

# **WHAM BAM**

## **MUTANT** Installation Instructions

### **Before Mounting:**

Please do not mount this yourself if you don't already have knowledge and proficiency with working with electrical components. The electrical work is pretty easy, simply inserting wires into connectors, no soldering, no firmware adjustments. If in doubt please bring to a certified electrician.

*Wham Bam is not responsible for any damage this may cause to your machine or equipment, so please use caution when installing and testing.*

**MUTANT** PCBs are rated for **2.5Amps** on each terminal block and each signal lead, with the exception of A and B which are each rated to **10Amps** each, and appropriate for most Heater Cartridges and power leads up to 10A per lead. All leads are made for 12-24V DC and not rated for AC line current.

**Please do not mount any components to any terminal if they exceed these ratings.**

If you need to print parts to either install the **MUTANT** to your machine or your hot end to the **MUTANT**, do this before disassembling your machine, especially if you only have one printer.

In order to mount the **MUTANT** to your machine you will need either of these:

1. Download and print one of the many interface plates found on our support page. You can use our included M3 heat press inserts in the **Fixed Plate Accessories** bag to create the 4 threaded mounts for the **MUTANT** Fixed Plate.
2. Create your own interface plate, use our **Interface Template** or our **STEP** or **STL** files found on the support page and design the hole positions needed to mount it to your machine, use our included heat press inserts in the **Fixed Plate Accessories** bag to create the 4 threaded mounts for the **MUTANT** Fixed Plate.
3. Purchase one of our **Universal X Gantry Plates**. We offer one for standard 3 wheel V-slot carriages "**Universal X Gantry Plate Roller Bearing**", and one for MGN12H linear rails both top and front mounted "**Universal X Gantry Plate Linear Bearing**".



## MUTANT Installation Instructions

### Mounting Instructions

1. Lay out all components, accessories, tools, and contents of your **MUTANT** and become familiar with each part and its functions.
2. Shut off and unplug machine before working with electricity. Double Check this before moving on.
3. Unscrew and unmount your full hot end assembly from your printer, leave wires connected.
4. Mount one of the **MUTANT** mounting options to your machine as mentioned above, either an Interface Plate (A.) or a Universal X Gantry Plate (B.)
  - A. If using an Interface Plate, you can screw this to your empty X gantry plate. Some versions require that one of the wheel bearing assemblies (typically top right) be unscrewed and replaced after mounting the interface plate. Be sure to have at least 3 secure screw mounting points from interface plate to X gantry plate. Pay attention to the order of parts during disassembly, and when remounting. Use included M5 x30 Countersunk screw to remount the bearings to the new interface plate and X gantry when plate when needed such that the screw head is recessed and does not protrude.
  - B. If using a **MUTANT** Universal X Gantry Plates, you will need to unscrew and remove your bearings from your machine and replace these on our Universal X Gantry Plate paying attention to remount the hardware in the same direction and order it was placed. For the two top screws use the M5 x 30 countersunk screws that come with the kit. You may need to adjust the length of your belt or use our included Gates Belt, and after passing through appropriate slots simply secure the ends with zip ties.
5. Mount the **MUTANT** Fixed Plate Assembly to your Interface Plate or Universal X Gantry Plate with supplied 2 button cap M3 x 6 screws on Left side and 2 button cap M3 x 16 screws on right side in **Fixed Plate Accessories Bag**.

# WHAM BAM

## MUTANT Installation Instructions

6. Locate your wire harness which leads into your hot end and identify each wire. Visually position the MUTANT on the machine and find the best place that you will cut your wires such that there is enough wire leading off from your components to be routed into the Mobile Plate of the MUTANT, **mark this point, but do not cut yet.**
7. Use the included stickers to label each wire, both above and below the position you are going to cut them (2 per each wire), and write down the corresponding letter and wire function on the included **Wire Records sticker**. These letters correspond to the letters printed on the green terminal blocks on each part. Be sure to pay attention that A and B terminals are the 10 Amp rated terminals and use these for your heater cartridge or higher amp component. Note that Red Stickers should be used on positive leads and gray on negative leads. Heater Cartridge and Thermistor do not have a polarity, but most of your other components do, so please make sure you are keeping notes on polarity for all other components. \*If you are going to mount the MUTANT on multiple machines make sure to keep the same order of wires to terminals on each Fixed Plate so you can swap tools between machines!\*
8. **Make sure the machine is powered off and unplugged.** After mounting identification stickers on the wires cut the wires between the stickers. Make sure your Heater Cartridge (usually the thickest red wires) go to A and B terminals on both PCBs.
9. Plan on how you are going to organize your cables. You may want to slip extra braided cable or a large heat shrink tubing up on your wire harness before securing ends, to later seal and clean up the terminal of the harness cover. Heat Shrink Tubing and braided cable are included in **Fixed Plate Accessories bag**.

**WHAM BAM**

## **MUTANT Installation Instructions**

10. **With the Machine unplugged** you can now begin wiring the Fixed Plate. Remove the cover of the Fixed Plate assembly. Identify each of the terminal block letters and pay attention to the corresponding wire leads from the machine wire harness. Strip the ends of each wire about 3 mm or an 1/8" and neatly twist each tip to keep wire strands together precisely. Begin to unscrew each terminal block a bit, insert each wire in order, and retighten the terminal block screws on top. Once again, make sure A and B are used for your heater block as these are rated for up to 10 Amps. Once you have routed all wires and secured, inspect to make sure there are no exposed wires crossing over, no stray wires, give a slight tug on each wire to make sure is well clamped.
  
11. Now you may want to slide down the braided cable or heat shrink tubing and with heat gun or lighter to seal off the end of the wire harness end. Use 2 included zip ties to secure the harness to the vertical post located on the top rear of the MUTANT Fixed Plate. Now secure back the cover of the Fixed Plate in place using original screws.

### **Your MUTANT is now Installed on your Machine!**

12. Time to mount your hot end to the Mobile Plate Assembly! Do not remove the cover from the Mobile Plate Assembly. Follow the order of the wires according to the labels you placed on each lead and following the letters etched into each terminal block. Once again A and B are reserved for the Heater Cartridge or other higher tension components. Strip 3mm off each end of each wire, feed into terminal blocks and tighten down and test. After mounting all wires visually inspect that there are no stray wires crossing over, nor loose connections. Use 2 more small zip ties fed through the two sets of double slots on the Mobile Plate cover to secure wires.

# WHAM BAM

## MUTANT Installation Instructions

13. Mount your components mechanically to the Mobile Plate using included M3 screws and backing with the nuts provided, make sure your screws do not protrude beyond the back surface of the Mobile Plate Assembly or they will interfere with the dovetail joint. We have also included our custom all metal Quick Release Pneumatic Connector which should easily release your Bowden tube every time, mount these to your hot end and take advantage of a quick change. We have included a spacer to mount Creality style MK8 hot ends, or feel free to print any spacer you need. We have also included a spacer to mount the original Creality Hot End Shroud. There are many mounting opportunities to find ways to mount an ABL sensor, hot ends of all sorts, fans, lights, anything you like. We will have a large library of downloadable mounts and accessories available on our support page: [whambamsystems.com/support](http://whambamsystems.com/support). We also have the CAD files and template for the hole position on support page, should you care to make your own
  
14. Your MUTANT is ready to attach and go! Swing the arm of the Fixed Plate outward and line up the Mobile Plate so the dovetail joint fits into the correct guides and drop down, it should take little force to insert, use a hand to push down until seated, and swing the lever upward to lock the connection.
  
15. Turn on your machine and check that each component powers up correctly. If there is any unexpected issue, turn off the machine immediately and inspect all connections.
  
16. Switching Mobile Plates. **Always switch Mobile Plate Assemblies with power off to avoid any current flashes or shorts.** Simply swing the lever arm outward, this will give a push upward on the Mobile Plate Assembly and disconnect the electrical connector. Lift off the Mobile Plate Assembly and you are good to go!