

Quick and Cheap Emergency Lamp by Les Carpenter G4CNH – January 2023

History

In the middle of winter in 2021, all the corridor lighting for our flats failed and pitched the shared passageway into complete darkness. When it was obvious that a speedy repair was not to be forth coming, I quickly made five simple lamps from spare parts I had. OK, so they are not that bright but as each LED can be directed at the door locks or the flooring, they were very enthusiastically received by the other two flat residents. I had torch bulbs but they would soon run batteries down and a lot of their light would be wasted.

The alternative was complete darkness and the little single Les-Light LED's did a fantastic job in giving just sufficient illumination. The amazing thing is they do not require series resistors and the AA batteries last for weeks, even turning them on for up to 17 Hours a day! My latest series of tests are being made on 9 Les-Lights and now into their 10th week of being turned on every day for between 8 and 12 hours. They do eventually dim but the light is still capable of lighting the way when total darkness is the alternative. The diffused type seem to illuminate a larger area whereas the clear type appear best suited for directing light to door handles etc., but unlike torches and candles, they last much longer and safe to use.

Turn them ON at the first sign of sunset and be protected against any sudden darkness from loss of power through to sunrise.

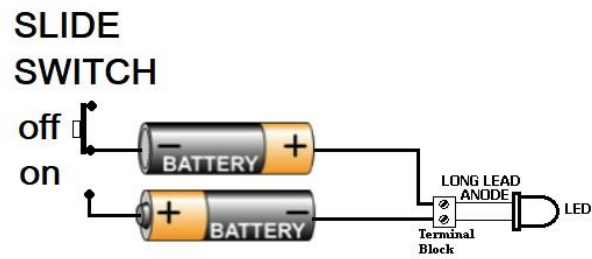


Below are two originals, the cord allowed them to hang from door hinges for most effective illumination of the corridor as shown above.



Pretty basic and the build standard is terrible too, but urgency was more important than finesse.

The Original Circuit:-



Now I hate soldering to the end caps of batteries so just for this article and to make it easier to build, I looked for a 2 x AA enclosure. In my search I discovered some that were not just fully enclosed but they also had a switch too! Sorted!



The two types I bought were either Black cased with Red and Black wires or Clear cased with plain wires coming from them. It would be easy to solder an LED to either of these with some extra insulation provided by heat shrink sleeving. For those without any soldering or heat shrinking equipment, then you could use a screw terminal block, just cut off two segments. It will not look very pretty but the 3A strip given in the Parts List Table is easy cut and has 12 segments so enough for 6 lights. If it doesn't light it is pretty certain the LED is round the wrong way or the switch is set to OFF.

Many thanks to Dale Jonathan Perkins who sent me this picture of his terminal block models using 5mm LED's. He hopes to make more for his family and friends using 10mm LED's.



If you have decided to solder then it is best to get polarity right before soldering and if you have a 0.8mm drill you can try drilling the case and mounting the LED direct, so avoiding the need for heat shrink sleeving. The 10mm LED is recommended, although it promises to be a third in brightness to the W5A, its greater viewing angle has some advantages and the overall glow is personally favoured by the Author.

Parts List

Ref	Description	UK Supplier	Part No.	Cost (Oct 2022)
1	ABS 2 x AA Battery Box with internal slide switch.	(Ebay) goldenmango1		£1.99
2	Hyper Bright 5mm, 30,000 mcd	CRICKLEWOOD	W5A	£1.14
	Alt. 10mm White 10,000 mcd	CRICKLEWOOD	W10U	£0.90
3	3 Amp terminal block (Alternative to solder)	(Ebay) vintageinterior		£1.12
			TOTAL	£4.25 using W5A

Views of lamp with battery box and original wiring.

5mm 30,000mcd.



Alternative 10mm 10,000mcd

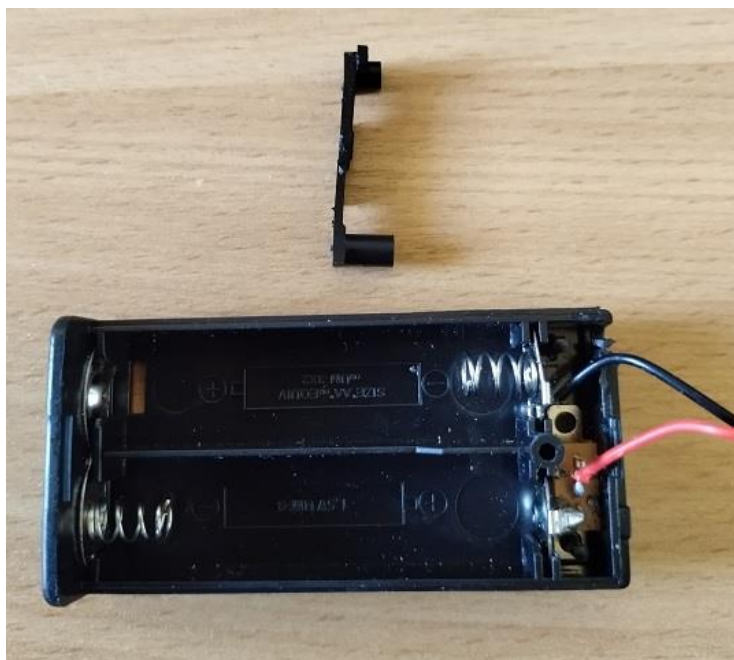


The latest acquisition I made was of four of the Black box variety. These seemed a better example of these boxes because they have an optional screw hole for extra security of the cover.

Also by careful use of a craft knife, it is possible to remove an inner panel that covers the battery and switch solder terminals; this panel is held by two plastic pins that mate with tubular sections on the inner panel.

Careful also not to break off any of the small rectangular securing lugs which mate with slots on the rear sliding cover. If you do, then you can still use the screw hole to hold the cover on, but you will have to find a suitable self-tapping screw. How do I know this? Don't ask, I make the mistakes so you don't have to. 😊

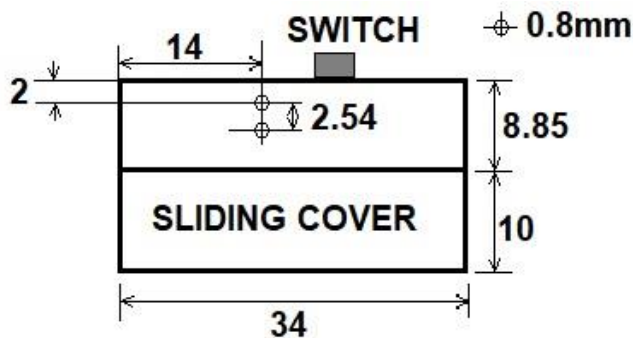
OOPS!



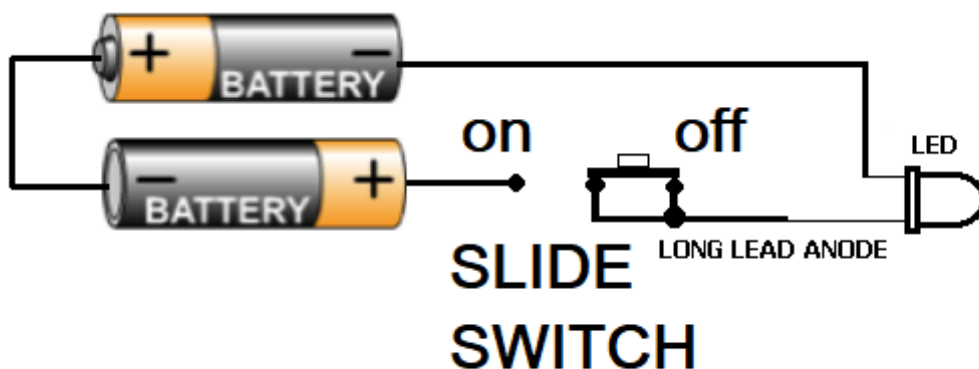
I mounted the 10mm LED slightly off of horizontal centre such that it does not impede the sliding on and off of the sliding cover. I also arranged for both of the LED wires to come vertically through the 0.8mm case holes. These I drilled at approximately 14mm from the case edge to keep the LED wires clear of the switch body. Some 10mm LED's also have large flats which can be positioned to give minimum interference to the sliding of the rear cover.

The longest wire (Anode) is the top wire to reach over to the switch contacts in place of the Red wire. The shorter Cathode wire is connected to the Negative Spring terminal of the battery in place of the present Black wire.

This picture taken prior to connecting the LED shows the optional cord loop to hang the light up, two 1.5mm holes were needed just above the battery terminals.



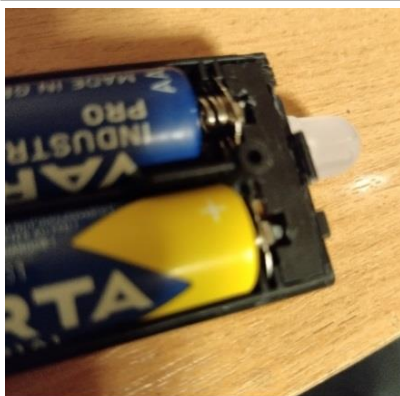
I suppose the circuit should now be like this.



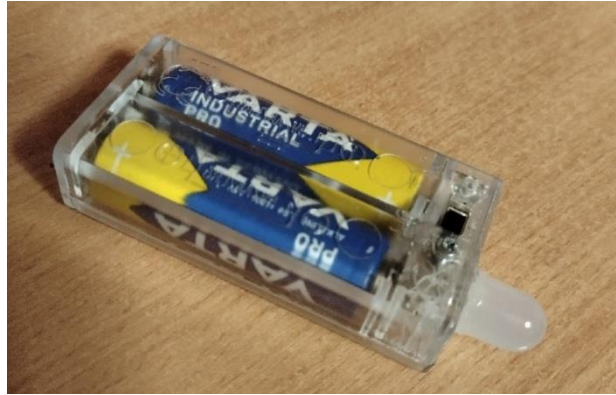
View of the soldered LED and though not essential, it was glued using Gorilla Glue (Clear). Always worth fitting batteries as shown to verify LED connections before soldering.

Inner panel replaced.

Complete Assembly



Yes you can do the same with the Clear Boxes but it really is more hassle. OK if you want a challenge and have a 2mm nut and bolt to secure the switch as its mounting posts will probably break as you remove the inner cover. You can only fit one nut and bolt and that is to the hole next to the OFF position, else the fixing nut prevents full ON switch travel. I make the mistakes so you don't have to. 😊



Here is a view of my flat with just five lights in operation, two in the bathroom, two in the hall way and one in the bedroom.



And Dales 10mm LED collection. Here he appears to be using Clear LED's instead of the diffused type but nice light all the same.



ROLL ON THOSE 3 HOUR POWER CUTS, SWITCH ON AT DUSK AND OFF AT DAWN. 😊