		Before You start						
		1	Ensure all loose products are removed from the machine bed				Do not use a high output setting when using new material to see how the material will react	
		2	Remove any zip ties and obstructions from movement				Always keep your fire extinguisher close to the machine	
		3	inspect laser tube for cracks and secure positioning				Never leave your machine unatended	
		4	For nova series make sure the air compressor is hooked up				Do not cut to slow, monitor for large flames	
		5	Hook up ventilation hose to extract potentially harmful fumes				Always use your fume extractor to reduce smoke buildup	
		6	Setup your lightburn with your machine dimensions, wifi and scanning offset					
	1	**Start up Procedure**						
		1	Ensure the Chiller is filled with DISTILLED water to the bottom of the FULL line. For NOVA ensure the chiller is connected to the machine.					
		2	Ensure Laser is plugged in					
		3	Ensure E-Stop on the right hand side of the machine is released by twisting or pulling					
		4	Machine will be either powered on or the Key will need to be inserted and turned into the on position					
		5	Your machine will start moving towards the rear right side of the machine.					
	2	**Moving the Machine**						
		1	X/Y axis					
				1	On the main control pad and on your LightBurn software			
				2	You can move the head of your laser using the Arrow buttons while on the main screen of your machine.			
		2	Z Axis					
				1	From the Main screen press the Z/U button to open the menu			
				2	The top left option in the menu is Z-Axis, if you press Right the bed of the machine will go down, if you press the left arrow the bed will move upwards			
	3	**Pulsing the laser and changing setting on the main screen**						
		1	on the top left of the control panel, there is the pulse button if you press this button with the lid closed it will fire the laser					
				1	Ensure the pulse is set to 50% or less on the controller when testing the pulse function			
		2	Changing the speed and power settings.					
				1	on the screen in the top right you can see the settings Speed, Max Power, and min power			
				2	If you press the Speed Button on the panel the speed option on the screen will be highlighted you can then use the arrow buttons to adjust the jog speed of the machine			
				3	If you press the Max Power Button on the panel the Max Power option on the screen will be highlighted you can then use the arrow buttons to adjust the power of the beam since the Laser will always try to fire at max power			
				4	If you press the Min Power Button on the panel the min power option on the screen will be highlighted you can then use the arrow buttons to adjust the jog min power of the machine			
	4	**Useful Menu Options**						
		1	Navigate the menu using the up and down arrows					
		2	Autofocus is on the bottom lef make sure you have material under your laser head to focus the laser head. (Warning Disclosure-Head moves when the machine is restarted)					

| | | | 3 | Go to ipconfig setting and write down the IP address in the settings. This is needed for setting up your wifi | | | |

					Machine	X-Axis [mm]	Y-Axis [mm]
5	**Connecting to lightburn**						
	1	Connecting Via Wifi					
			1	In the bottom right hand side of Lightburn press the Devices button	MIRA 5	500	300
			2	Select Ruida as the controller in the list	MIRA 7	700	450
			3	For wifi select Ethernet/UDP	MIRA 9	900	600
			4	Enter the IP address written down earlier in the training	NOVA	1400	900
			5	Name your device as you like and enter the dimmensions based on the machine			
			6	Origin of the machine is rear right, then press finish			
			7	With the machine on, connect to the Wifi being Created by the machine should be named MIRA or NOVA or laserXXXX			
	2	Connecting Via USB					
			1	In the bottom right hand side of Lightburn press the Devices button			
			2	Select Ruida as the controller in the list			
			3	For USB select Serial USB			
			4	Name your device as you like and enter the dimmensions based on the machine			
			5	Origin of the machine is rear right, then press finish			
			6	With the machine on and the devices selected lightburn should say ready, if not ask customer to install driver located in the drive Ruida Folder			
				https://drive.google.com/file/d/1O3tbfW0pRLkVtsTeLrCvhCu4JUYPAhdz/view?usp=sharing			
6	**LIGHTBURN TRAINING**						
	1	Along Left hand side grab a square tool and draw a square					
	2	Editing Cut Properties					
			1	You should see a layer pop up on the right hand side of lightburn.			
			2	double click that layer to see all the options			
			3	Go Over Lightburn fill and Line Options			

Fill		
Birdirectional fill	Beam will fire while travelling left and right	
Cross-Hatch	Beam will make a second pass filling the	
	cut up and down. This setting is not recommended	
	as the machine cannot move forward and back at	
	high speeds	
Line Interval	Describes the distance between each beam "line"	
Lines per Inch	Same as line interval, changing one changes the other	
# of Passes	How many times to go over a cut	
Line		
Kerf offset	Allows you to adjust for beam Thickness	
Tab Generation	Creates Tab to hold material in place	
Override PWM	Changes beam frequency(high for acryllic, low for woods)	

Fill Settings dialog:

Layer
Name C00
Speed (mm/sec) 100.0 — Output
Max Power (%) 0.00 — Air Assist
Min Power (%) 0.00
Mode Fill

Fill Settings
Bi-directional fill — Cross-Hatch
Line Interval (mm) 0.200
Lines per Inch 127.00
Scan Angle (deg) 0
Z Offset (mm) 0.00 (none)
Ramp Length 0.00
Ramp Outer Edge
Number of Passes 1
Z step per pass (mm) 0.00 (none)
Fill all shapes at once
Fill groups together
Fill shapes individually — Flood Fill

Line Settings
Speed (mm/sec) 100.0 — Z Offset (mm) 0.00 (none)

Line Settings dialog:

Layer
Name C00
Speed (mm/sec) 100.0 — Output
Max Power (%) 0.00 — Air Assist
Min Power (%) 0.00
Mode Line

Start pause time (ms) 0.00 — Cut Through
End pause time (ms) 0.00 — Cut Through
Power (%) 0.00
Kerf offset (mm) 0.000 (off)
Z Offset (mm) 0.00 (none)
Number of Passes 1
Z step per pass (mm) 0.00 (none)
Overcut (mm) 0.00
Override PWM Frequency 1.00 kHz
Perforation Mode 0.01 Cut
Dot Mode 0.01 Skip
Tab Generation — Automatic — Manual
Clear Tabs 0.50 Size
Even Spacing 50.00 Spacing

3 Draw another rectangle and then press a colour in the colour bar along the bottom of lightburn

4 Now you should have 2 layer in the layer box and you can change the cutting properties seperately.

5 To import files press the file menu in the top left and select import

6 To preview your design press the button that looks like a monitor in the top bar in lightburn

7 along righthand side at the bottom of the cuts and layers box you should see a tab that says move

Move

Get Position X: Y: Z: U:

Move to Position X 0.00   Y 0.00   Go

Saved Positions: Manage

Distance 10.00 mm
Speed 100.0 mm/s
Z-Speed 10.0 mm/s

Continuous Jog

Focus Z

Move From Machine Zero

Cuts / Layers | Move | File List

8 from this tab you can move and auto focus the laser

9 Laser Control Area

    1 Frame will move the laser head in an outline of your cut

    2 Job Origin describes the position your laser head is in relative to where you want you cut

    3 The Start from drop down describes the coordinate system used

        1 Current position will start the cut from where the laser head currently is

            You can demonstrate by pressing the frame button in lightburn

        2 Absolute Coordinates will start the cut where the cut is on the virtual Lightburn machine bed.

        3 User Origin will start the cut from whereever you have set a work origin

    4 Pause will stop mid cut and all you to resume with the start button

    5 Stop Cancels the job completely

    6 Start will send the file to the machine and start the cut

    7 send will send the file to the machine but not start cutting

    8 Save RD file allows you to put the RD file on a usb to run on the machine

    9 Run RD file will tell the machine to run the RD file currently loaded on the machine

Laser
Disconnected

Pause | Stop | Start | Send
Frame | Frame | Save RD file | Run RD file
Home | Go to Origin | Start From: Current Position ▾
Enable Rotary   Job Origin
Cut Selected Graphics
Use Selection Origin   +Show Last Position
Optimize Cut Path   Optimization Settings
Devices Beam 4

Laser | Library