

V-Slot limit switch mounts and cable ties.

All the stetchup files and .stl files are included in the download.

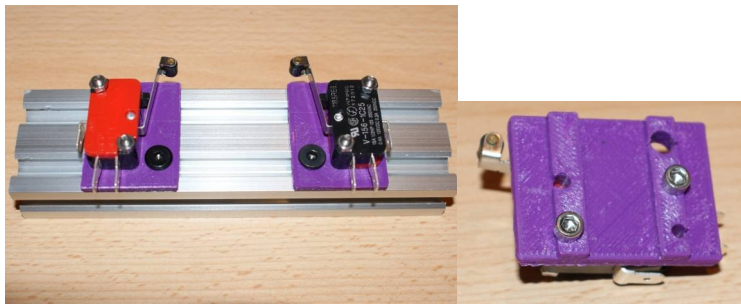


A Range of 3D printed mounts to attach these type of limit switches to V-slot.

These switches are cheap and quite robust, a step up from the end stops you see on 3d printers.

I got mine from here:

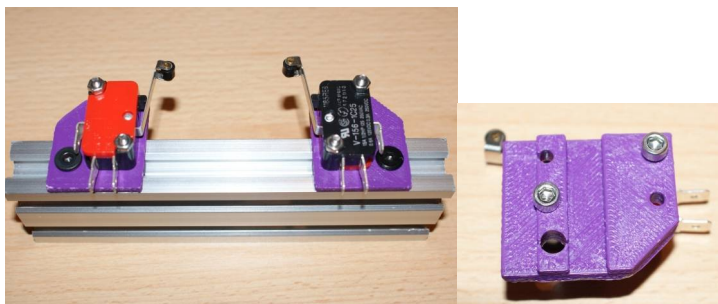
<http://www.ebay.co.uk/itm/10-x-Micro-Limit-Switch-Long-Hinge-Roller-Lever-Arm-Momentary-SPDT-Snap-Action-/191637688634?hash=item2c9e7f113a>



Micromount left and right.

The Left and right refers to where the 5mm fixing screw is in relation to the switch.

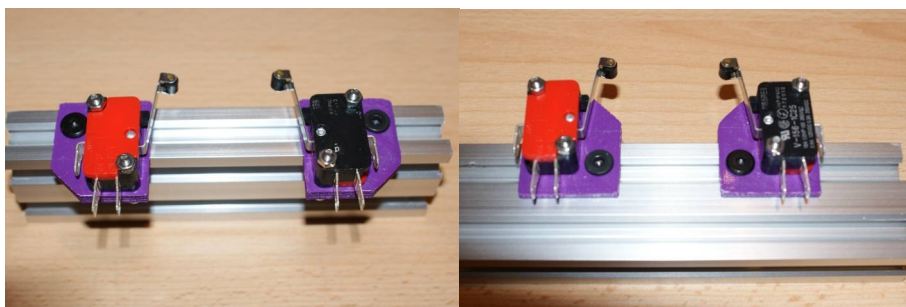
The switches are fixed by M3x20mm cap head screws, and fit on the face of the rail with a T-nut. At first sight it looks like the M3 screws will foul the rail, but they click into place quite nicely. These are for movement along the axis of the rail.

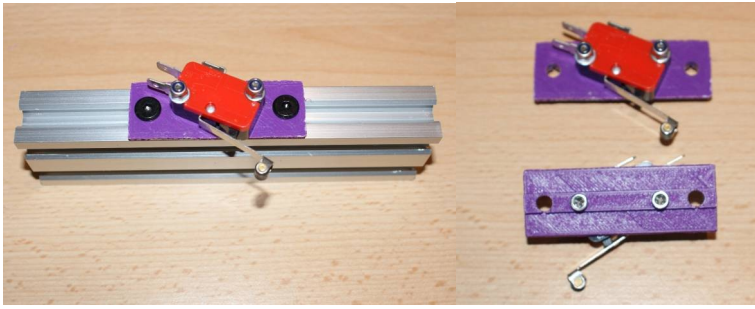


Edge Micromount left and right.

These mount on the edge of a rail, or in the last slot on the face of a rail. Note with all these mounts there are four mounting holes for the switches, to give all sorts of options.

Again these are for movement along the axis of the rail.

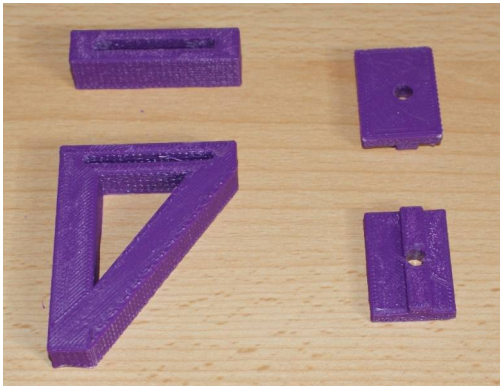




Edge Mount 90

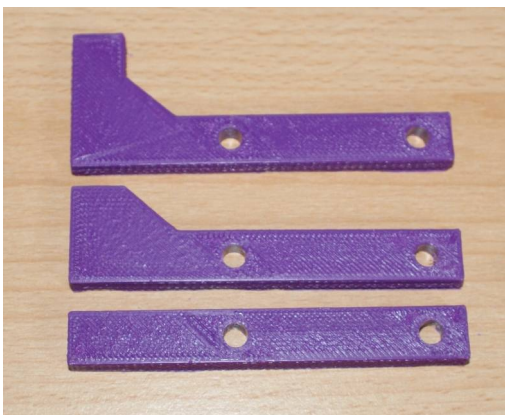
This is for movement at right angles to the rail.

Striker plates as used on c-beam machine



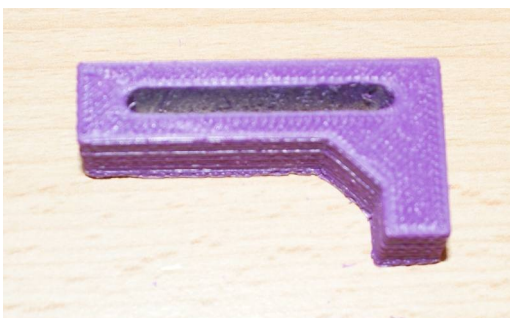
Y axis back and front striker.

X axis striker, this is needed as the switch roller was just catching the edge of the gantry plate.



Various Z axis strikers, straight and offset10, and offset20. They fix to the side of the spindle mount.

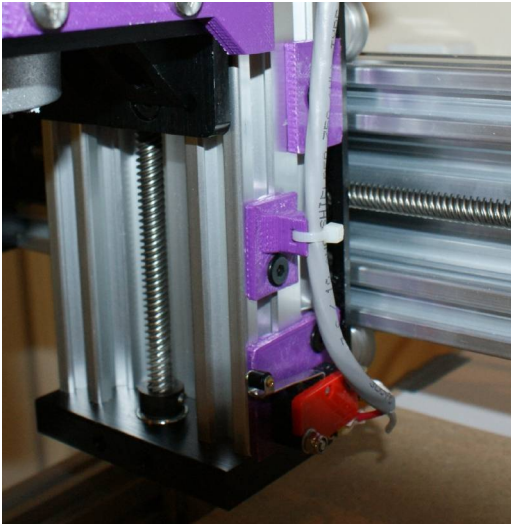
On the C-Beam Z axis there is little room for the bottom switch, not much space between the end of the axis and the X-axis beam. Hence the three options, to suit you set up.



Y axis back striker offset.

On my C-beam I found that the table fouled the edge mount switch on the gantry, the switch needed to move down and hence the offset striker.

Cable ties

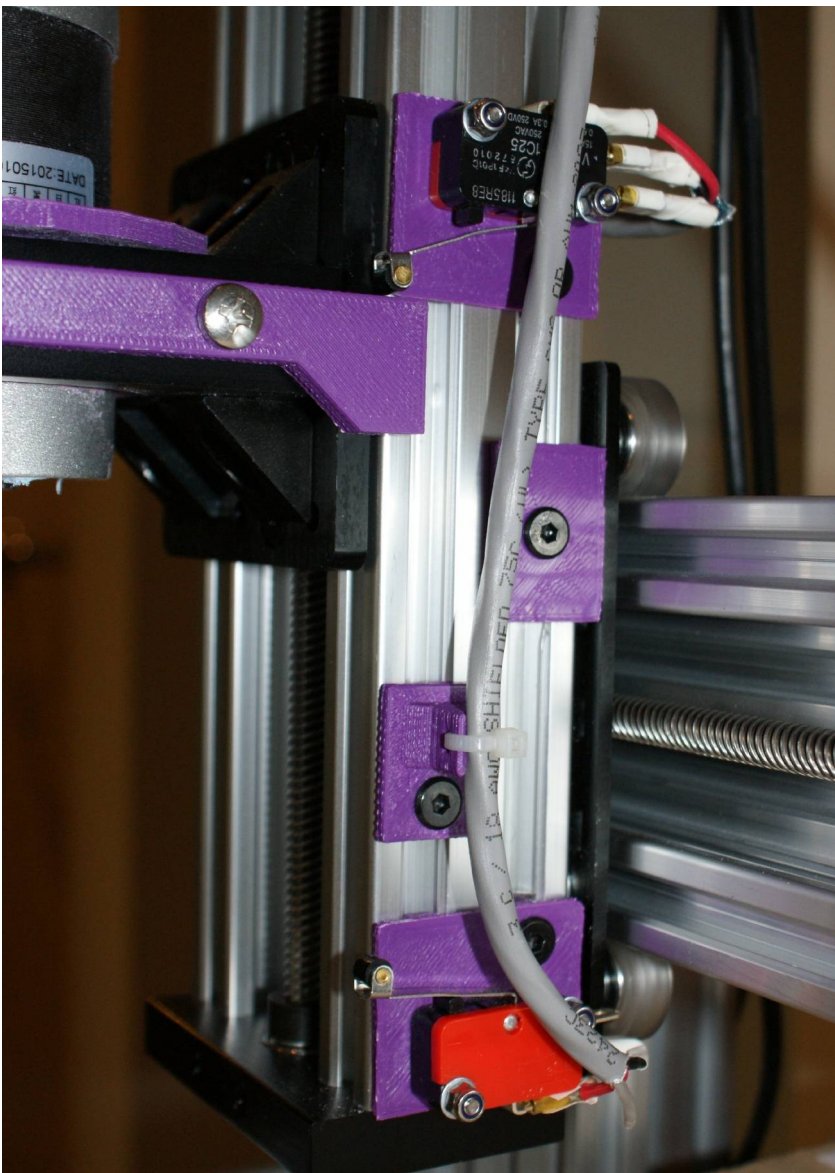


Various cable ties:

The one shown is cable tie 15mm, which raises the cable 15mm off the rail, it has a raised portion on the back to fit nicely in the rail slot. There is a 10mm version, and a 5mm version. For cables along the rail axis.

Each one has a flat version, for holding cables at right angles to the rail.

Application to a C-Beam Machine

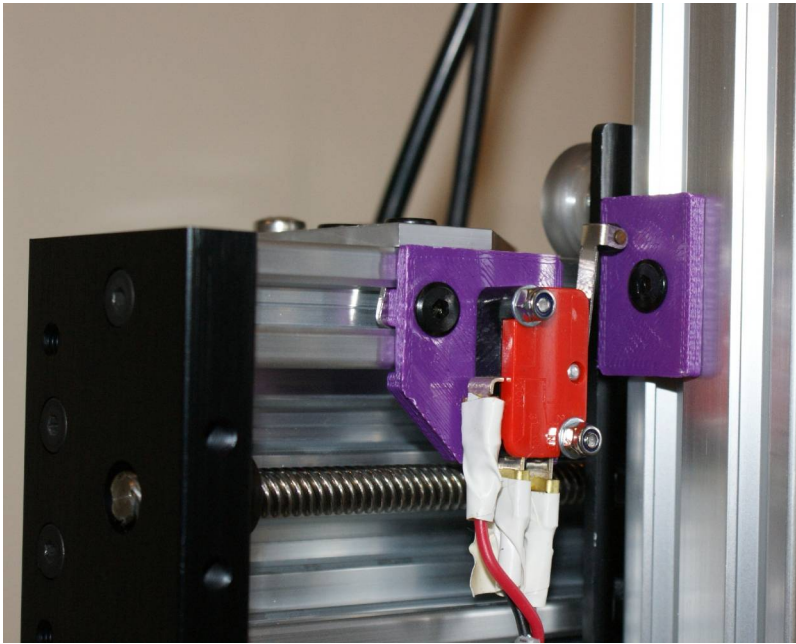


Z-axis uses a micro mount left and right for the up and down limits.

A Z-axis offset 10mm striker hits both switches.

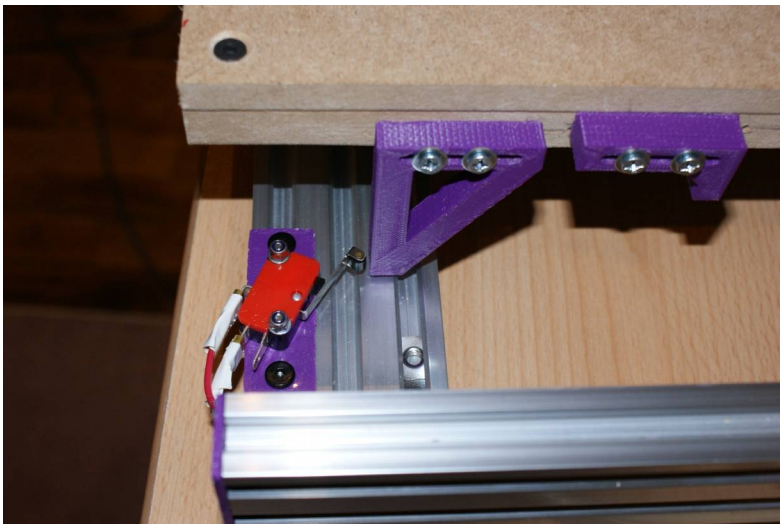
Also in view is the X-axis striker plate, which just levels off the gantry plate and the rail.

The cable tie is a 15mm, which lifts the wire clear of the switch.



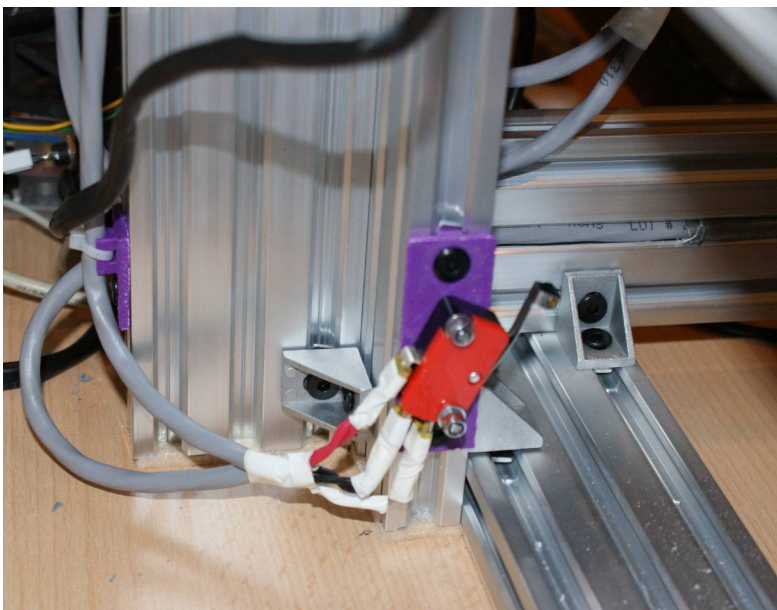
Edge mount left and right used for either end of X-axis.

X axis striker plates needed as switch roller just catches the edge of gantry plate.



Edge micro mount 90 used for either end of Y-axis.

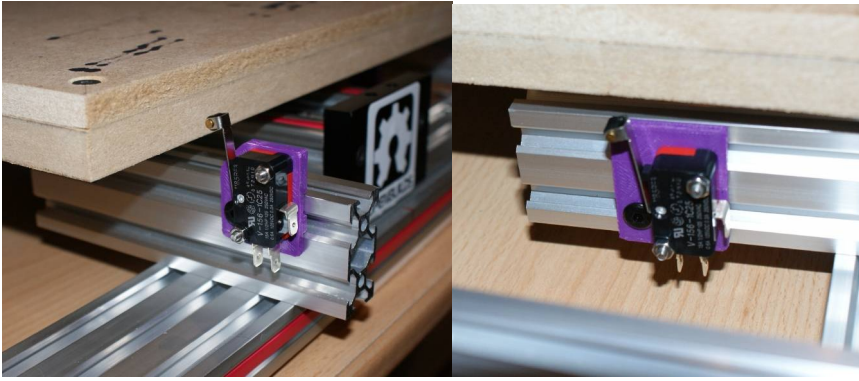
Y-axis front striker and Y-axis back striker offset shown here.



Edge micro mount 90 shown at rear of Y-axis, fixed to gantry.

5mm cable tie can be seen at rear.

Other ideas for Y axis front:



The Y-axis front striker can catch things under the machine table. These are a couple of alternatives, using a spare piece of rail, and either an edge micro mount or a micro mount and a striker mounted underneath the table.

Wiring

The switches are wired normally open, not ideal, but that's how it is.

However that does mean that the two switches on each axis can be wired in parallel, and only two wires need to go back to the controller for each axis. This doesn't affect the homing cycle.

The GRBL settings need to be set to allow the limits:

Hard limits, bool: needs to change from 0 to 1 The limits won't be recognised without this setting.

If you want to use homing:

Homing cycle, bool: needs to change from 0 to 1

Homing dir invert mask: may need to change from 00000000 to 00000011

The last three digits change the direction each axis moves to get to the chosen home position.

For my C-beam the X and Y needed to reverse.

Homing pull-off mm: I set to 2mm, it seemed to work for me.

I have actually taken a normally closed from each axis so maybe later I can monitor those three lines with leds, which at least will give an indication if the limits get disconnected.

When you start up the machine it's best to check that the limits are working, give them each a push with your finger. You need to reset and unlock after each.