

## Focal Plane shutter tester.

### Mk II

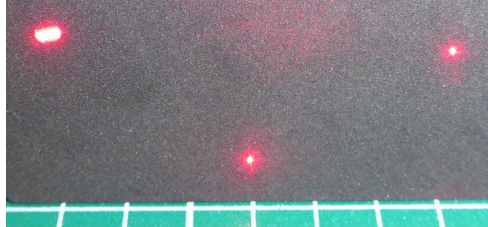
From CDSnapper's dad

Again, many thanks to Niglyn for all his work on this project.

I think that whilst my Mk II version was in gestation, things have overtaken me somewhat, never the less, here is the latest.

Little has changed in reality, the only modification was to the lasers and the sensors, and to get some LED's working correctly.

When one looks at the footprint of the original lasers it is about 4mm wide at 5cm and the errors this causes has been much discussed in the forum. My Mk II uses lasers which can be focussed and produce a spot that is almost unmeasurable when focussed on the focal plane.



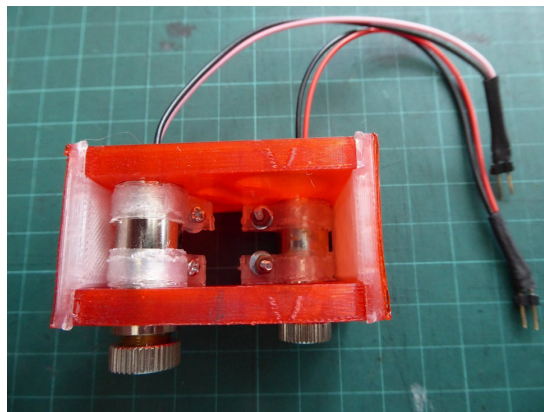
Original laser on the left and my two lasers, middle and right. There is quite a lot of flare associated with such bright lights, shining them on to a mat black background produced the best results visibly.

In order to control:

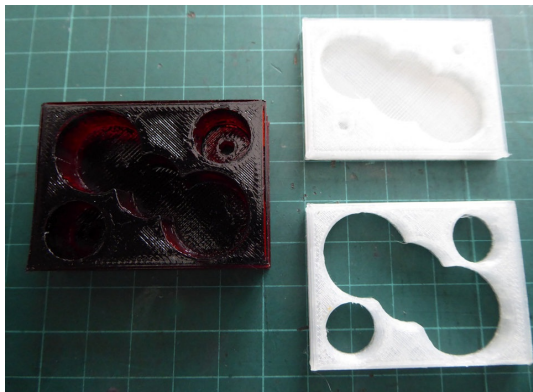
A; my engineering and

B; the position of the lasers with best possible accuracy.

I created a cage which I 3D printed.

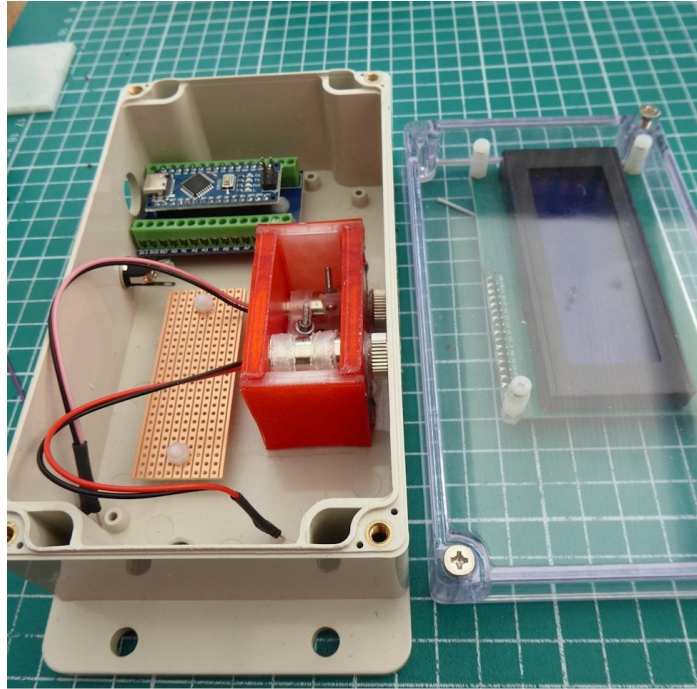


This holds the lasers 30mm apart horizontally and 20mm apart vertically.



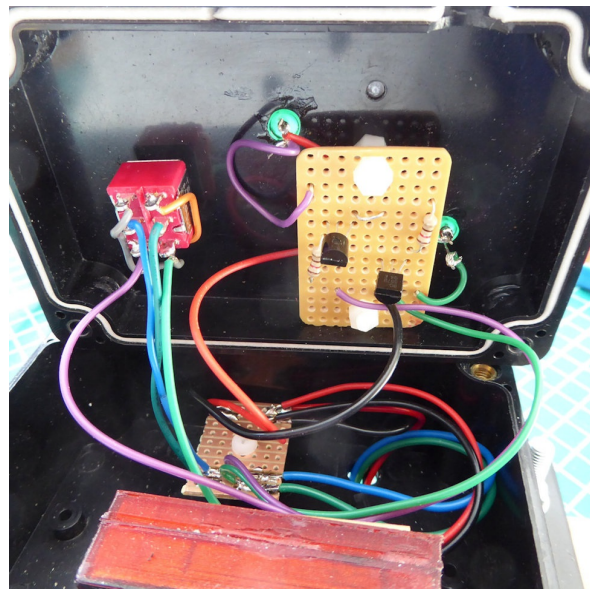
The sensor assembly on the left was created by printing the two pieces on the right ( but with a different colour filament) and super gluing them together. The big holes are only there to save plastic filament. Two 3mm holes for the sensors are just visible top right and bottom left. Hole centres are again 30 x 20

There only remained the mounting of the laser cage in one box and the sensor assembly in the other.



Notice that the display is mounted on the underside of the lid of this box to save making a pigs ear of cutting out a slot for the display.

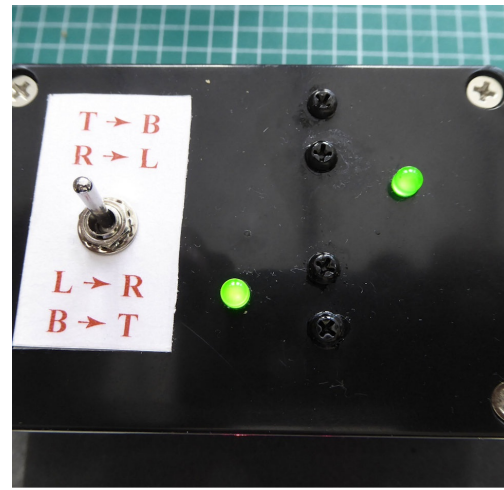
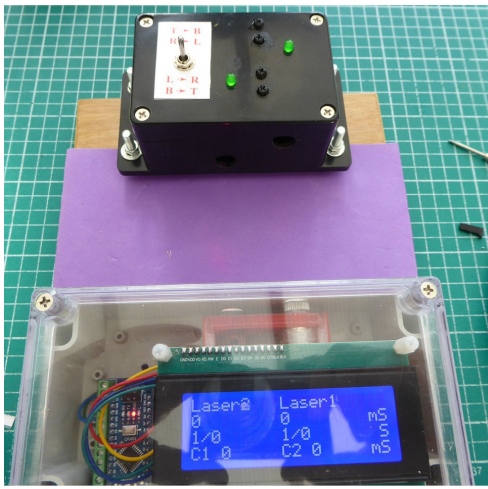
The sensor box was a little tidier internally this time



and the aiming led's now work ( although in retrospect, are not necessary, but they do flash as the curtains pass by).

The switch is again there to select which sensor is triggered first, this way the direction of the curtains do not matter as it is possible to measure them from top to bottom, bottom to top (not very likely, but possible), left to right and right to left.

Finished article looks like this:



Camera height adjustment was this time achieved by a number of 1.7mm thick foam pads cut to fit between the supporting legs of the two box's.

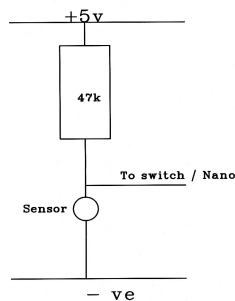
Now to testing the differences!

To date, three cameras have been used, a Pentax Spotmatic, a Yashica TL Electro and a Leicaflex. The Yashica has a vertical shutter.

	Pentax Spotmatic			Yashica TL Electro			Leicaflex		
Time	Mk I	Mk II	% Diff	Mk I	Mk II	% Diff	Mk I	Mk II	% Diff
125	96	102	5.88	100	100	0	120	114	-5.26
250	164	184	10.87	148	150	1.33	244	284	14.08
500	285	364	21.7	291	310	6.13	392	495	20.81
1000	429	610	29.87	450	504	10.71	617	902	31.6
2000							926	1448	36.05

All measurements an average of 4 tests.  
Can not explain the anomalies for the Leicaflex at 125th

Sensor configuration x2



THE LASERS WITH THE RED 'DANGER' LABEL. SPOT VARIETY.

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