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With the principle of "Quality Parts,Customers Priority,Honest Operation,and Considerate Service",our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!

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LEARN ABOUT SIMPLE LIGHTING CIRCUITS WITH THIS

WHITE LED TORCH KIT

Version 2.0

White LED Torch Essentials

Kitronik
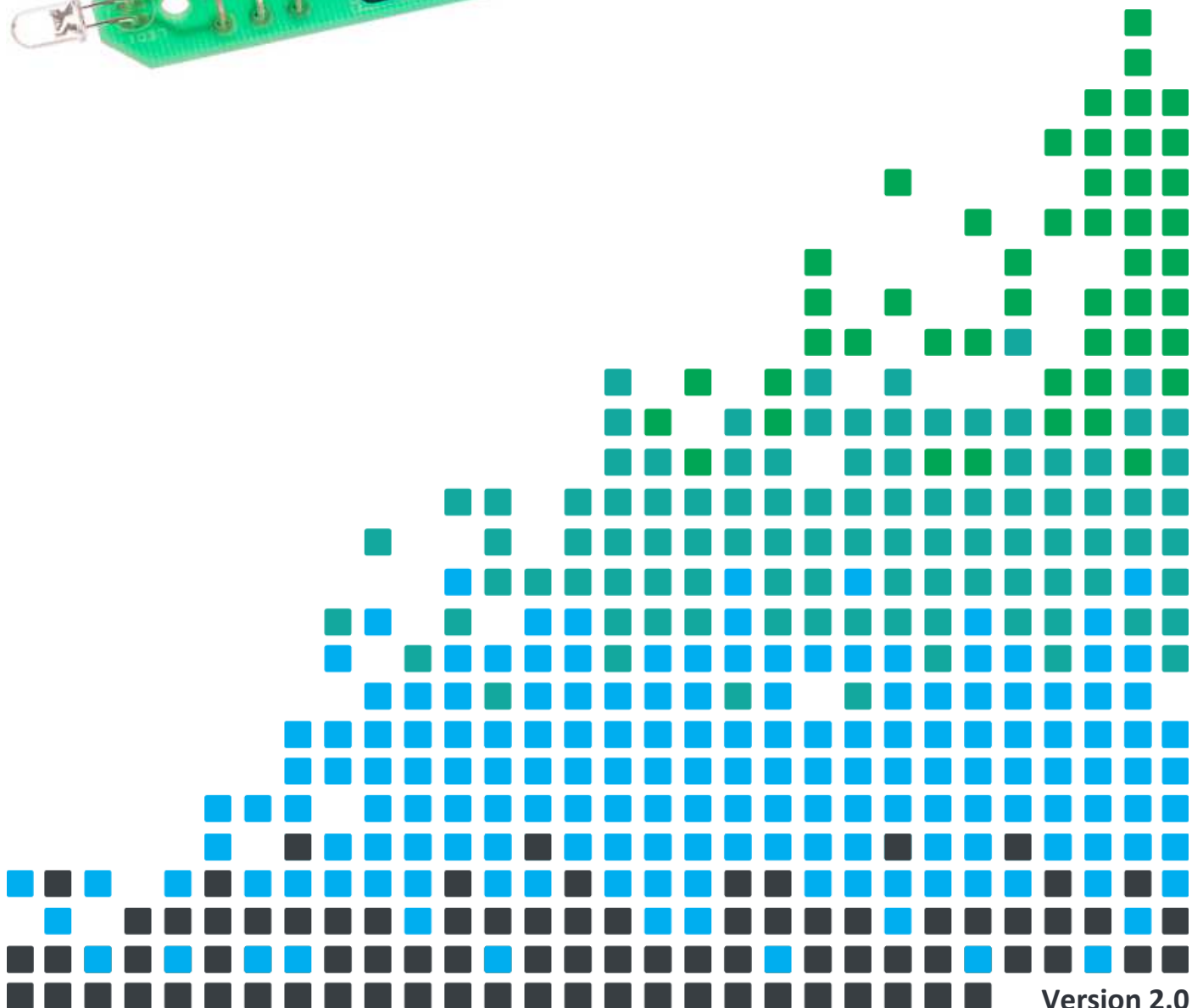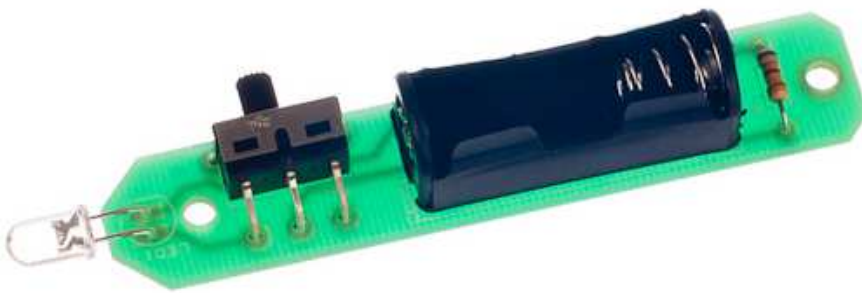
Build Instructions

Before you start, take a look at the Printed Circuit Board (PCB). The components go in the side with the writing on and the solder goes on the side with the tracks and silver pads.

1 PLACE RESISTOR

Start with the 680Ω resistor that is marked with blue, grey, brown coloured bands. Solder the resistor into the PCB where it is labelled R1. It doesn't matter which way around the resistor goes into the board.

2 SOLDER THE LED

Place the Light Emitting Diode (LED) in to LED1. The light won't work if it doesn't go in the right way around. If you look carefully one side of the LED has a flat edge, which must line up with the flat edge on the outline on the PCB. **You will need to put a 90º bend into the LED legs**, just make sure that you bend it so that the flat edge on the LED is next to the flat edge on the board. Once you are happy, solder into place.

3 SOLDER THE ON / OFF SWITCH

Solder the PCB Mount Right Angled On / Off Switch in to SW1. The row of three pins that exit the back of the switch must be soldered but it won't matter too much if you can't solder the other two pins.

4 SOLDER THE BATTERY CAGE

Finally the battery holder needs to be soldered into the board where it is marked CONN1. The battery holder outline on your PCB shows the spring. Make sure when you put the holder into the board that the spring on the holder lines up with the spring marked on the board.

Checking Your Torch PCB

Check the following before you insert the battery:

Check the bottom of the board to ensure that:
- All holes (except the large mounting hole) are filled with the lead of a component.
- All these leads are soldered.
- Pins next to each other are not soldered together.

Check the top of the board to ensure that:
- The flat edge on the LED matches the outline on the PCB.
- The spring on the battery holder is next to the resistor.
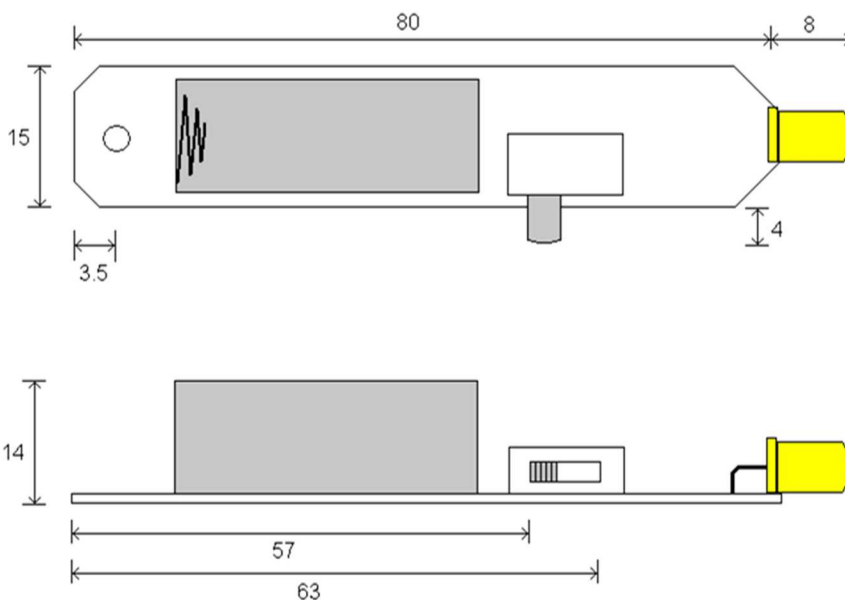
Designing the Enclosure

When you design the enclosure, you will need to consider:

- The size of the PCB.
- Where the LED is mounted.
- Where the on / off switch is mounted.
- There is a 3mm hole at the back of the torch to secure the PCB to your enclosure. Depending on your design, you may be able to hold the board in place with a key ring.
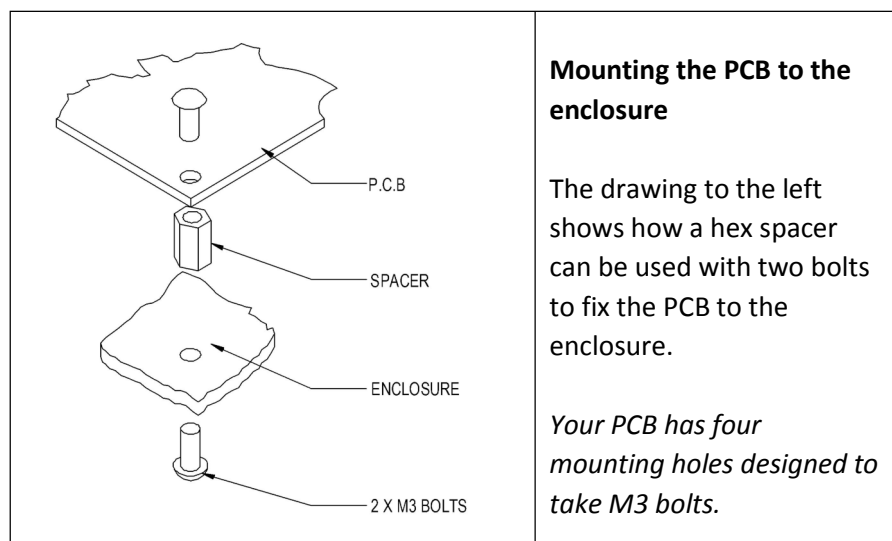
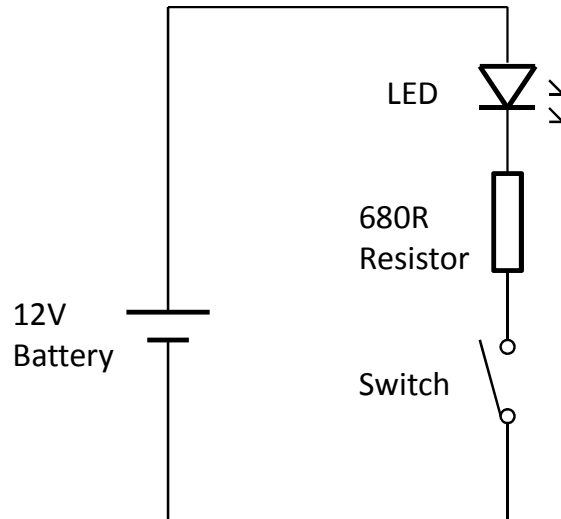This technical drawing of the built torch PCB should help you to design your enclosure.

All dimensions in mm.
x1 mounting hole 3.3mm diameter.
The diameter of the LED is 5mm.

Mounting the PCB to the enclosure

The drawing to the left shows how a hex spacer can be used with two bolts to fix the PCB to the enclosure.

Your PCB has four mounting holes designed to take M3 bolts.

How the Torch Works

The circuit diagram for the torch is shown above. It is a very simple circuit, powered by a 12 Volt battery.

The LED would be damaged if the current through it was not limited. A 680Ω resistor has been selected to limit the current through the LED. This allows approximately 10mA to flow through the LED so that it is at a good brightness.

Finally the on / off switch allows the circuit to be opened, when the LED will be off, or completed, when the LED will be on.

Online Information

Two sets of information can be downloaded from the product page where the kit can also be reordered from. The 'Essential Information' contains all of the information that you need to get started with the kit and the 'Teaching Resources' contains more information on soldering, components used in the kit, educational schemes of work and so on and also includes the essentials. Download from:

www.kitronik.co.uk/2114

🇬🇧 This kit is designed and manufactured in the UK by Kitronik

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