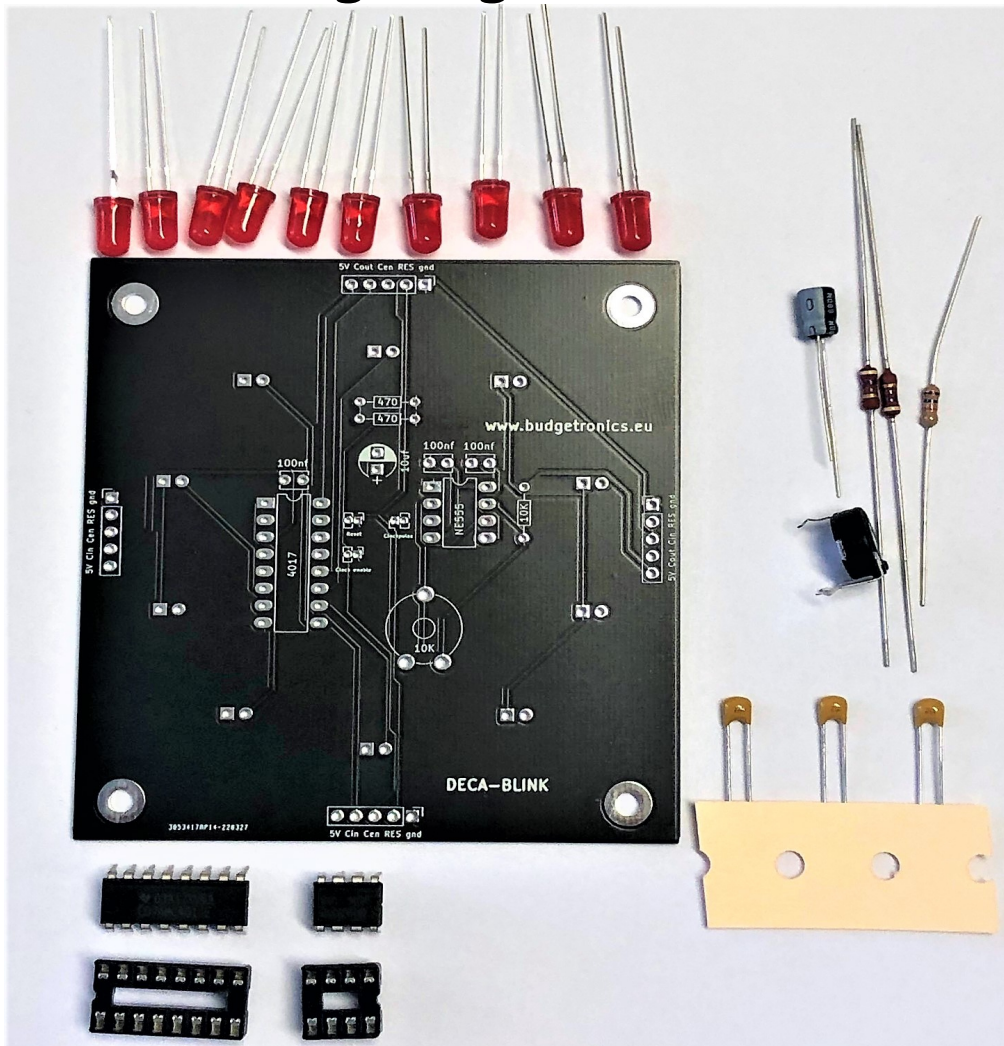


DECA-BLINK BUILDING KIT rotating ring Led flasher



Nice building kit to build a rotating LED flasher based on the old Decatron tubes which were used in old computers.

Ten LEDs placed in a circle where the LEDs will light up one after the other to make a rotating light effect.

You can adjust the rotating speed with the potentiometer on the PCB from slow to fast.

You can connect more Deca-Blink PCB to each other to make a bigger display.

PARTS LIST

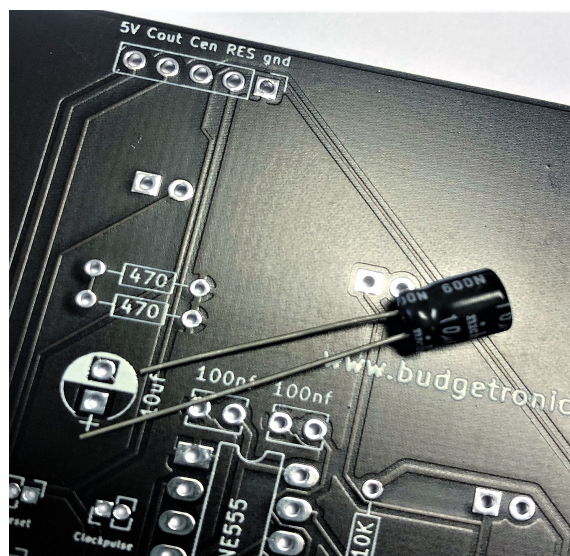
1x PCB, 82mm x 86mm
1x IC socket 8 pins
1x IC socket 16 pins
1x NE555 Timer IC
1x 74HC4017 IC
3x 100nF ceramic capacitor
1x 10 μ F electrolytic capacitor
2x 470 Ω (yellow, violet, brown)
1x 10K Ω (brown, black, orange)
1x 10K Potmeter
10x 5mm LED

BUILDING THE KIT

The building kit is easy to construct. Every part is clearly indicated on the PCB.

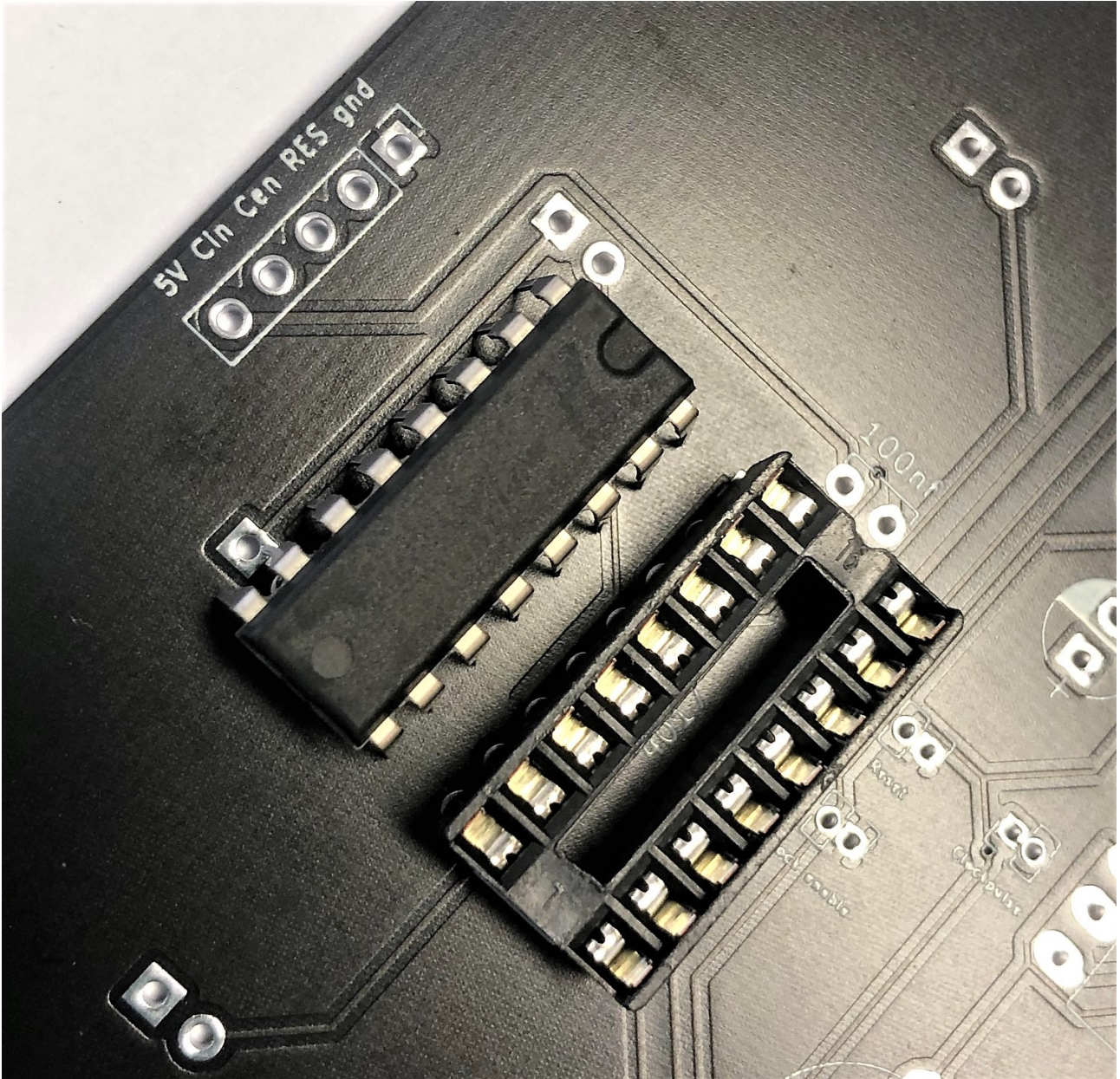
First solder all the resistors in the correct place and also take care to solder the right values. After cutting of the excess resistor wires do NOT throw them away we will need them later on.

Now solder the 3 ceramic capacitors of 100 nF and the 10 μ F electrolytic capacitor. The electrolytic capacitor has a + and - side. This is indicated on the PCB. Look at the picture below to see what side is the - and +. The short leg of the 10 μ F capacitor is the - and the long leg the +.



Now solder the potmeter in place and solder in the IC sockets.

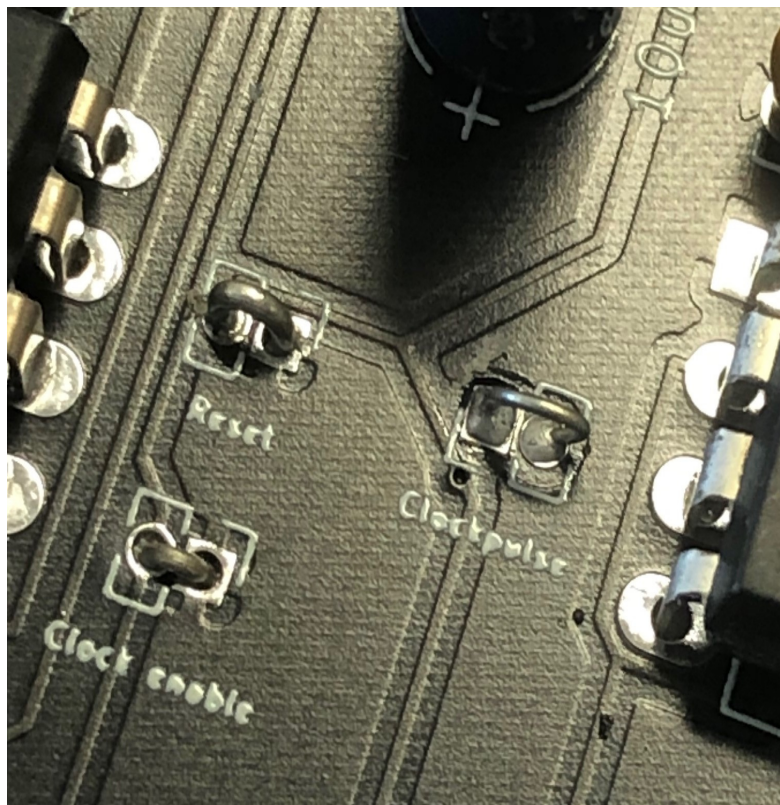
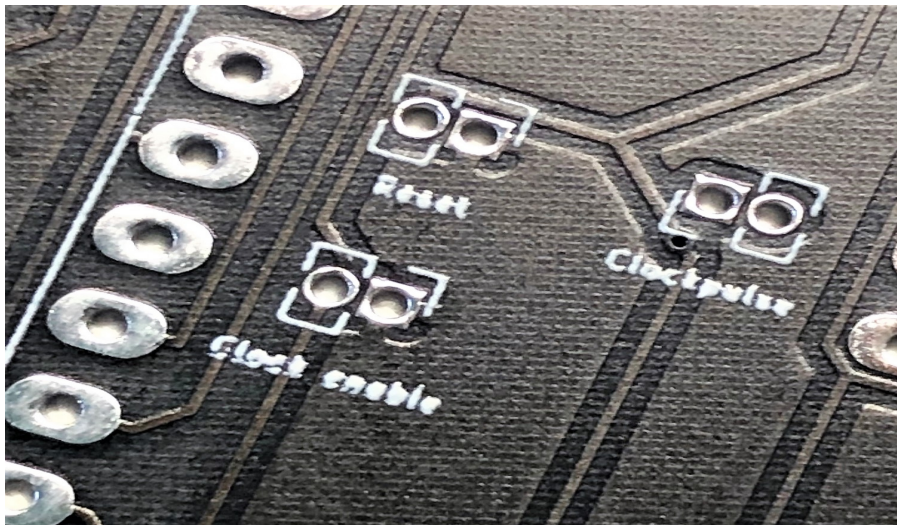
After this place the IC's in the sockets but **TAKE CARE!** you place the IC's in the right orientation. The IC's have a little dent on one side. This small dent has to face the same way as indicated on the PCB. See picture where one of the IC's is placed next to the IC socket to indicate the orientation to place it in the IC socket next to it. The IC socket has sometimes also a small dent on one side.



After this we are connecting the 3 wire bridges on the PCB with the left over wires from the resistor cut offs.

See pictures below which shows the 3 wire bridges in detail. The print on the PCB is very small but if you look closely you see RESET, CLOCKPULSE and CLOCK ENABLE. We will explain later more about this but for now just solder the wire bridges in on

these 3 places.

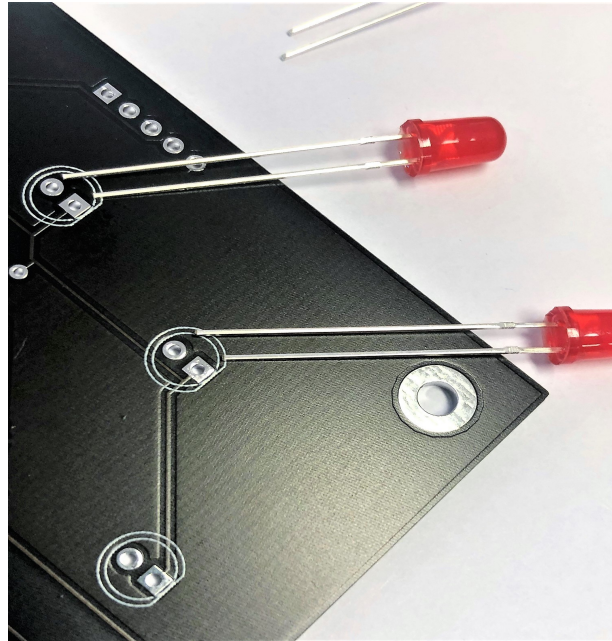


Now you have placed all the components on this side of the PCB the last thing to do is solder in the LEDS ON THE OTHER SIDE OF THE PCB.

If you want you can place the LEDS on the component side but it looks nicer on the other side of the PCB. If you want the LEDS to circle clockwise you want to solder them on the component side, if you want them to circle anti clockwise you place them on the other side with the printed LED indications on the PCB. Solder the LED and take care of + and -. **On the PCB print you see a little dent on one side but this can be misleading.** Some LEDS have the negative side on this side but other LEDS

have them on the round side. The best thing to do is to **always look at the legs of the LED**. The **short leg is the negative (-) side** and the **long leg is the positive (+) side**. See picture.

In the picture you see the right orientation of the LEDs. The short leg is placed in the **SQUARE pad hole**. The square pad hole is the **GND (-)**.



Now look at the pictures below to compare it with your own finished results.



POWER SUPPLY

The Deca-blink works on 5 Volts. You need a small 5 Volts power supply and connect the negative and the positive side to one of the 4 GND (-) and 5V (+) connections. At all sides of the PCB you see the power connections and you can connect them on any side you want.

After connecting the power supply the Deca-blink should start blinking. If this does not work look at all the solder connections, the power supply and the right placement of components.

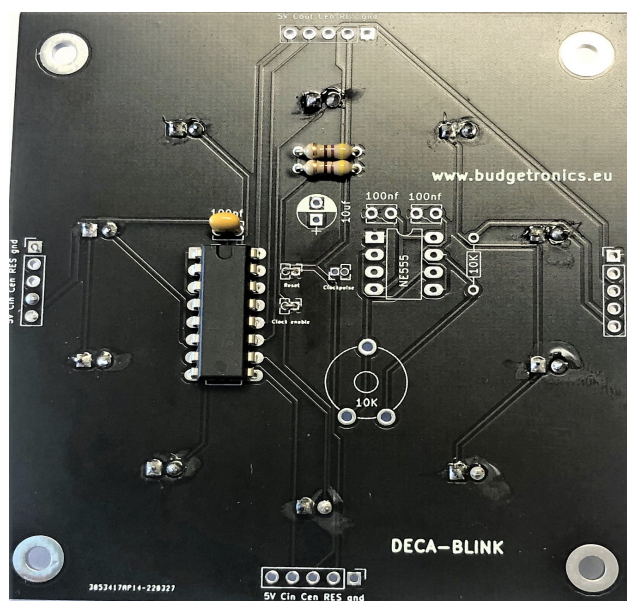
If the Deca-blink works you can change the rotating speed with the potmeter. Other speeds could be generated by replacing the 10uF capacitor with a smaller or bigger value if needed.

The circuit also works on 4.5 Volts so you also could use 3x 1,5 volts batteries.

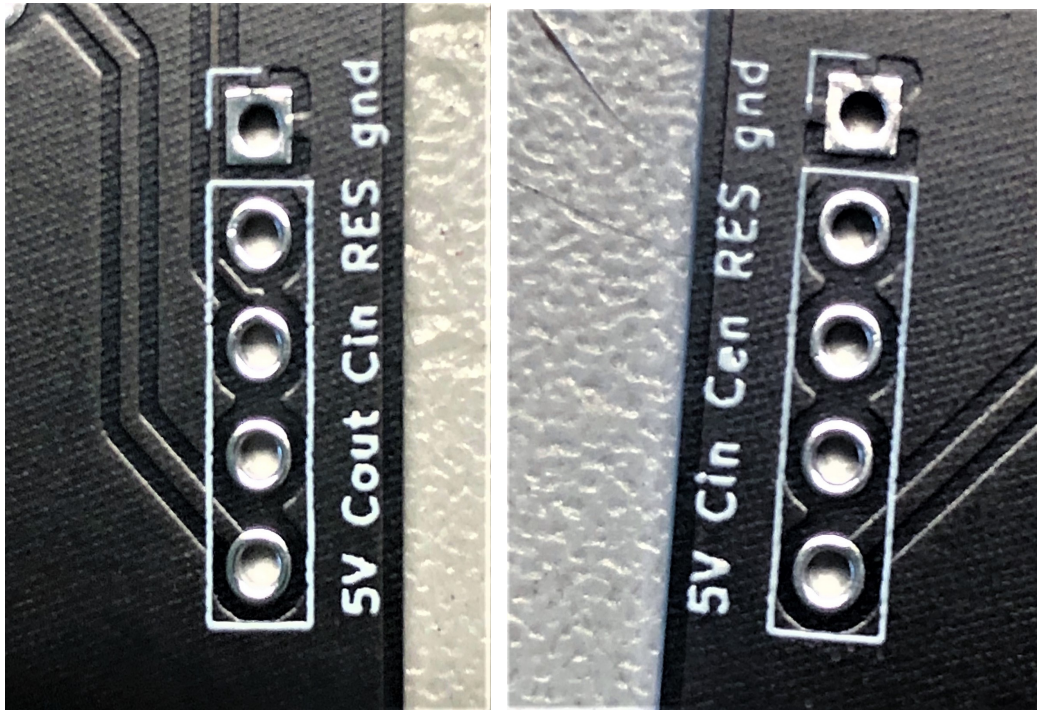
CONNECTING MORE DECA-BLINK PCB'S

You can connect more Deca-blinks together to make a counting display. In this case the next Deca-Blink PCB will change to the following LED after the first Deca-blink has made a full rotation of all the 10 LEDs. If you want this you can leave out some of the parts. The NE555 circuit provides the clockpulses to the 74HC4017 IC to change the lighted LED after each pulse. So if you want to connect another Deca-Blink to the first PCB you can leave out all the NE555 parts because we are using the Clockpulse from NE555 circuit of the first Deca-blink PCB.

So for the second PCB you only place the 2x 470 Resistors, the 74HC4017 IC and one 100nf capacitor and the LEDs (see picture). You only make two wirebridge connections. You leave the clockpulse wirebridge unconnected. See picture below.



You can connect the 5V and the GND connections together and connect Cout from the first PCB to the Cin connection on the second PCB.



There is also a RESET connection but we do not use this here. If you want to use it for your own projects in some other way we invite you to search for the 74HC4017 datasheet which explains the working of this IC. In short we can tell you when you make the RESET HIGH the the counter will stop and start again at the startposition after RESET is pulled LOW again. With the RESET wirebridge this pin is pulled LOW to ground so the counter will always count on.

In short the Deca-blink is a very flexible circuit which you can change to work in a way you prefer in your own project.

Have fun!

