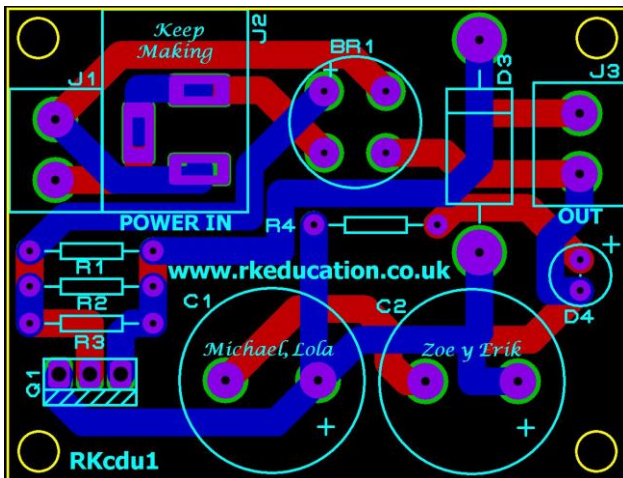


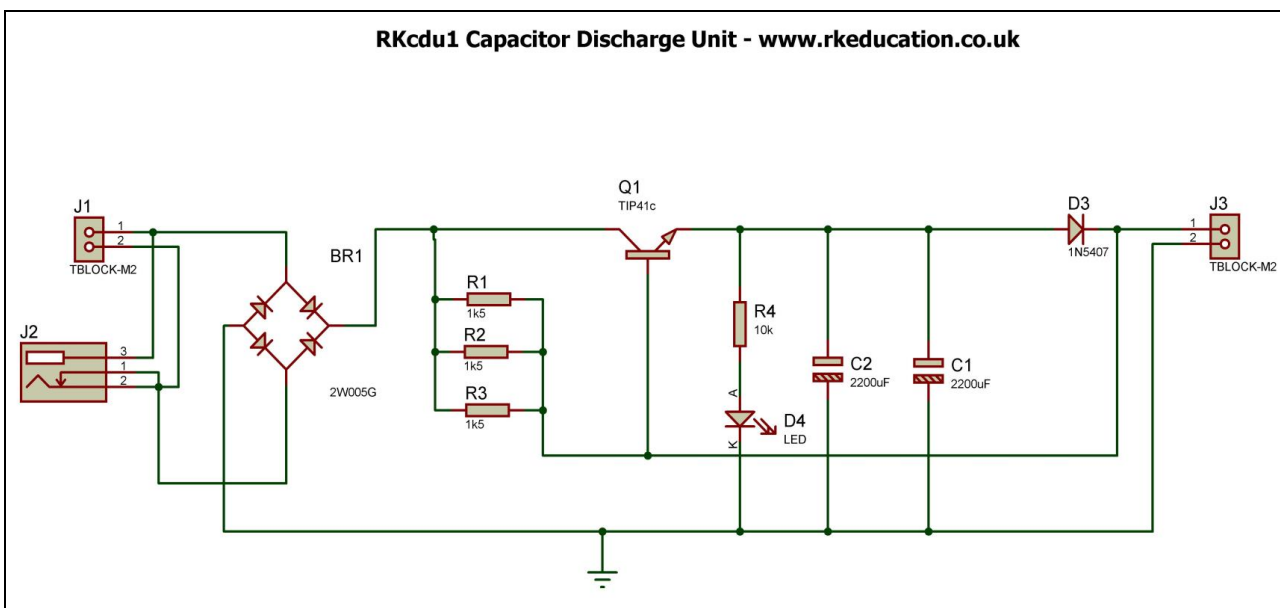
## RKcdu1 Component List and Instructions



PCB layout



Constructed PCB



Schematic Diagram

### Description

This PCB has been designed for use with model railways when operating solenoids for actuating points.

- Provides a high current pulse to "snap" points across positively from the capacitors
- Limits subsequent points current to prevent coil burn out
- Prevents voltage drop to other parts of the installation during points action.
- Operates on AC or DC supplies up to 16VAC or 24VDC
- Includes a 2.1mm DC socket - this is a unique feature
- Uses a bridge rectifier for faster charging

- Designed and manufactured in the UK
- Uses a high quality industrial double sided PCB
- Available as a blank PCB, self build kit or constructed unit

## Component List

BR1 – bridge rectifier

D1 - LED

D2 – 1N5407 diode

J1, J3 - 2 way 5mm terminal blocks

J2 - 2.1mm DC socket

C1, C2 – 2200uF or 4700uF electrolytic capacitors

Q1 – TIP41c transistor (or equivalent)

R1, R2, R3 - 1k5 resistors (brown, green, red)

R4- 10k resistor (brown, black, orange)

## Instructions

For detailed information on aspects of train electronics please visit appropriate forums.

When constructing PCBs it is advisable to start with the components with the lowest profile, for example resistors and end with the highest, capacitors.

## Connecting Power

The power is connected to the DC socket or the terminal block marked IN/OUT. If the DC socket is used then the terminal block marked IN/OUT may be used as a power supply output. As the PCB uses a bridge rectifier, polarity is not an issue when using wither AC or DC.

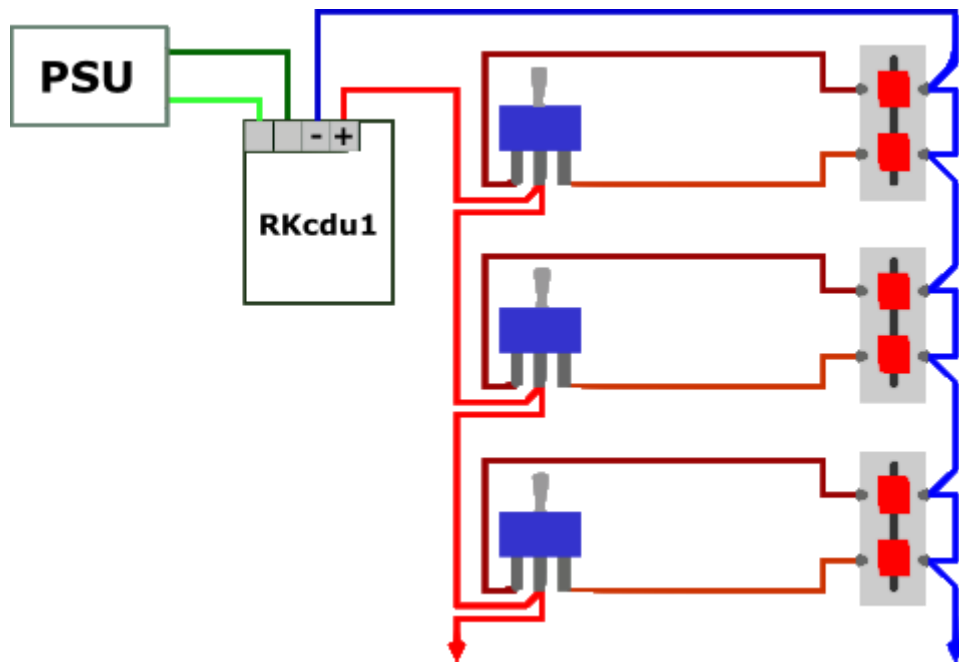
## Wire Size

Selecting a suitable wire is important because as the point motors require a large current then there will be a voltage drop if very small diameter wire is used. The longer the wire the greater this voltage drop will be and it may result in the point motor switching erratically or not at all. For switching a single point 1.4 amps wire generally is fine but if you want to switch a number of points you may need 3 amp rated wire particularly if they are a distance from the CDU.

## Using the RKcdu

The diagram below shows three point motors powered by a RKcdu1, each point motor being switched by its own momentary toggle switch, momentary toggle switches are spring loaded switches. The centre solder lug is disconnected from the outer ones when the toggle is released and the spring returns it to the upright/centre position. When the toggle is moved to either side the centre solder lug will connect with one of the outer solder lugs connecting the red wire to one of the brown wires and so causing the RKcdu1 to supply a current through one or other of the coils on the point motor (the point motor has two coils one for each direction coloured in red. This current will make the point motor move up or down depending on which coil is

energised. The point motors shown have four terminals. Some point motors such as SEEP have three. This is because the manufacturer has connected together one end of each coil to give a common return (blue wire) connection.



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[www.rkeducation.co.uk](http://www.rkeducation.co.uk)

If you have any comments or queries please email us at

[rkeducation@hotmail.com](mailto:rkeducation@hotmail.com)

