

## Kitronik update – November 2009

### Powering students work from a computer is as easy as using batteries

Many commercial products such as phones, MP3 players and cameras take their power from a computers USB port (when connected) and school projects can also do this. This is a great power source, especially for small devices as it saves on bulky batteries or the expense of a mains adapter.

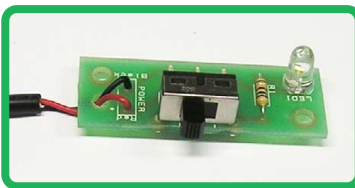
A USB cable has four wires. Two are used to transfer data, while the other two provide the power. The two power wires supply a 5V power source that can deliver a current of up to 100mA. This is more than enough to power a typical educational circuit.

To simplify using USB power we have introduced a lead that is manufactured specially for Kitronik. The lead only has the two power connections, so there are no data wires to confuse the student. Using the lead (shown below) you can quickly replace a battery pack or DC power supply and power your circuit from a USB connection. If you want to run a lighting project, why not considered powering it from a USB port and use the lamp project kit described at the bottom of the page.



#### USB power lead

Take power from a PC with this handy USB lead. The lead is 1m long and has pre tinned red and black wires which connect to the 5V pins on the USB plug. The data wires are not connected making it extremely easy to use.



#### USB powered lamp kit

Build a computer desk lamp or ornament using this simple board. Available with either a white or colour changing LED the board takes power from a USB port. The kit includes a switch and the USB cable (described above).

Description	Code	1+	10+	100+
USB power cable (1m)	4101	£0.59	£0.49	£0.43
Colour changing USB lamp kit	2131	£2.40	£1.76	£1.46
White USB lamp kit	2132	£2.40	£1.66	£1.36

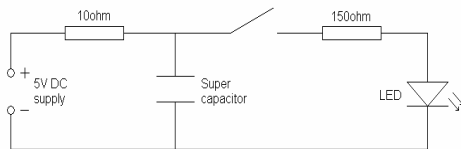
## Super capacitors

### Super capacitors make an ideal re-usable power source

Until recently if you wanted a small amount of power you could charge up an electrolytic capacitor, but if you needed any more power then you had to opt for batteries. Now there is the choice of a super capacitor. These are perfect for applications where the capacity of a standard electrolytic capacitor is too small and a rechargeable battery is bigger than needed. In these two examples you will see that they are extremely easy to use.

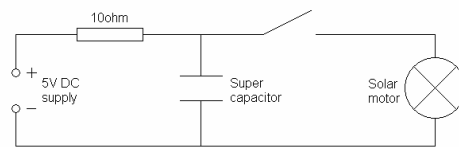
#### Rechargeable white LED torch

This very simple circuit shows how a super capacitor can be used to create a rechargeable torch. The super capacitor is charged when it is connected to a 5V DC power source such as a USB port, power supply or batteries. The capacitor charges within a few seconds and will power the LED for over 10 minutes.



#### Rechargeable vehicle

This circuit charges the super capacitor in the same way as the torch but this time is used to power a solar motor. The motor runs for around 10 - 15 seconds. A perfect application for this is to see who can design a buggy that will travel the furthest before the capacitor is discharged.



#### Why use a 10Ω resistor?

The 10Ω resistor is needed to control the rate at which the capacitor charges. Without it the capacitor would charge instantly pulling a large amount of current which could damage the power source.



### Buying super capacitors

We stock a 1F super capacitor (shown left) that has a maximum working voltage of 5.5V. Diameter 20mm, height 6.5mm, lead pitch 5mm.

Description	Code	1+	10+	100+
1F super capacitor	3103-1F	£1.70	£1.30	£1.15

## The sky's the limit with PopGlider



If you are looking for something a little different for an immersion day or with visiting year 6 students then why not consider the PopGlider. Students can have a fun time whilst learning about forces and aerodynamics. The PopGlider is made out of heavy duty corrugated card which is assembled by gluing and slotting together. The glider has adjustable wings and tail and will take the punishment of an excited class. It can be drawn and painted. Extensive teaching notes and classroom resources are available online.

See catalogue page 38 for full details

Description	Code	1+	4+	8+
PopGlider, pack of 25	4203	£25.00	£23.00	£21.25

## D&T Show



Kitronik are exhibiting at this years D&T show so please come along and visit us. We will be displaying a range of kits and can answer your electronics questions. This years Design and Technology with ICT show event is held from the 19-21 of November at the Birmingham NEC. You can find us at stand A26.

## Technology Camp



Kitronik sponsored a Scout Technology held at Linnet Clough Scout camp site near Manchester on the weekend of the 16th to 18th October. Over the weekend many technology activities were available, which included electronics construction & the electronics badge. This year the electronic construction project was a miniature xylophone project. This activity ran for free thanks to sponsorship provided by Kitronik. Director Geoff Hampson explained "During the camp 173 Scouts made a xylophones and whilst we had the odd problem they all left the session working".

## Free sample – Fax back

### *Please tick one*

- 2101, Alarm
- 2102, Battery tester
- 2103, Game
- 2104, Timer
- 2105, Xylophone
- 2106, Rear bike light
- 2107, Steady hand game, terminal block
- 2108, Steady hand (with latch)
- 2109, Dice
- 2110, Thermometer
- 2111, Easy build timer
- 2112, Light activated switch
- 2113, Heat activated switch
- 2114, LED torch
- 2115, MP3 amplifier
- 2116, Quiz buzzer
- 2117, Square wave
- 2118, 7 segment counter
- 2119, Rainbow LED & bat box
- 2120, Dark activated colour changing LED
- 2121, Programmable timer
- 2122, Programmable music box
- 2123, Air freshener
- 2126, PIC development board
- 2127, PIC project board
- 2128, PIC Frisbee
- 2130, Conductive thread power board
- 2131, Colour changing USB lamp
- 2132, White USB lamp

To request your free sample kit with accompanying teaching notes, please tick **one** box on the left.

*(Or / and please tick)*

Send me a 2008 / 2009 catalogue.

Update my name or address details as amended (left).

**Fax this side to:  
0845 8380782**

Alternatively, call or Email us (see below).



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