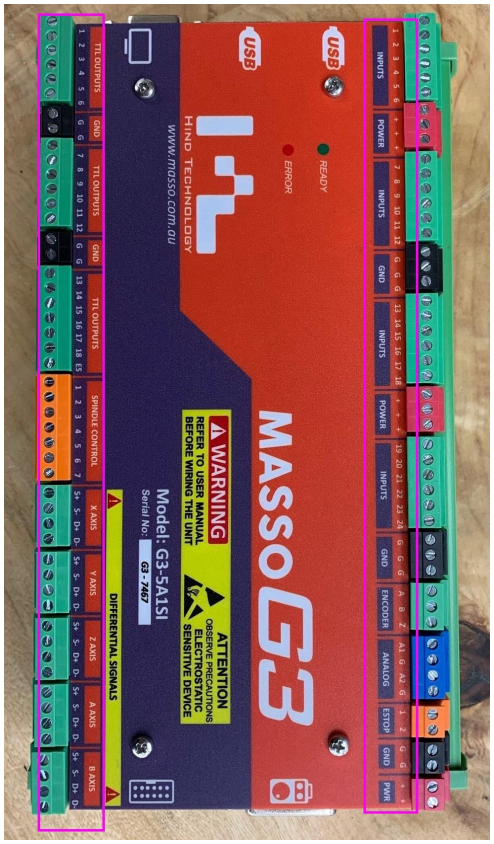
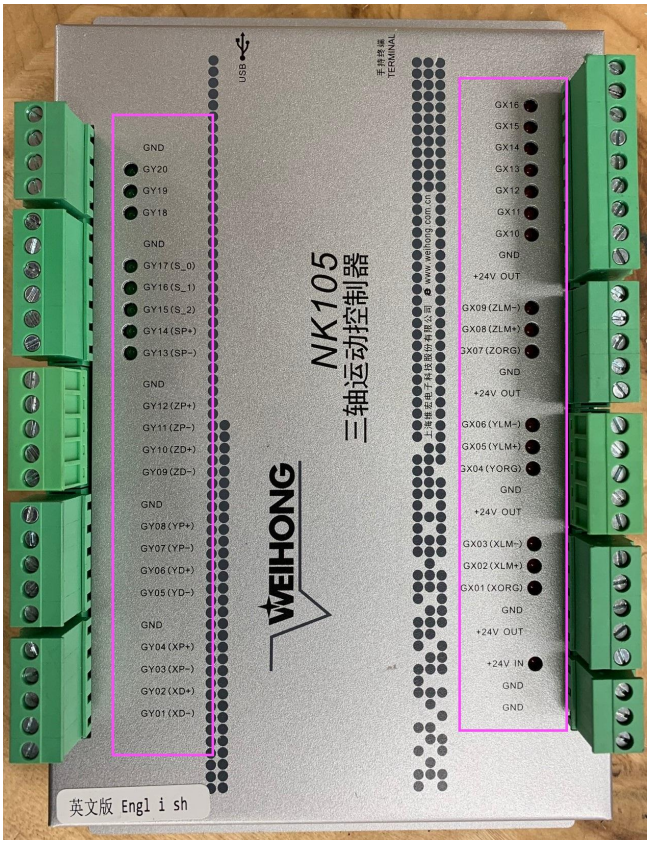
Get familiar with your current NK105 controller setup.(see images below) the pink highlighted boxes are the wire labels to help you reposition the wires in the new controller.)





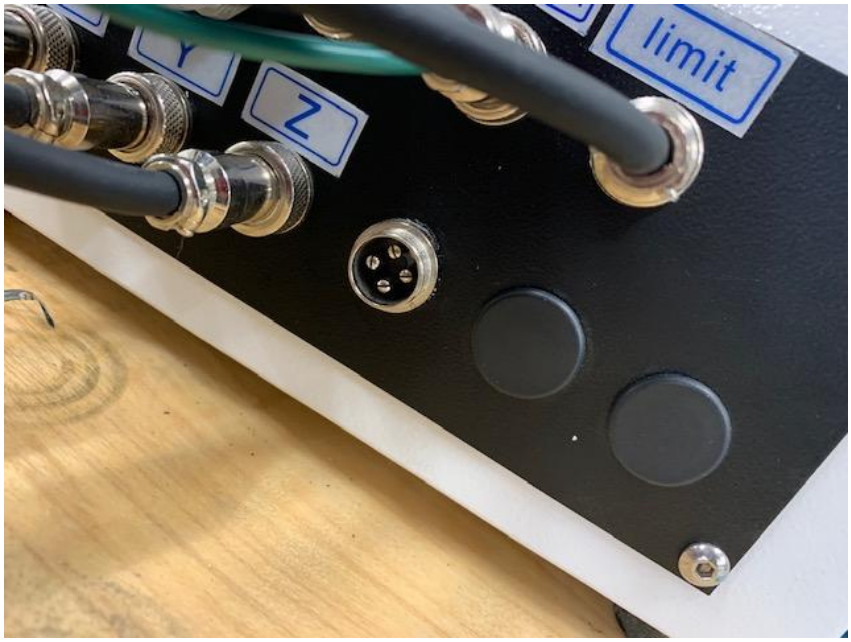
Once you get familiar with the wiring format you will need to follow the chart located below to begin rewiring your machine. (please use the chart associated with your machine model.)

Remove all green connectors from the nk105 controller by pulling straight back. Once these are removed please remove the four screws in each corner of the controller and remove the controller from the cabinet. Note you will have to remove the usb and handheld controller plug from the bottom of the controller.

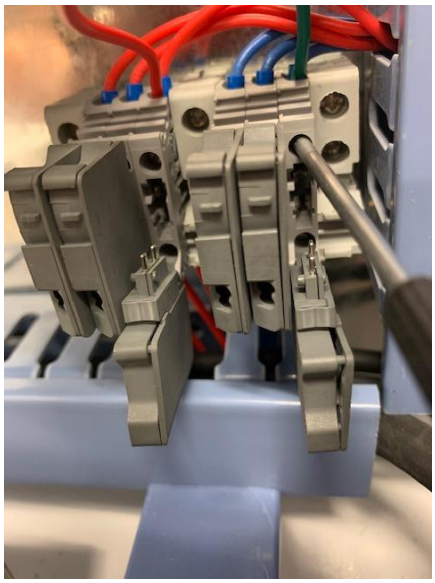
Once this is removed move all the wires and locate the best positioning for your new Masso controller. Please consider the VGA and MPG plug locations at the top and bottom of your controller. See image below for positioning reference. Note the positions of the Axis output controls and rotate your controller are mounted on the same side as the NK105 controller mounted the axis controls.

Once you have your controller mounted and wires run you may locate and add in your A axis (Rotary axis driver). We recommend doing so with self tapping screws located and positioned as shown in the following image.

The last wiring you will need to do is to use one of your spare hole slots and feed the driver wires in and secure the connection to the outside of the cabinet as shown in the following pictures.
Please also note the colour coded wire positions in the image above.



Lastly the red and green wires located in the left positions on the right side connector of your driver will go to the power supply fuses and gang them in with the X axis driver as shown in the image below.



Installing your fixed calibrator.

To install your fixed calibrator you will first need to drill a hole and remove the right bolt on the left front hand of your machine. This is the corner your machine homes too. (please see image below for reference.)

Once the hole is drilled feed the calibrator wire through and drill out the right hand bolt holewith a slightly larger bit to remove thread.

Take the bolt removed from the hole and after loosening the four side bolts holding on the front panel for better access (pictures below) insert the bolt back up through the hole from the underside of the front panel as shown in the second picture below.

From here line up the threaded hole in the bottom of the calibrator with the bolt and tighten until snug. (please ensure once you have the bolt started in the thread rotate the calibrator as close to the machine bed as possible to allow for best contact with the calibrator puck.

Once the puck is installed tighten the four bolts on the sides again to fasten the front plate.

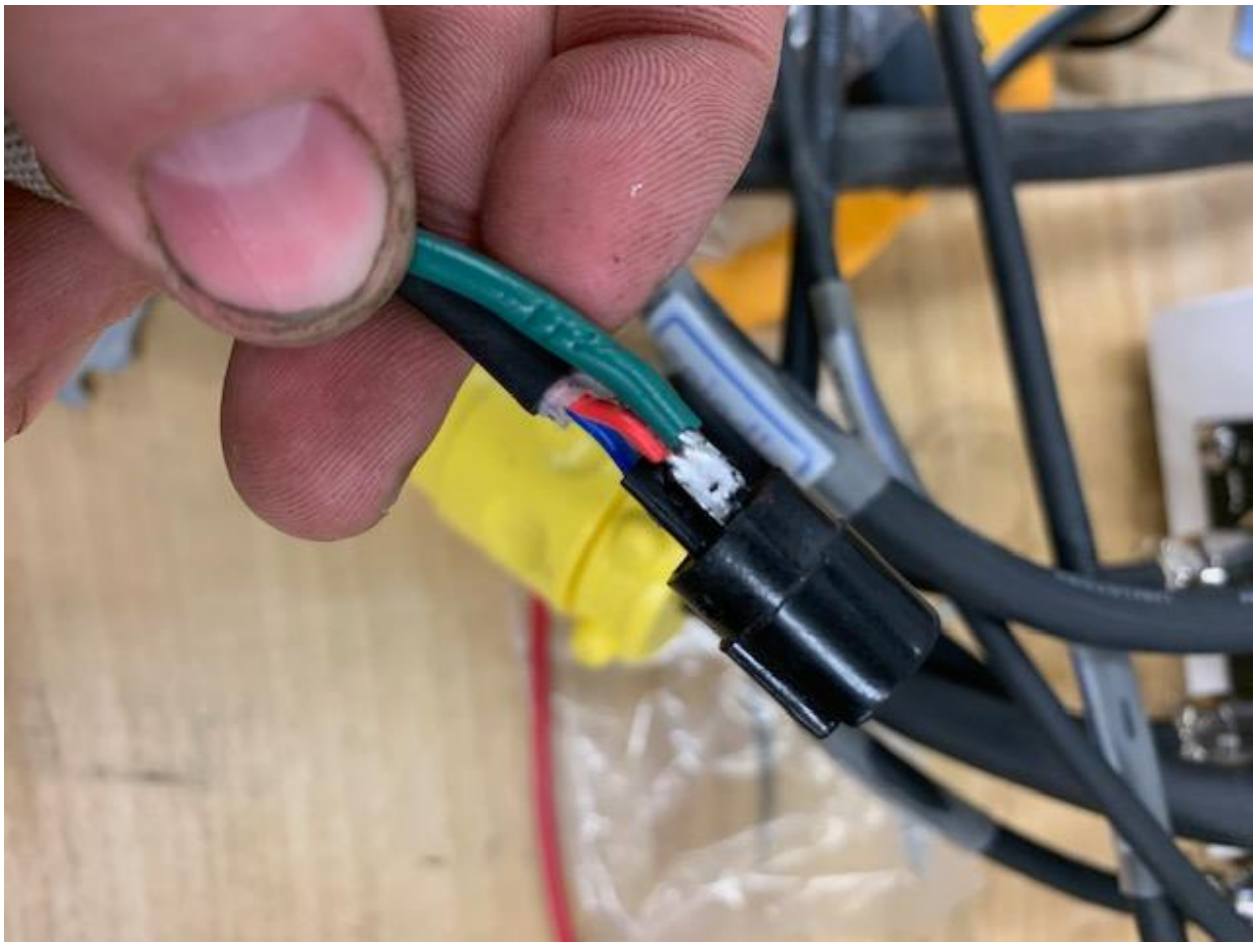
Lastly run the wire through the vacuum table line or under your machine securing the to the frame. This can be done with standard zip ties or bolts located on the inside rail of some machine models as shown in the pictures below.

Once the wire has reached the track cable remove the cover and feed your wire through the loom back to the connections for the box. A wire fish may make this task easier, alternatively to this you may also bypass going through the loom and connect it externally to the loom via zip ties or electrical tape.


Once you have arrived at the connections find the calibrator connection and loosen all the screws on the connector.


Once the nuts have been removed remove the metal cover to expose the wire connections. Please note you have to twist the plastic head to the right or counterclockwise before separating them.

Lastly you will feed the calibrator wire through the metal cover followed by trimming and stripping the end of the wire. From here you will solder the connection to the red wire as shown in the picture below.



After this has been completed return the metal cover and bolts to its original position and plug it back into the machine.

CHARTS

Once you get familiar with the wiring format you will need to follow the chart below to begin the swap. (please use the chart associated with your machine model.)

D-11

D-23LT
D-23M
B1-23
B1-44M

Nk105 pin	Masso Pin	Function	Additional steps
GND	No connection	No connection	
GY20	No switch option hardline to ground will turn light on whenever the machine is running.	Light	
GY19	No connection	No connection	
GY18	No connection	No connection	
GND	No connection	No connection	
GY17	No connection	No connection	
GY16	Spindle 1	Spindle control	AVI input in VFD opposite end of wire
GY15	Spindle 4	Spindle control	DCM input in VFD opposite end of wire
GY14	Spindle 5	Spindle control	M1 input in VFD opposite end of wire
GY13	GND	Spindle control	ACM input in VFD opposite end of wire
GND	No connection	No connection	
GY12	Z axis S+	Z+ pulse	
GY11	Z axis S-	Z- pulse	
GY10	Z axis D+	Z+ direction	
GY09	Z axis D-	Z- direction	

GND	No connection	No connection	
GY08	Y axis S+	Y+ pulse	
GY07	Y axis S-	Y- pulse	
GY06	Y axis D+	Y+ direction	
GY05	Y axis D-	Y- direction	
GND	No connection	No connection	
GY04	X axis S+	X+ pulse	
GY03	X axis S-	X- pulse	
GY02	X axis D+	X+ direction	
GY01	X axis D-	X- direction	
GX16	Input 6	Tool setter input	Add 5K6 resistor jump from red 24 V output to Masso input.
GX15	No connection	E stop input (from VFD) unused on Masso.	
GX14	No connection	No connection	
GX13	No connection	No connection	
GX12	No connection	No connection	
GX11	No connection	No connection	
GX10	GND	Light	
GND	No connection	No connection	
+24V OUT	No connection	No connection	
GX09	No connection	No connection	
GX08	No connection	Positive limit signal Z	Masso uses
GX07	Input 3	Z axis home sensor	

GND	No connection	No connection	
+24V OUT	No connection	No connection	
GX06	No connection	No connection	
GX05	No connection	No connection	
GX04	Input 2	Y axis home sensor	
GND	No connection	No connection	
+24V OUT	No connection	No connection	
GX03	No connection	No connection	
GX02	No connection	No connection	
GX01	Input 1	X Axis Home	
GND	GND	ground	
+24V OUT	24V	24 volt out	
+24V IN	24 volt in	Controller power input	
GND	GND	Controller power ground	
	Input 7	Probe input signal	Jump from Masso input 6 to Masso input 7
	Input 4	A axis home	Connect to C axis home sensor. (note table rotaries do not use home sensors for A) C axis home is used for Tangential and oscillating knife features.
	Input 5	Door sensor input	Note: only for machines that have an enclosure with a door sensor attached.

	Input 8	Air pressure low alarm	Note: only for machines with pneumatics and an air alarm sensor.
	E stop 1	Soft E stop power	Connect E stop 1 to 24 V out on Masso
	A axis S+	A+ pulse	Red wire from A axis driver
	A axis S-	A- pulse	Black wire From A axis driver
	A axis D+	A+ direction	Yellow wire From A axis driver
	A axis D-	A- direction	Blue wire From A axis driver

Once all the wiring has been completed please turn on your new Masso controlled system. A password will be asked for upon initial boot up. This Password is HTG. From here depress and twist to release the E stop button located on your hand held MPG and press the X+, X-, Y+, Y-, Z+, Z- buttons to confirm directions are functioning correctly. (Please note you will have to select continuous mode to allow the machine to move greater distances.)

Once this has been done and machine has normal function contact us at support@cancam.ca and we will set up a phone training session to tell you how to operate your new controller.