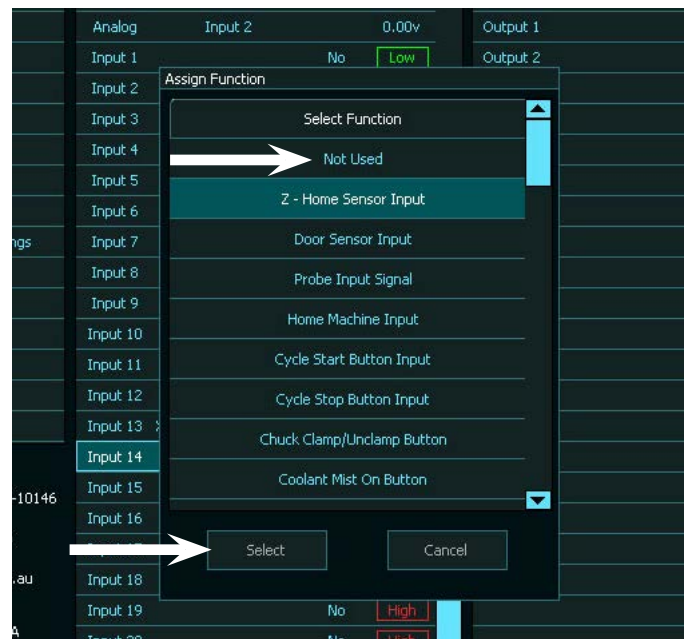


FIGURE 25—The white arrows point to the “Not Used” function and the “Select” button.



D. This will remove the “Door Sensor Input” from that input line (see Figure 26).

Input 2	No	Low	Output 1
Input 3	No	Low	Output 2
Input 4	No	Low	Output 3
Input 5	No	Low	Output 4
Input 6	No	Low	Output 5
Input 7	No	Low	Output 6
Input 8	No	Low	Output 7
Input 9	No	Low	Output 8
Input 10	No	Low	Output 9
Input 11	No	Low	Output 10
Input 12	No	Low	Output 11
Input 13 X - Home Sensor Input	Yes	Low	Output 12
Input 14 Z - Home Sensor Input	Yes	Low	Output 13
Input 15	No	Low	Output 14
Input 16	No	Low	Output 15
Input 17	No	Low	Output 16
Input 18	No	Low	Output 17
Input 19	No	High	Output 18
Input 20	No	High	
Input 21	No	Low	
Input 22	No	Low	

FIGURE 26—The input #10 line is now clear.

E. Power off/on, and the alarm should be gone.

F. If the “Door Sensor Input” is on one of the input lines used for another function, remove it from the input line. Then double click the input line and select the correct function for that input line.

### Machine Settings for All Three Sherline Machines

The following settings are for our Accu-Pro Lathe, Accu-Pro Chucker Lathe, and Accu-Pro Mill, in that order. The following settings are all in Inch. If you want your settings to be in Metric, we suggest putting all of your settings in as the inch values that we show. Then, when you are finished, go back to the “General Settings” and change it to “Machine units in millimeters.” All of the inch values on your settings and your control screen will change to millimeter.

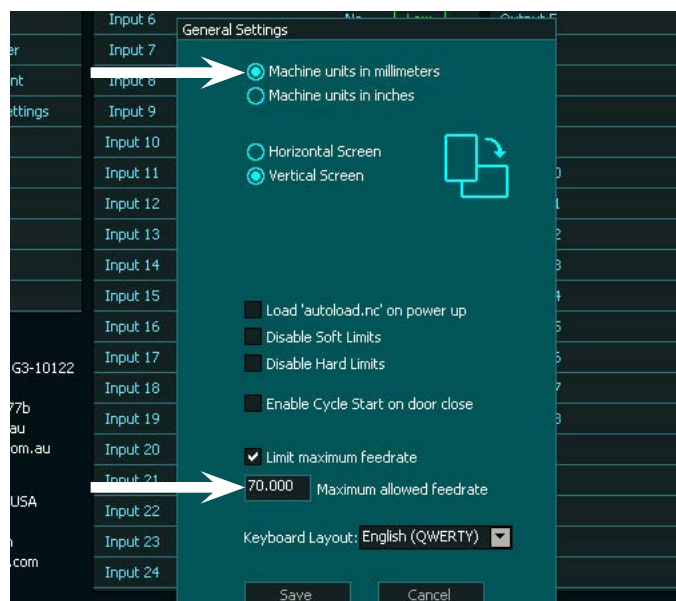


FIGURE 27—Change the Machine units to millimeters.

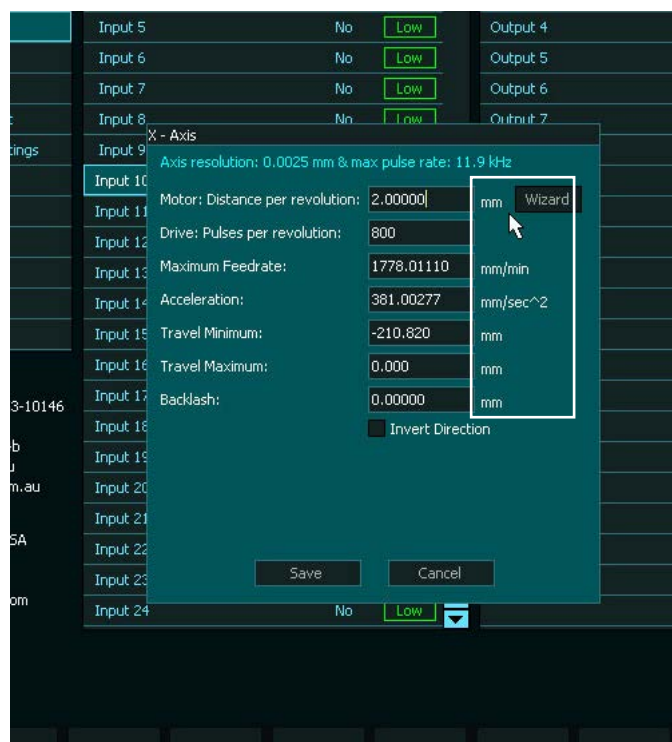


FIGURE 28—All the setting values change to mm as shown in the white rectangle.

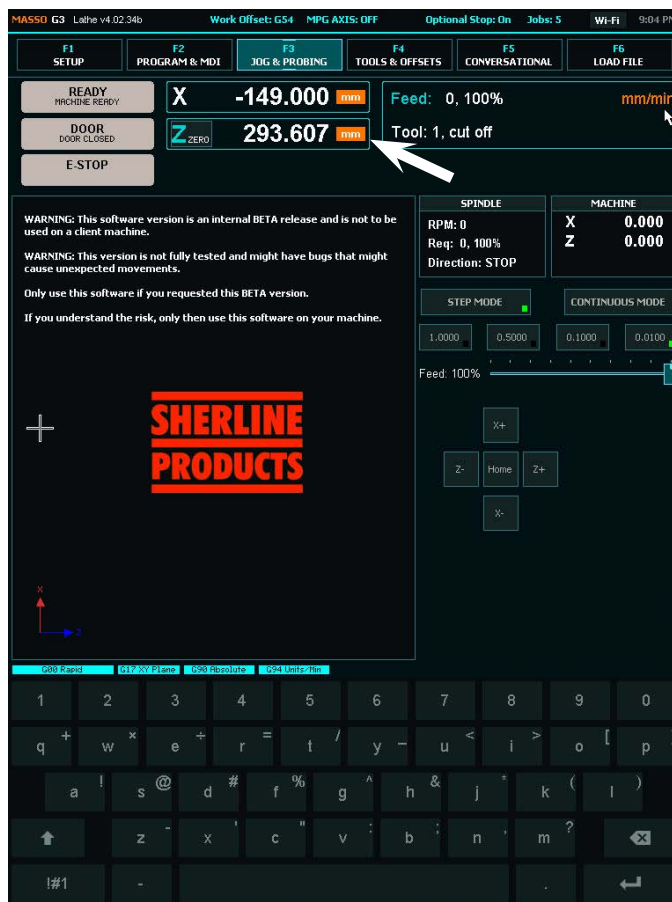


FIGURE 29—The white arrow on the control screen shows that the units have changed to mm.



## Settings for the Lathe

### General Settings

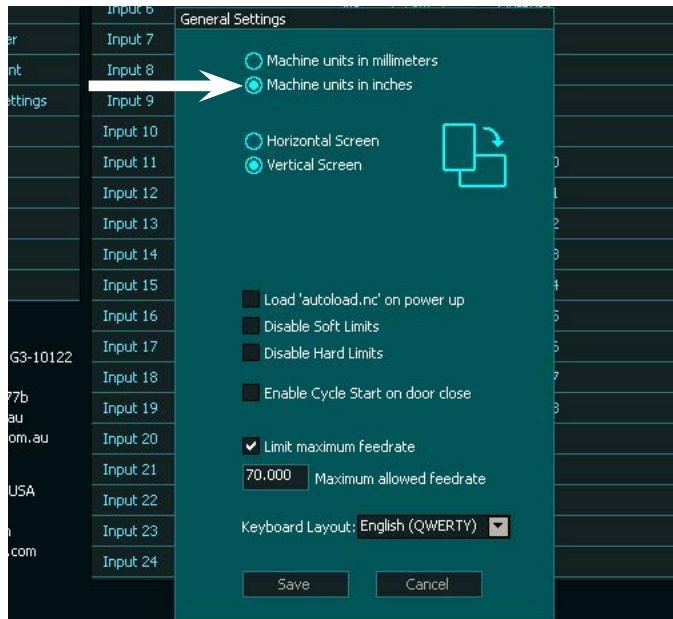


FIGURE 30—General Settings dialog box.

### Homing Settings

The Accu-Pro Lathe has the X-axis stepper motor on the backside of the crossslide as a standard configuration. These instructions cover several different machines. The information regarding the front side stepper motor orientation for the Homing and X-axis is for those machines only. Use the backside mount information for the Accu-Pro Lathe (see Figure 31).

Standard X-axis Configuration: Stepper motor mounted on the backside.

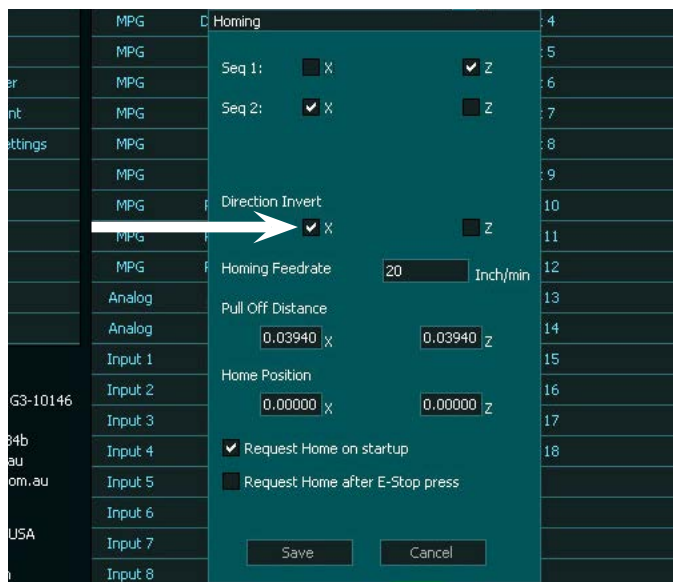


FIGURE 31—The Homing dialog box for the standard Accu-Pro Lathe with the stepper motor on the backside of the X-axis. Note that you must check the “Direction Invert” X box as indicated by the white arrow.

Optional X-axis Configuration: Stepper motor mounted on the front side.

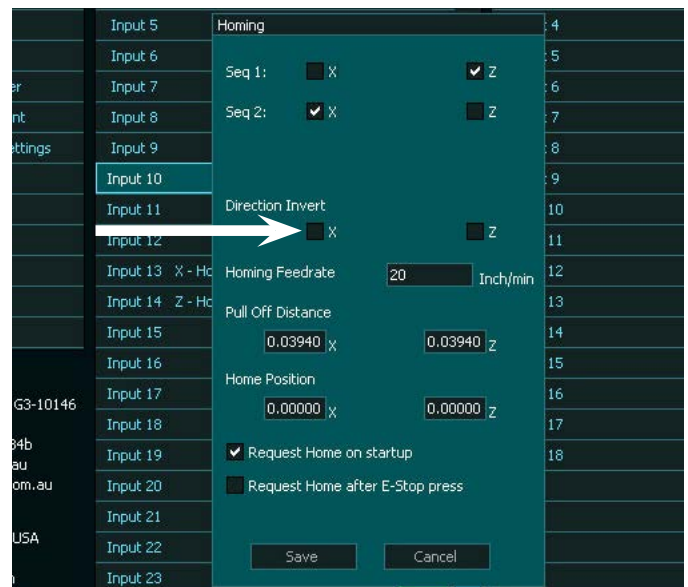


FIGURE 32—The Homing dialog box for the other lathes with the stepper motor on the front side of the X-axis. Note that the “Direction Invert” X box is unchecked as indicated by the white arrow.

### Spindle Settings (PID) Enabled

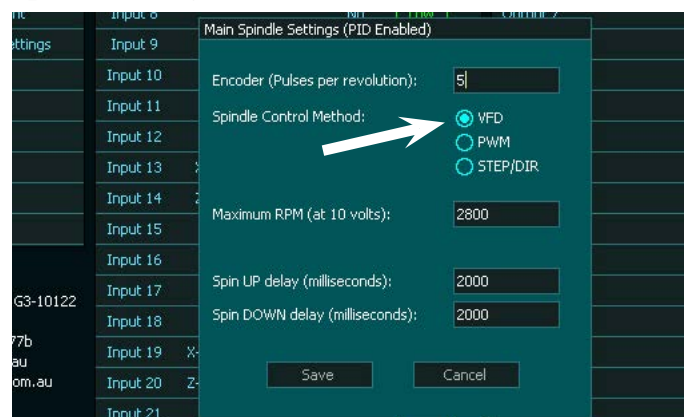


FIGURE 33—The Spindle Control Method must be set to “VFD” as indicated by the white arrow.

### Tool Changer

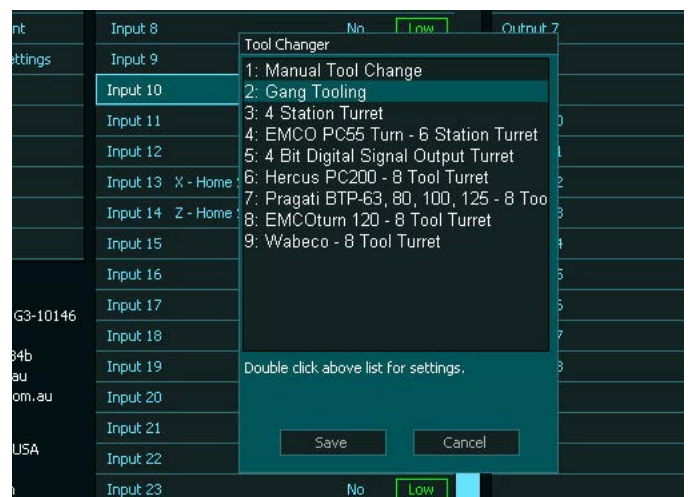


FIGURE 34—Tool Changer dialog box.

X-Axis

Standard X-axis Configuration: Stepper motor mounted on the backside.

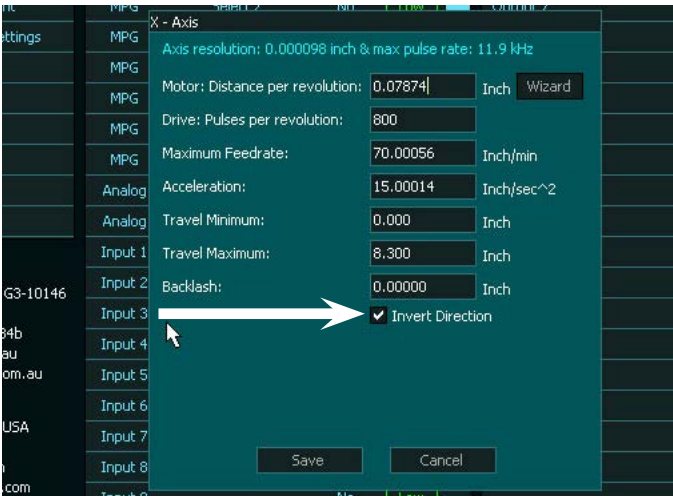


FIGURE 35—Make sure the “Invert Direction” box is checked for the standard X-axis stepper motor configuration (backside).

Other X-axis Configuration: Stepper motor mounted on the front side.

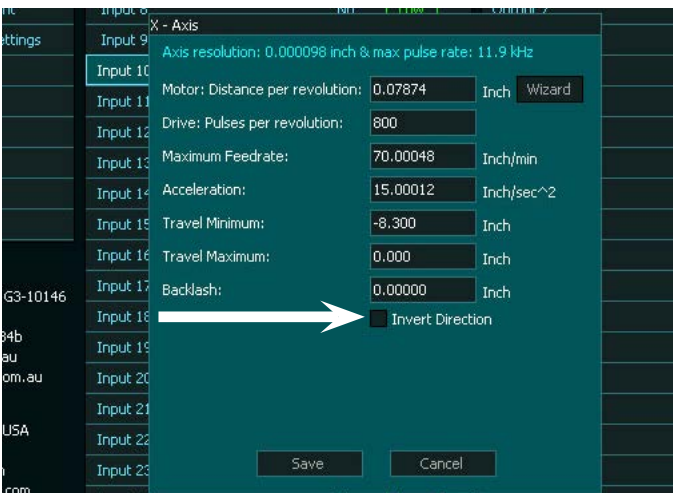


FIGURE 36—Make sure the “Invert Direction” box is unchecked for the other X-axis stepper motor configuration (front side).

Z-Axis



FIGURE 37—Lathe Z-axis dialog box.

Function Inputs



FIGURE 38A—Function input screens.



FIGURES 38A & 38B—Function input screens.



Save & Load Calibration Settings



FIGURE 39—Touch “Save to File” and all of your settings and tool files will be saved to the USB drive.

Tool & Offsets Page



FIGURE 40—Always leave Tool #0 X and Z Offset values as Zero. Name it “blank.”

Settings for the Chucker Lathe  
General Settings

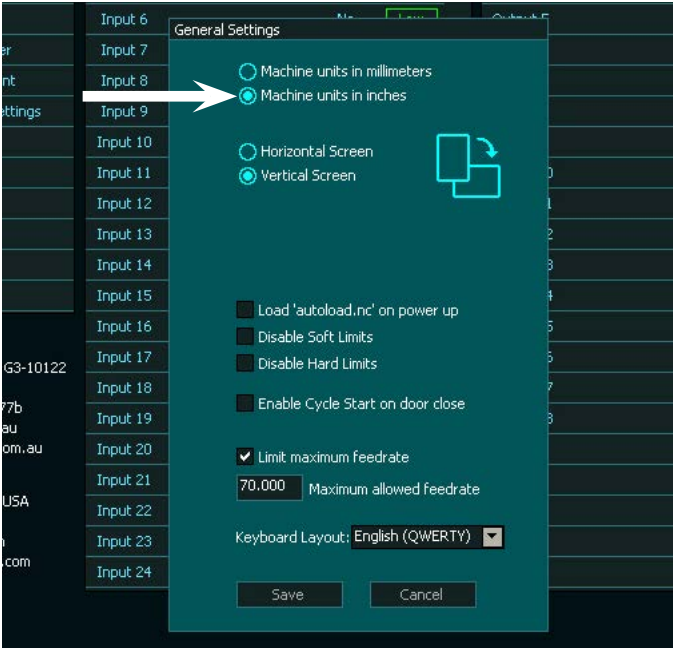


FIGURE 41—General Settings dialog box.

Homing Settings



FIGURE 42—Homing dialog box.

Spindle Settings (PID) Enabled)

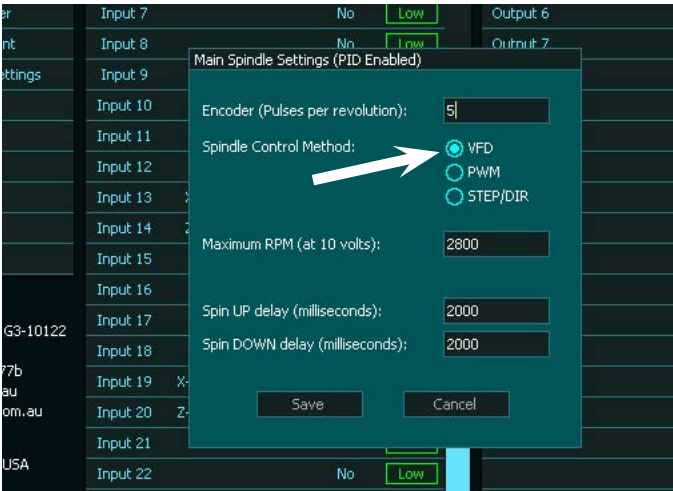


FIGURE 43—The Spindle Control Method must be set to “VFD” as indicated by the white arrow.

Tool Changer

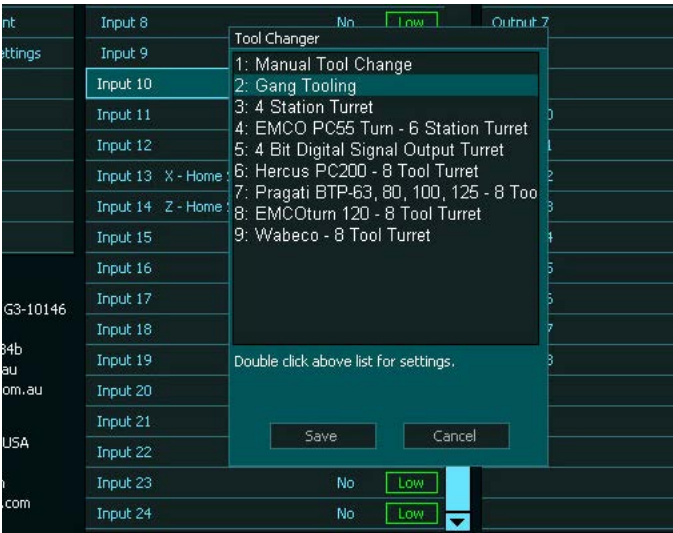


FIGURE 44—Tool Changer dialog box.

X-Axis



FIGURE 45— Chucker Lathe X-axis dialog box.

Z-Axis



FIGURE 46—Chucker Lathe Z-axis dialog box.

Function Inputs



FIGURES 47A & 47B—Function input screens.



Save & Load Calibration Settings



FIGURE 48—Touch “Save to File” and all of your settings and tool files will be saved to the USB drive.

Tool & Offsets Page



FIGURE 49—Always leave Tool #0 X and Z Offset values as Zero. Name it “blank.”

Settings for the Mill

General Settings

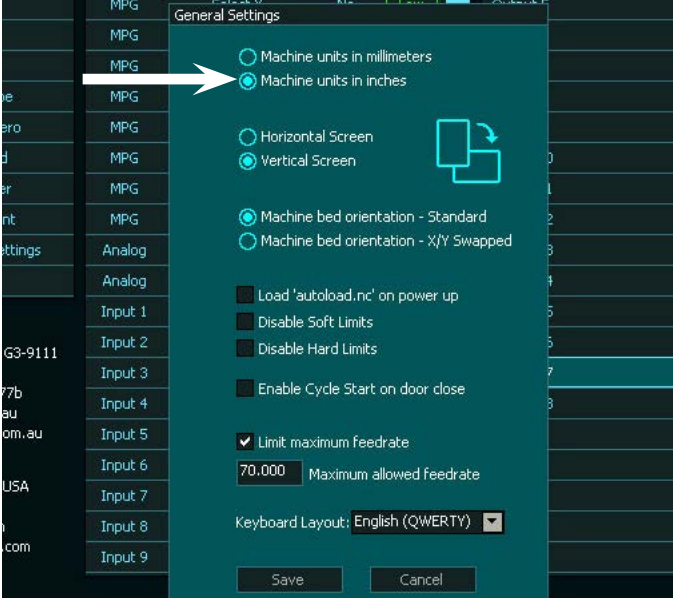


FIGURE 50—General Settings dialog box.

Homing Settings

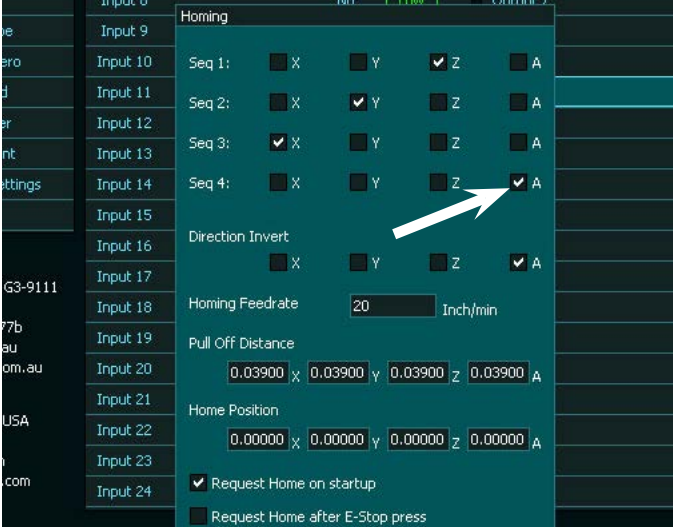


FIGURE 51—Homing dialog box. If you don’t have a 4th axis, uncheck the “A” box on Seq 4.

Spindle Settings (PID) Enabled)

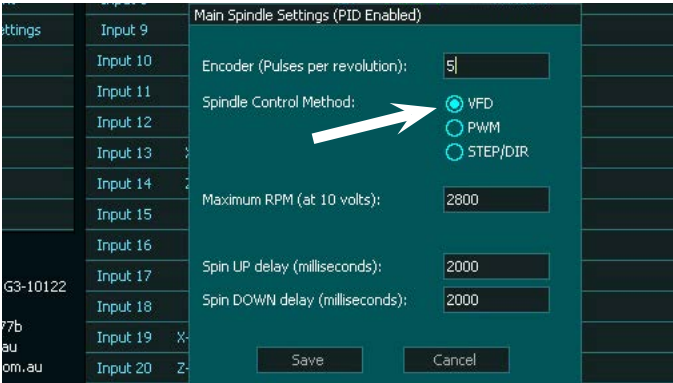


FIGURE 52—The Spindle Control Method must be set to “VFD” as indicated by the white arrow.

## Tool Changer



FIGURE 53—Tool Changer mill dialog box. Make sure you select the Manual Tool Change function.

## X-Axis



FIGURE 54—Mill X-axis dialog box.

## Y-Axis



FIGURE 55—Mill Y-axis dialog box.

## Z-Axis



FIGURE 56—ZMill -axis dialog box.

## A-Axis

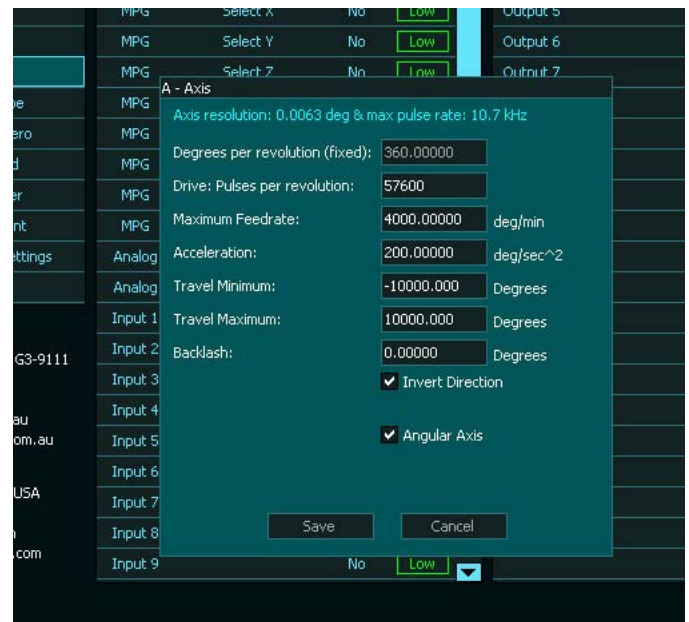


FIGURE 57—Mill A-axis dialog box.



## Function Inputs

The top screenshot shows the 'Function Inputs' screen with the 'General Settings' tab selected. It displays a table of inputs and outputs with their respective functions and status indicators. The bottom screenshot shows the 'Save & Load Settings' tab, where a 'Save to File' button is highlighted by a white arrow.

FIGURES 58A & 58B—Function input screens.

## Save & Load Calibration Settings

The screenshot shows the 'Save & Load Calibration Settings' dialog box. A white arrow points to the 'Save to File' button, which is used to save the current settings and tool files to a USB drive.

FIGURE 59—Touch “Save to File” and all of your settings and tool files will be saved to the USB drive.

## Tool & Offsets page

The screenshot shows the 'Tool & Offsets' page. A white arrow points to the 'Tool #0' row, which is highlighted in blue. The table lists tools with their names, Z offsets, and diameters. The 'Tool #0' row is labeled 'EDGE FINDER'.

FIGURE 60—Always leave Tool #0 (Z Offset value at Zero). Name it “Blank or Edge Finder.”

## Machine Text Settings

**NOTE:** Go to the end of the document for hard copy settings for each machine.

### How to Set Axis Direction, Homing, and Travel If Not Correct

If all of the settings on the F1 screen are correct, your axis should move in the correct direction, home out, and have the correct amount of travel. If not, do the following:

- 1. Axis direction:** Go to the F3 Jog screen and jog each axis. The table, crossslide, or head should move in the directions shown on the jog screen.

## Lathe

Z-, tool moves towards the headstock.

Z+ tool moves towards the Tailstock

X- tool moves towards operator

X+ tool moves towards the stepper motor.

The screenshot shows the 'Machine Text Settings' screen. It displays a warning message about the software version being an internal BETA release. Below the warning, there are buttons for 'STEP MODE' and 'CONTINUOUS MODE'. A white arrow points to the 'STEP MODE' button.

FIGURE 61

## Mill

The mill is different than the lathe. When you program a mill, you program the cutter to move from point to point. Because the cutter is stationary on X and Y-axis moves, it is actually the table that is moving not the cutter, and the table moves in the opposite direction of the foreseen cutter move.

As an example, if you program the cutter to move to the right side of the part, this is an X+ move of the cutter. When in fact the table and the part are moving in the X- direction.

Therefore, the direction that the “cutter” moves in the X and Y-axis are as shown on the jog buttons. The direction shown by the arrows in Figure 62 represent the direction that the “table” will move.

In the Z-axis, the cutter is actually moving, so the directions shown on the jog buttons are correct.

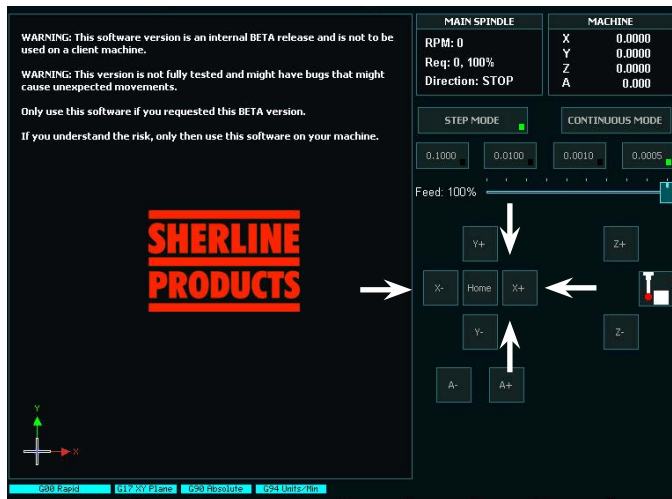


FIGURE 62

2. If the axis direction is wrong, check or uncheck the box for “Invert Direction” for that axis on the F1 “Machine Settings” page. To do this, do the following (see Figure 63):
  - A. Go to the F1 screen. Under “machine settings” are the individual axis settings.
  - B. Go down to the axis that you want to change and double click on it. This will bring up the axis page.
  - C. Go to the bottom of the page a check, or uncheck the “Invert Direction” box.
  - D. Then touch “Save.”

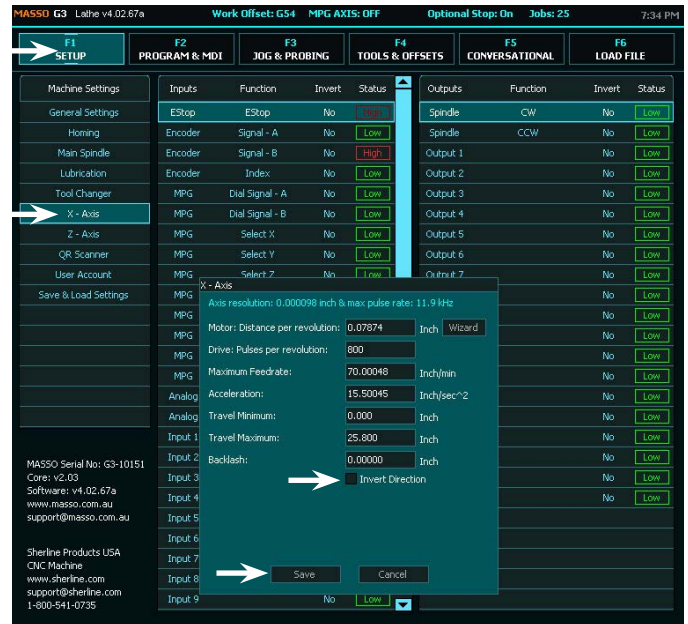


FIGURE 63

E. Now go to the Jog screen and jog the axis. The direction should have changed.

2. **Homing:** Go to the F3 screen. Double-tap the “Home” button on the Jog screen. Each axis should move towards the homing sensor. If any axis is moving in the wrong direction, push the E-stop button.



FIGURE 64

To change the homing direction, go to the F1 screen. Under General Settings, go down to “Homing”. Double click on it and the Homing window will open. There is an “Invert Direction” box for each axis (see Figure 65). Check, or uncheck the “Invert Direction” box for the axis. This will change the direction that your axis moves when homing. Then click on save.





FIGURE 65

Now home the machine again and the axis should move in the correct direction.

### 3. How to change the axis travel distance:

- First home your machine.
- Then jog the axis in question as close as you can to the end of travel (see Figures 66 and 67).

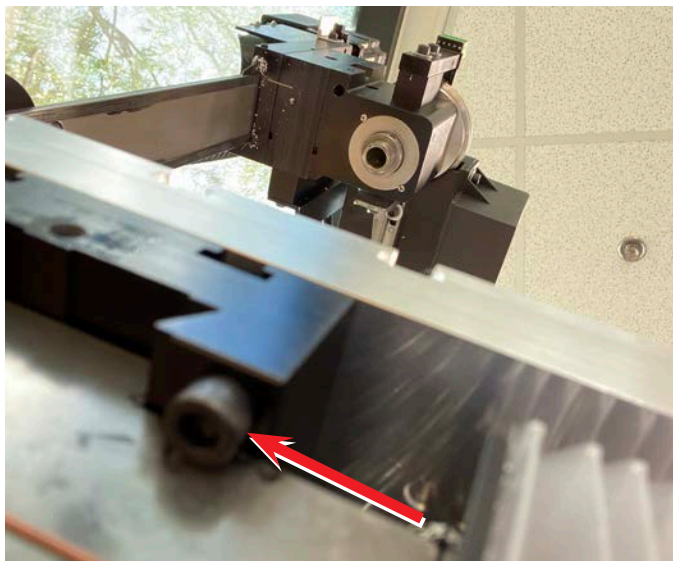


FIGURE 66—The arrow is pointing to the X-axis hard stop on the lefthand, underside of the mill table.

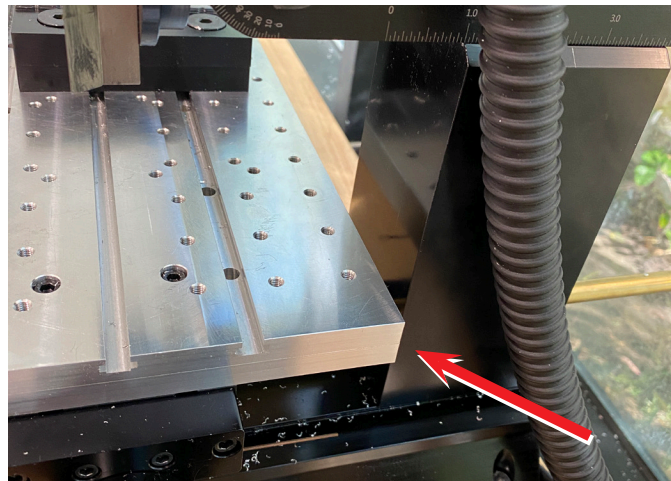


FIGURE 67—Move the Y-axis with the tooling plate near column.

- If the travel amount is too far, use Step Mode on the Jog page and step the axis until it almost touches the hard stop (see Figure 68).

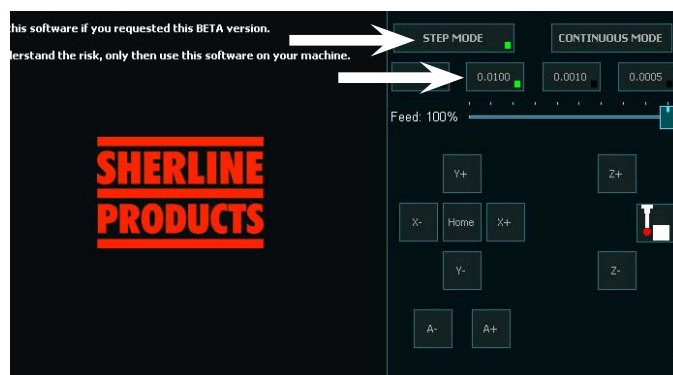


FIGURE 68

- Now look at the machine position for that axis and write down the axis distance (see Figure 69).

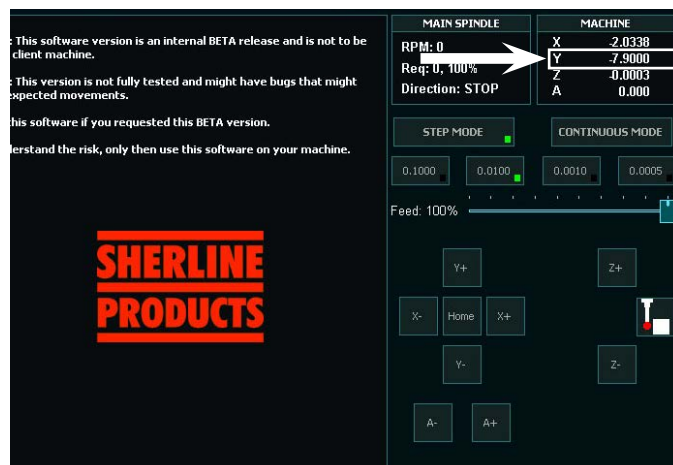


FIGURE 69—Y-axis machine position.

- Input the amount shown on the F1 screen for that axis. If the travel amount is too short, jog the axis until it stops. This is the distance that is already on the F1 screen for that axis. Now measure from where the axis has stopped, to the hard stop. This is the amount that you are going to add to the input value on the F1 screen.

**Example:** If the screen shows -6.90 and there is 1.0" distance to the hard stop, you will enter -7.90 on the travel minimum (see Figure 70).



FIGURE 70

#### 4. To change the travel distance for an axis:

- Go to the F1 screen. Under “General Settings” double click on the desired axis.
- Add or subtract the amount from the “Minimum Travel” or “Maximum Travel” amount (whichever one does not have a Zero value) for the axis and click “save”.
- Now go back to the F3 Jog screen and jog the axis to the end of travel.

**NOTE:** Jog slowly in “Continuous” or use Step Mode to jog to the end of travel. You can use the feed override to slow down the jog feed in Continuous Mode (see Figure 71).

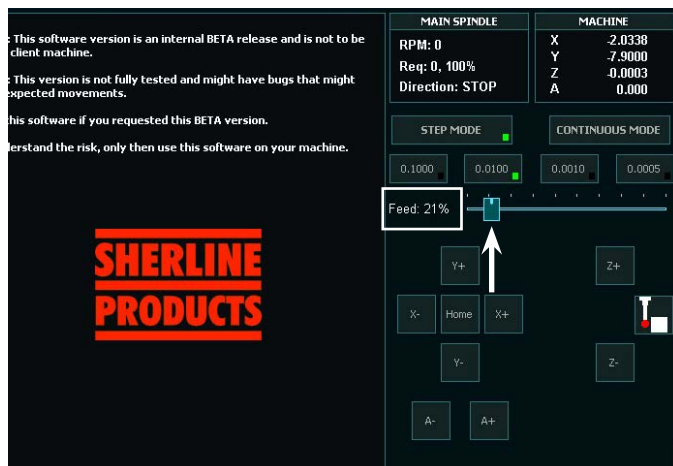


FIGURE 71

- If the travel distance is correct, then you are set. If not, then follow the above procedure again and add or subtract from the max travel distance for the axis on the F1 screen.

**NOTE:** You want to have some space between the hard stop and the machine. You don’t want the travel limit to hit the hard stop.

#### BIG NOTE:

If your axis directions are correct and your machine does not home in the correct direction, this could be a bad “Input” setting. Sometimes when you do a software upgrade or change, even if you reload the original settings some of the settings may be wrong. Go to the F1 screen and check Inputs #13, 14, 15, and 16. Sometimes #14 will change to either Door Sensor, or on the lathe it will change to “Y-Home Sensor”. If this is the case, change it to “Z-Home Sensor” and your lathe should home out in the correct direction.

#### MASSO Model HT-SCL Closed-Loop Stepper Motor System

- The Accu-Pro machines come with 36-volt, MASSO closed-loop stepper motors.
  - When the motors are powered on, the green “Power” light will be on.



FIGURE 72

- If there is a current overload due to running into a hard stop or inadvertently crashing the machine, the red “Alarm” light will come on, and all axis will stop moving.



FIGURE 73

- At the same time, there will be a red error message on the control screen.



- D. At this time, you will need to power Off/On the controller to reset the stepper motors. Then Jog off of the affected axis stop area. Then home out the machine.
  - E. This will clear the alarm and reset your machine home position.
2. If your stepper motors are not functioning correctly for any reason e.g., erratic movement, moving in the wrong direction, or not moving the correct increments per revolution, you will need to do the following:
    - A. Remove the stepper motor cover by removing the two Phillips-head screws on the backside of the cover, and lift the cover off.
    - B. Check the dip switches. They should be set as shown below with #1 Off and the rest of the dip switches set to the On position.



FIGURE 74—The arrow shows the location of the dip switches inside the stepper motor power supply.

- C. After you have confirmed the switches are set correctly, put the cover back on and jog the axis again.
- D. If you still have problems, contact us at [Sherline@Sherline.com](mailto:Sherline@Sherline.com).

### Controller Monitor Buttons and Their Functions

There are three, hardwired buttons at the bottom of the G3 Controller monitor. The buttons are the Emergency Stop, the green Cycle Star button, and the red Feedhold button.

The green and red buttons have corresponding touch screen equivalents. The green button is the same as the Cycle Start touch screen button and the red button is the same as the Feedhold touch screen button. You can either touch the buttons on the screen or use the hard buttons on the monitor (see Figure 75).



FIGURE 75—The green arrow points to the Cycle Start buttons and the red arrow points to the Feedhold buttons.

Thank you,  
Sherline Products Inc.

## Machine Text Settings

### Lathe

MASSO Serial No: G3-10146

Lathe v4.02.34b

Settings file format: v2.30

#### =====General Settings=====

- Machine units: Inch
- Machine bed orientation: Standard
- Load 'autoload.nc' on power up:
- Disable Soft Limits:
- Disable Hard Limits:
- Enable cycle start on door close:
- Limit maximum feedrate: Ticked
- Maximum allowed feedrate: 70.000

#### =====Homing Settings=====

- Seq 1: X: 0 Z: 1
- Seq 2: X: 1 Z: 0
- X-Axis Direction Invert: Ticked
- Z-Axis Direction Invert:
- Homing Feedrate: 20
- X-Axis Sensor Pull-Off: 0.039400
- Z-Axis Sensor Pull-Off: 0.039400
- X-Axis Position After Homing: 0.000000
- Z-Axis Position After Homing: 0.000000
- Request Home on startup: Ticked
- Request Home after E-Stop press:

#### =====Spindle Settings=====

- Encoder (Pulses per revolution): 5
- Spindle Control Method: VFD (0~10v)
- Spindle RPM at 10 volts: 2800
- Spin UP delay (milliseconds): 2000
- Spin DOWN delay (milliseconds): 2000

#### =====Lubrication Settings=====

- Lubricate after: 0(hr) & 10(min)
- Lubricate for: 0(min) & 3(sec)

#### =====Tool Changer=====

- Tool changer in use: 2: Gang Tooling

#### =====X-Axis=====

- Motor: Distance per revolution: 0.078740
- Drive: Pulses per revolution: 800.000000
- Maximum Feedrate: 70.000717
- Acceleration: 15.000179
- Travel Minimum: 0.000000
- Travel Maximum: 8.000000
- Backlash: 0.000000
- Direction Invert: Ticked

#### =====Z-Axis=====

- Motor: Distance per revolution: 0.078740
- Drive: Pulses per revolution: 800.000000
- Maximum Feedrate: 70.001457
- Acceleration: 15.000358
- Travel Minimum: -14.45000
- Travel Maximum: 0.000000
- Backlash: 0.000000
- Direction Invert:

#### =====INPUTS=====

- EStop: EStop, Invert: No
- Encoder: Signal - A, Invert: No
- Encoder: Signal - B, Invert: No
- Encoder: Index, Invert: No
- MPG: Dial Signal - A, Invert: No
- MPG: Dial Signal - B, Invert: No
- MPG: Select X, Invert: No
- MPG: Select Y, Invert: No
- MPG: Select Z, Invert: No
- MPG: Select A, Invert: No
- MPG: Select B, Invert: No
- MPG: Resolution 1, Invert: No
- MPG: Resolution 2, Invert: No
- MPG: Resolution 3, Invert: No
- Analog: Input 1, Invert:
- Analog: Input 2, Invert:
- Input 1: Cycle Start Button Input, Invert: No
- Input 2: Cycle Stop Button Input, Invert: No
- Input 13: X - Home Sensor Input, Invert: Yes
- Input 14: Z - Home Sensor Input, Invert: Yes
- Input 19: X-Axis Motor Alarm Input, Invert: Yes
- Input 20: Z-Axis Motor Alarm Input, Invert: Yes

#### =====OUTPUTS=====

- Spindle: CW, Invert: No
- Spindle: CCW, Invert: No

#### =====WORK OFFSETS=====

- Workoffset - G54:  
- Z: 0.000000
- Workoffset - G55:  
- Z: 0.000000
- Workoffset - G56:  
- Z: 0.000000
- Workoffset - G57:  
- Z: 0.000000
- Workoffset - G58:  
- Z: 0.000000
- Workoffset - G59:  
- Z: 0.000000
- Parking: Park Position  
- Z: -8.770006



## Chucker Lathe

MASSO Serial No: G3-10122  
Lathe v4.02.77b

Settings file format: v2.30

### =====General Settings=====

- Machine units: Inch
- Machine bed orientation: Standard
- Load 'autoload.nc' on power up:
- Disable Soft Limits:
- Disable Hard Limits:
- Enable cycle start on door close:
- Limit maximum feedrate: Ticked
- Maximum allowed feedrate: 70.000

### =====Homing Settings=====

- Seq 1: X: 0 Z: 1
- Seq 2: X: 1 Z: 0
- X-Axis Direction Invert: Ticked
- Z-Axis Direction Invert:
- Homing Feedrate: 20
- X-Axis Sensor Pull-Off: 0.039000
- Z-Axis Sensor Pull-Off: 0.039000
- X-Axis Position After Homing: 0.000000
- Z-Axis Position After Homing: 0.000000
- Request Home on startup: Ticked
- Request Home after E-Stop press:

### =====Spindle Settings=====

- Encoder (Pulses per revolution): 5
- Spindle Control Method: VFD (0~10v)
- Spindle RPM at 10 volts: 2800
- Spin UP delay (milliseconds): 2000
- Spin DOWN delay (milliseconds): 2000

### =====Lubrication Settings=====

- Lubricate after: 0(hr) & 10(min)
- Lubricate for: 0(min) & 3(sec)

### =====Tool Changer=====

- Tool changer in use: 2: Gang Tooling

### =====X-Axis=====

- Motor: Distance per revolution: 0.078740
- Drive: Pulses per revolution: 800.000000
- Maximum Feedrate: 70.000160
- Acceleration: 15.500039
- Travel Minimum: 0.000000
- Travel Maximum: 25.800000
- Backlash: 0.000000
- Direction Invert:

### =====Z-Axis=====

- Motor: Distance per revolution: 0.078740
- Drive: Pulses per revolution: 800.000000
- Maximum Feedrate: 70.000160
- Acceleration: 15.500039
- Travel Minimum: -9.699986
- Travel Maximum: 0.000000
- Backlash: 0.000000
- Direction Invert: Ticked

### =====INPUTS=====

- EStop: EStop, Invert: No
- Encoder: Signal - A, Invert: No
- Encoder: Signal - B, Invert: No
- Encoder: Index, Invert: No
- MPG: Dial Signal - A, Invert: No
- MPG: Dial Signal - B, Invert: No
- MPG: Select X, Invert: No
- MPG: Select Y, Invert: No
- MPG: Select Z, Invert: No
- MPG: Select A, Invert: No
- MPG: Select B, Invert: No
- MPG: Resolution 1, Invert: No
- MPG: Resolution 2, Invert: No
- MPG: Resolution 3, Invert: No
- Analog: Input 1, Invert:
- Analog: Input 2, Invert:
- Input 1: Cycle Start, Invert: No
- Input 2: Cycle Stop, Invert: No
- Input 13: X - Home Sensor, Invert: Yes
- Input 14: Z - Home Sensor, Invert: Yes
- Input 19: X-Axis Motor Alarm, Invert: No
- Input 20: Z-Axis Motor Alarm, Invert: No

### =====OUTPUTS=====

- Spindle: CW, Invert: No
- Spindle: CCW, Invert: No

### =====WORK OFFSETS=====

- Workoffset - G54:  
- Z: 0.000000
- Workoffset - G55:  
- Z: 0.000000
- Workoffset - G56:  
- Z: 0.000000
- Workoffset - G57:  
- Z: 0.000000
- Workoffset - G58:  
- Z: 0.000000
- Workoffset - G59:  
- Z: 0.000000
- Parking:  
- Z: 0.000000

## Mill

MASSO Serial No: G3-9111  
4-Axis v4.02.77b

Settings file format: v2.30

### =====General Settings=====

- Machine units: Inch
- Machine bed orientation: Standard
- Load 'autoload.nc' on power up:
- Disable Soft Limits:
- Disable Hard Limits:
- Enable cycle start on door close:
- Limit maximum feedrate: Ticked
- Maximum allowed feedrate: 70.000

### =====Homing Settings=====

- Seq 1: X: 0 Y: 0 Z: 1 A: 0 B: 0
- Seq 2: X: 0 Y: 1 Z: 0 A: 0 B: 0
- Seq 3: X: 1 Y: 0 Z: 0 A: 0 B: 0
- Seq 4: X: 0 Y: 0 Z: 0 A: 1 B: 0
- X-Axis Direction Invert:
- Y-Axis Direction Invert:
- Z-Axis Direction Invert:
- A-Axis Direction Invert: Ticked
- Homing Feedrate: 20
- X-Axis Sensor Pull-Off: 0.039000
- Y-Axis Sensor Pull-Off: 0.039000
- Z-Axis Sensor Pull-Off: 0.039000
- A-Axis Sensor Pull-Off: 0.039000
- X-Axis Position After Homing: 0.000000
- Y-Axis Position After Homing: 0.000000
- Z-Axis Position After Homing: 0.000000
- A-Axis Position After Homing: 0.000000
- Request Home on startup: Ticked
- Request Home after E-Stop press:

### =====Spindle Settings=====

- Encoder (Pulses per revolution): 5
- Spindle Control Method: VFD (0~10v)
- Spindle RPM at 10 volts: 2900
- Spin UP delay (milliseconds): 2000
- Spin DOWN delay (milliseconds): 2000

### =====Lubrication Settings=====

- Lubricate after: 0(hr) & 10(min)
- Lubricate for: 0(min) & 3(sec)

### =====Tool Changer=====

- Tool changer in use: 1: Manual Tool Change
- Z-Axis tool change position: -2.500001
- X-Axis tool change position: -2.000001
- Y-Axis tool change position: -1.500001
- Tool setter air blast time (ms): 0

### =====X-Axis=====

- Motor: Distance per revolution: 0.078740
- Drive: Pulses per revolution: 800.000000
- Maximum Feedrate: 70.000984
- Acceleration: 15.500459
- Travel Minimum: -12.950000
- Travel Maximum: 0.000000
- Backlash: 0.000000
- Direction Invert: Ticked

### =====Y-Axis=====

- Motor: Distance per revolution: 0.078740
- Drive: Pulses per revolution: 800.000000
- Maximum Feedrate: 70.000457
- Acceleration: 15.500248
- Travel Minimum: -7.899988
- Travel Maximum: 0.000000
- Backlash: 0.000000
- Direction Invert: Ticked

### =====Z-Axis=====

- Motor: Distance per revolution: 0.078740
- Drive: Pulses per revolution: 800.000000
- Maximum Feedrate: 70.000564
- Acceleration: 15.500299
- Travel Minimum: -8.899988
- Travel Maximum: 0.000000
- Backlash: 0.000000
- Direction Invert: Ticked

### =====A-Axis=====

- Motor: Distance per revolution: 360.000000
- Drive: Pulses per revolution: 57600.000000
- Maximum Feedrate: 4000.000000
- Acceleration: 200.000000
- Travel Minimum: -10000.000000
- Travel Maximum: 10000.000000
- Backlash: 0.000000
- Direction Invert:
- Angular Axis: Ticked

### =====Auto Tool Zero Settings=====

- Only auto tool zero when manually requested: Ticked
- Tool setter X position: -50.799999
- Tool setter X enable: Ticked
- Tool setter Y position: -50.799999
- Tool setter Y enable: Ticked
- Z safe distance to tool setter: -177.800003
- Tool zero feedrate: 127.000000
- Tool number to skip: 24

### =====INPUTS=====

- EStop: EStop, Invert: No
- Encoder: Signal - A, Invert: No
- Encoder: Signal - B, Invert: No
- Encoder: Index, Invert: No



---

MPG: Dial Signal - A, Invert: No                      - Workoffset - G59:  
MPG: Dial Signal - B, Invert: No                      - X: 0.000000  
MPG: Select X, Invert: No                            - Y: 0.000000  
MPG: Select Y, Invert: No                            - Z: 0.000000  
MPG: Select Z, Invert: No                            - A: 0.000000  
MPG: Select A, Invert: No  
MPG: Select B, Invert: No                            - Parking: Park Position  
MPG: Resolution 1, Invert: No                        - X: -179.781204  
MPG: Resolution 2, Invert: No                        - Y: -80.416397  
MPG: Resolution 3, Invert: No                        - Z: -71.119995  
Analog: Input 1, Invert:  
Analog: Input 2, Invert:  
Input 1: Cycle Start, Invert: No  
Input 2: Cycle Stop, Invert: No  
Input 13: X - Home Sensor, Invert: Yes  
Input 14: Y - Home Sensor, Invert: Yes  
Input 15: Z - Home Sensor, Invert: Yes  
Input 16: A - Home Sensor, Invert: Yes  
Input 19: X-Axis Motor Alarm, Invert: Yes  
Input 20: Y-Axis Motor Alarm, Invert: Yes  
Input 21: Z-Axis Motor Alarm, Invert: Yes  
Input 22: A-Axis Motor Alarm, Invert: No  
Input 23: Tool Setter, Invert: Yes  
Input 24: Probe, Invert: No

=====OUTPUTS=====

Spindle: CW, Invert: No  
Spindle: CCW, Invert: No

=====WORK OFFSETS=====

- Workoffset - G54: PROBE CORNER  
- X: -178.227142  
- Y: -89.622322  
- Z: 16.187568  
- A: 0.000000

- Workoffset - G55: FINISH PASS  
- X: -180.009796  
- Y: -83.819999  
- Z: 0.000000  
- A: 0.000000

- Workoffset - G56:  
- X: 0.000000  
- Y: 0.000000  
- Z: 0.000000  
- A: 0.000000

- Workoffset - G57:  
- X: 0.000000  
- Y: 0.000000  
- Z: 0.000000  
- A: 0.000000

- Workoffset - G58:  
- X: 0.000000  
- Y: 0.000000  
- Z: 0.000000  
- A: 0.000000