



# Autofocus Attachement for Beamo

## Installation Guide



# Installation

**FOR YOUR OWN SAFETY, PLEASE TURN OFF THE MACHINE AND UNPLUG IT**

What you need pictured below from left to right: Autofocus Add on, All Key, Star Wrench (in original beamo package)



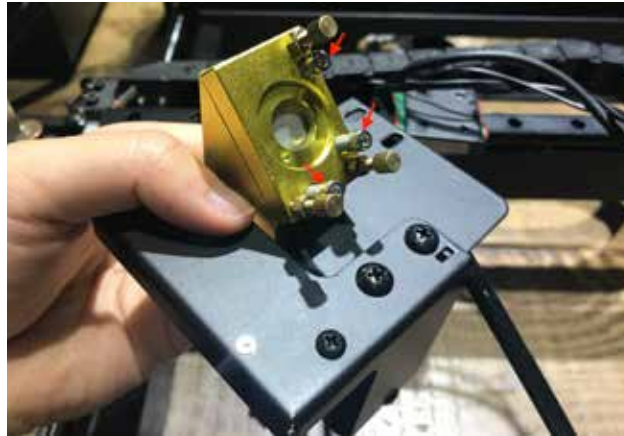
1. Cut the plastic strap which holds the cable.



2. Loosen the laser head focus ring and remove the laser head.



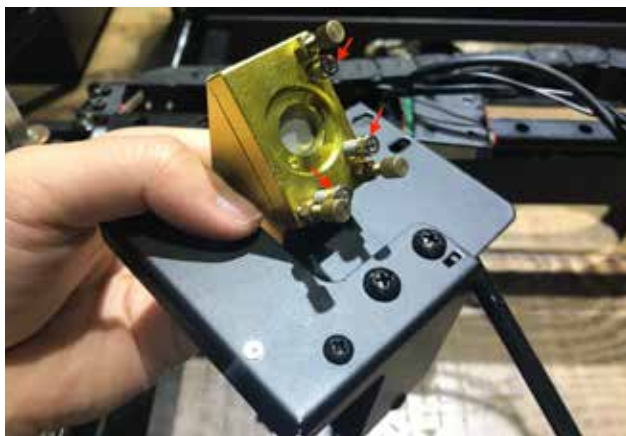
3. Loosen 4 the screws that hold the laser module to the track with the Allen key.



4. Remove both the camera cable and LED wire.



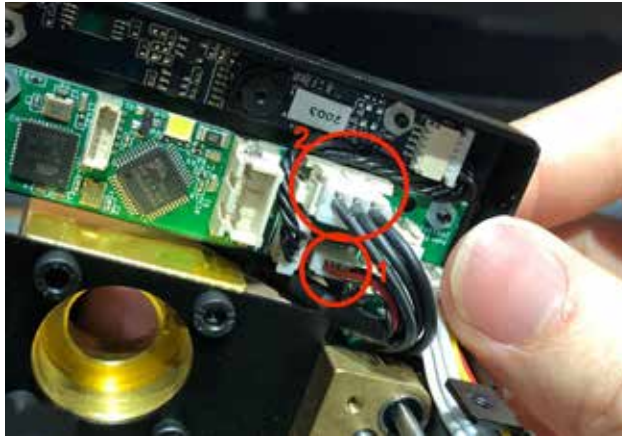
5. Remove the third reflection mirror with the Allen key.



6. Remove two screws on the autofocus.



7. Plug the camera wire and the LED wire in Circle 1 and Circle 2 (*Tip: Plug camera line first and then LED wire*)

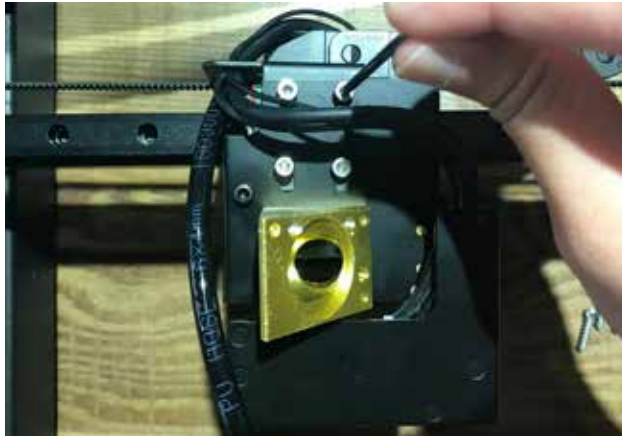


8. Gather the wires to the side and hold it with the plastic strap.





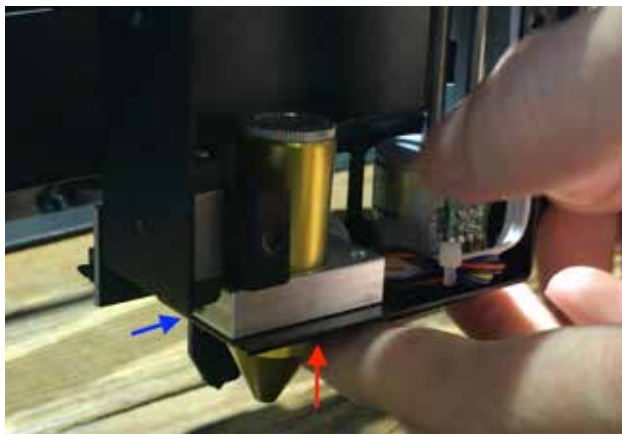
9. Position the autofocus module back on the track by tightening the four screws with the Allen key.



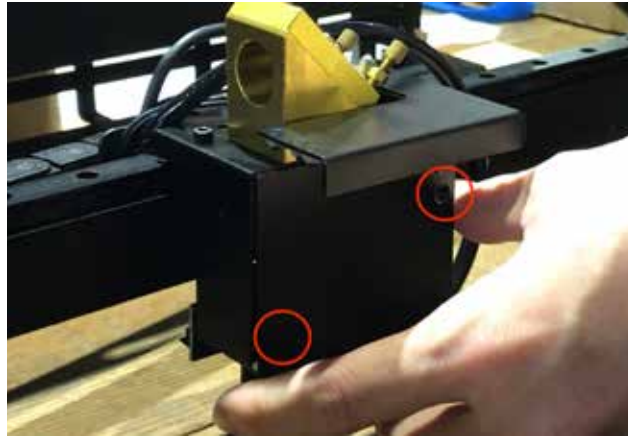
10. Lock the third reflection mirror back on. (*Tip: Don't lock the screws all the way down, half way should be enough*)



11. Push the laser head all the way up (see red arrow in the image) and lock the laser head back on, the screw is on the left (see blue arrow in the image)



12. **Check to see if the optical path is aligned.**
13. Lock the screws of the autofocus module back on.



**REMINDER: Do NOT press Cam LED after installing autofocus.**

The camera led will automatically be on once the machine is turned on. Pressing Cam LED will not turn off the camera LED, but will instead cut the power that was supposed to make the autofocus work. Thus. The laser head will not move at all, you will have to press Cam LED one more time to turn on the power.

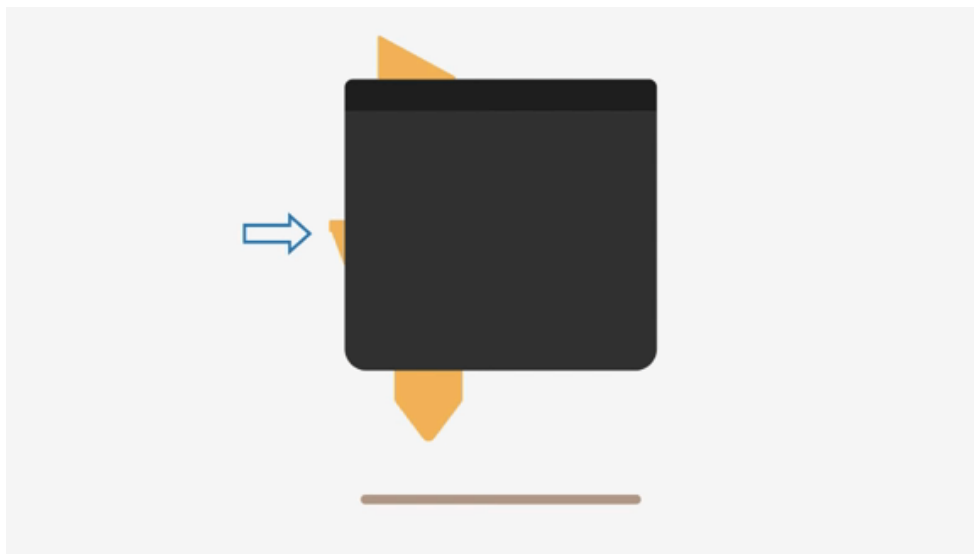
# Using Autofocus Add-On

There are two ways to operate beamo's autofocus add-on.

1. Manual Probe Mode
2. Software Mode

## Manual Probe Mode

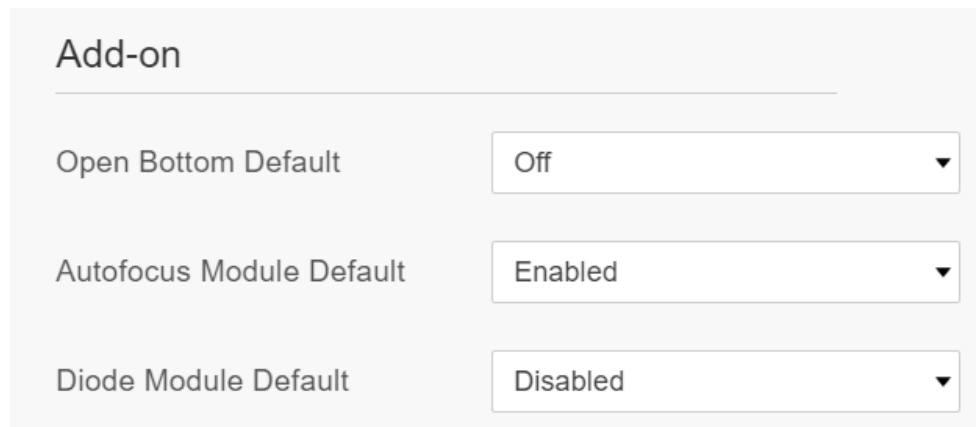
Double-tap the button on the side of the add-on, while it is straightly on top of the desired material. This allows the probe of the add-on to automatically detect the height of the material. Long pressing the button on the side allows the laser head to go back to its origin.



## Software Mode

### 1. Enabling Autofocus

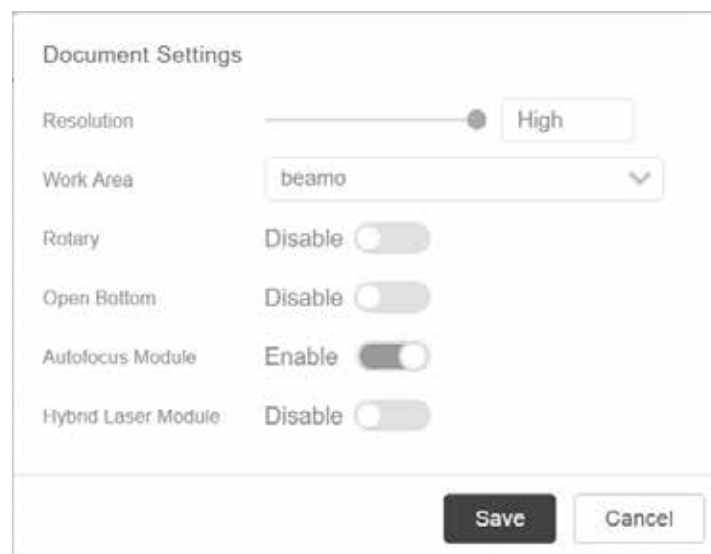
To control the autofocus add-on in Beam Studio, and to switch heights in various layers, go to “Preferences” (Mac: Menu > Beam Studio > Preferences; Windows: Menu > Files > Preferences) and enable **autofocus** under the **Add-on** section.



The screenshot shows the 'Add-on' section of the Beam Studio Preferences dialog. It contains three settings, each with a label and a dropdown menu:

Setting	Value
Open Bottom Default	Off
Autofocus Module Default	Enabled
Diode Module Default	Disabled

Enabling or disabling autofocus targeted at single files can be achieved through: Menu > Edit > File Settings



The screenshot shows the 'Document Settings' dialog in Beam Studio. It contains several settings with labels and controls:

Setting	Control
Resolution	Slider and dropdown menu set to 'High'
Work Area	Dropdown menu set to 'beamo'
Rotary	Disable (toggle switch)
Open Bottom	Disable (toggle switch)
Autofocus Module	Enable (toggle switch)
Hybrid Laser Module	Disable (toggle switch)

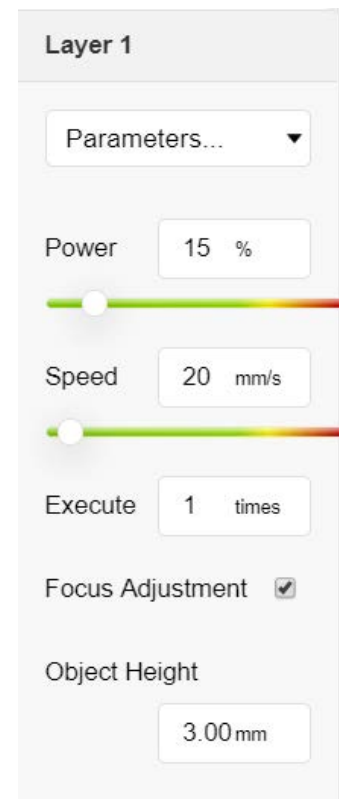
At the bottom right, there are 'Save' and 'Cancel' buttons.

**NOTE:** Only when Beamo is installed with the autofocus add-on can this function be enabled.



## 2. Focus Adjustment (Setting the Height of Autofocus)

After enabling the autofocus add-on, in the layer's laser parameter panel, an additional "Focus Adjustment" function can be found. In the layers where "Focus Adjustment" is selected, controllable option "Object Height" will appear. Adjust the value in "Object Height" to control the height of the laser head when it is cutting in this particular layer. If not selected, the add-on will continue to use the same height as the beginning of the work.



Layer 1

Parameters... ▼

Power 15 %

Speed 20 mm/s

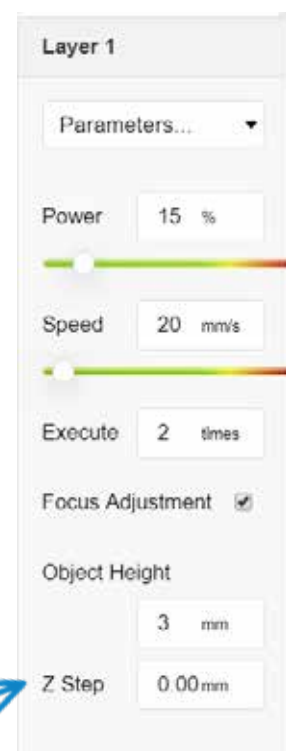
Execute 1 times

Focus Adjustment ☒

Object Height 3.00mm

## 3. Z Step

When cutting thicker materials, some layers will run the same command more than once. In layers with "Focus Adjustment" enabled, when "Execute" is greater than 1, controllable option "Z Step" will appear. This value controls how much the laser head degrades after commands in between layers, which is directed at cutting thicker objects.



Layer 1

Parameters... ▼

Power 15 %

Speed 20 mm/s

Execute 2 times

Focus Adjustment ☒

Object Height 3 mm

Z Step 0.00mm