

# RC BOX

**Build Document last updated august 2020**

for PCB version 1.0

The "RC Box" is a passive resistor / capacitor utility-box used for circuit developement and breadboarding.

You can hook up the box to your breadboard (or circuitboard) with alligator clips and quickly toggle between 36 different values of resistors or capacitors.

It can also be set up as either a lowpass or highpass RC filter by connecting one of the inputs to ground.

Happy building!



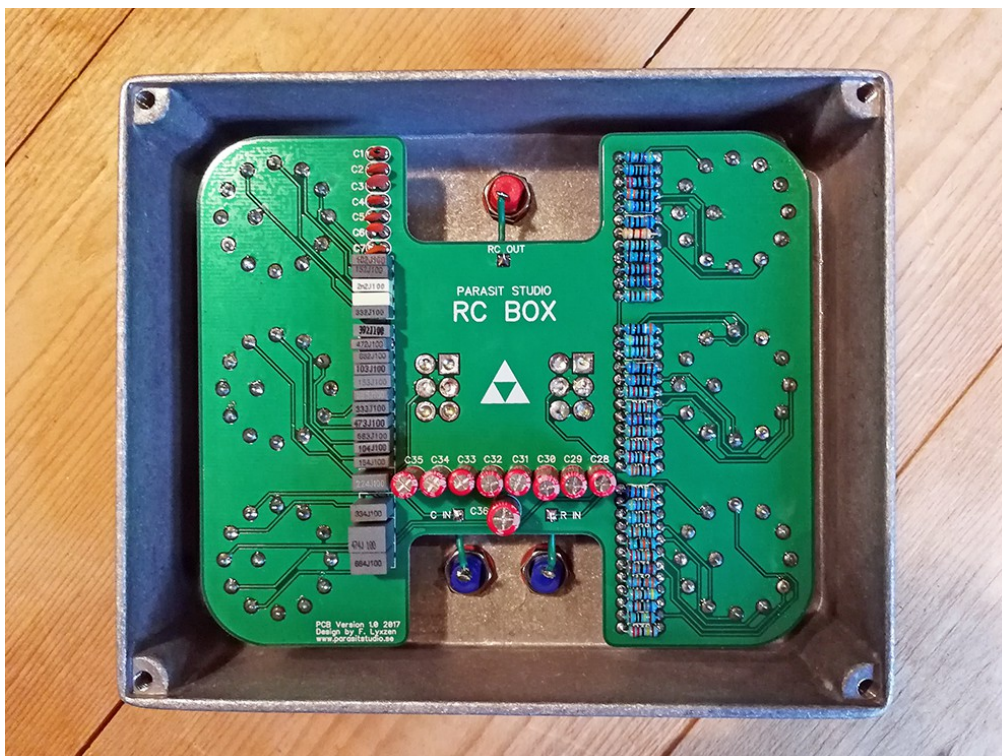
*Parasit Studio personal build*

## Features

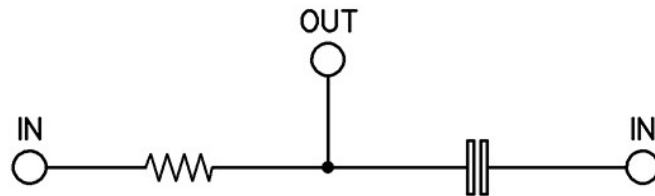
- 3x 12 position rotary switches for resistance selection
- 3x 12 position rotary switches for capacitance selection
- Two toggle switches for each set of rotary switches to select which rotary switch that is in use
- Two inputs and one shared output

## Building tips

- Take your time and measure the components as you go along.
- Keep in the mind orientation of the electrolytic capacitors.
- Place the switches in the PCB and put it in the enclosure before soldering. The rotary switches are a bit taller than the toggle switches, so keep the toggle switches as far inside the enclosure as possible while still having a little space on the shaft to have the nut screwed on, and solder the tips of the lugs just inside the switch toggles holes.

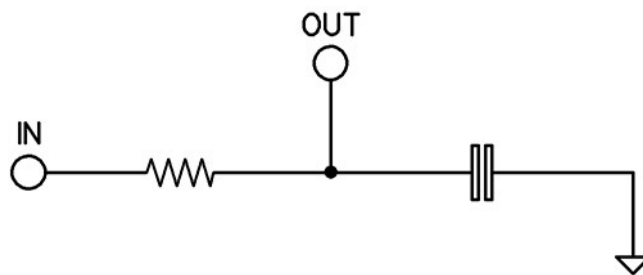


**Signal path**  
(switching not shown)



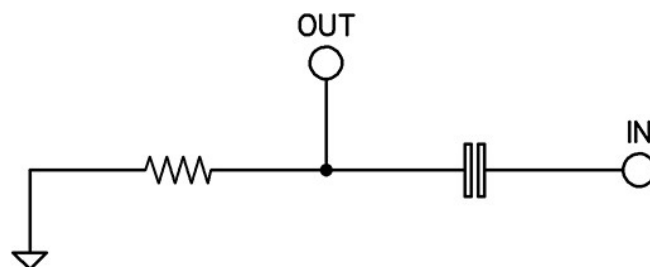
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**Lowpass filter** - connect the C input to ground



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**Highpass filter** - connect the R input to ground



## Bill Of Materials (BOM)

- **1x - enclosure:** Hammond BBDD or JJ size  
*146 x 120 x 38 mm (5.70 x 4.70 x 1.50 inch)*
- **6x - rotary switches:** Alpha 1 pole/12 position

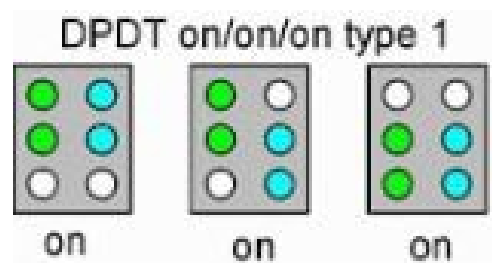
Part numbers

- SR2612F-0112-21R0B-D8-N (PCB pins)
- SR2611F-0112-18R0B-D8-N (solder lugs)

*Both the PCB pin and solder lug versions works ok to mount through the holes on the PCB, but if you buy the solder lug version you need to cut away the tip of the lugs (or else they won't fit through the holes). Keep the pins as long as possible.*

- **2x - toggle switches:** DPDT on/on/on – type 1

It must be DPDT **on/on/on** switches. on/off/on won't work!



- **3x - jacks:** Binding post / banana jack type

## Probes

You will also need at least two probes with banana plug to alligator clips connectors. These can be bought very cheap from ebay. Just use the search "banana plug alligator clip probe" and you should find plenty of different options.

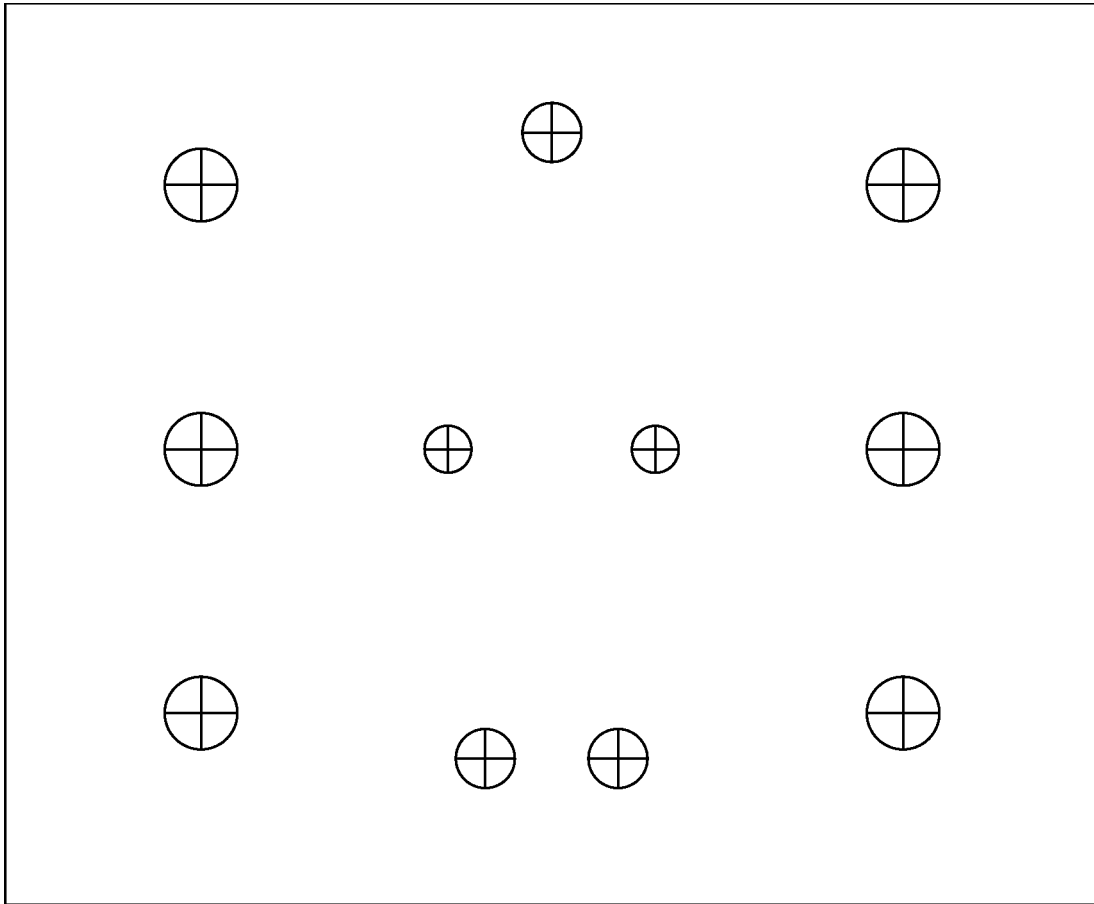
*The BOM continues on the next page*

## BOM - Resistors and Capacitors

Resistors		Capacitors	
R1	47R	C1	10pF
R2	100R	C2	47pF
R3	220R	C3	100pF
R4	330R	C4	220pF
R5	470R	C5	330pF
R6	680R	C6	470pF
R7	820R	C7	680pF
R8	1K	C8	1nF
R9	1.5K	C9	1.5nF
R10	2.2K	C10	2.2nF
R11	2.7K	C11	2.7nF
R12	3.3K	C12	3.3nF
R13	3.9K	C13	3.9nF
R14	4.7K	C14	4.7nF
R15	5.6K	C15	6.8nF
R16	6.8K	C16	10nF
R17	8.2K	C17	15nF
R18	10K	C18	22nF
R19	12K	C19	33nF
R20	15K	C20	47nF
R21	18K	C21	68nF
R22	22K	C22	100nF
R23	27K	C23	150nF
R24	33K	C24	220nF
R25	39K	C25	330nF
R26	47K	C26	470nF
R27	68K	C27	680nF
R28	100K	C28	1uF
R29	150K	C29	2.2uF
R30	220K	C30	3.3uF
R31	270K	C31	4.7uF
R32	330K	C32	10uF
R33	470K	C33	22uF
R34	680K	C34	33uF
R35	1M	C35	47uF
R36	2.2M	C36	100uF

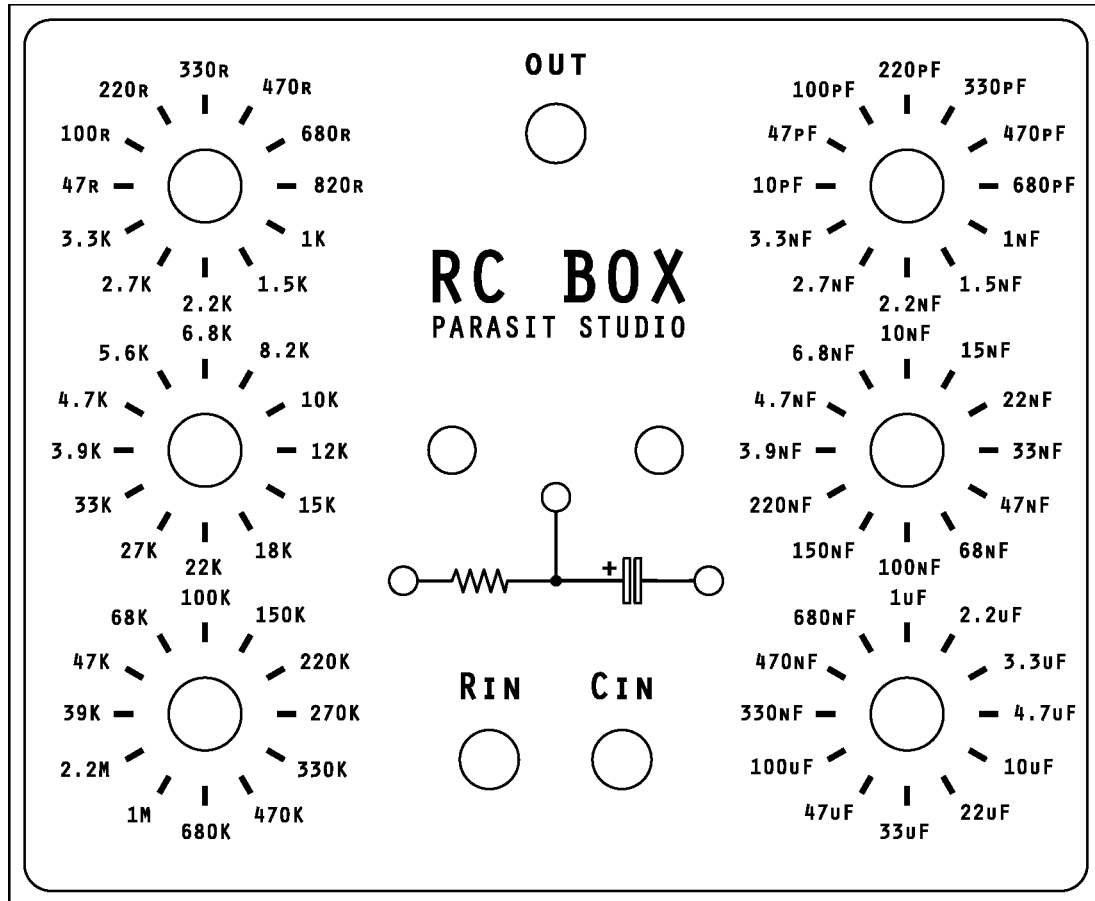
*These are just my preferred values. Use values that suits your needs.*

## Drilling template (Hammond BBDD/JJ)



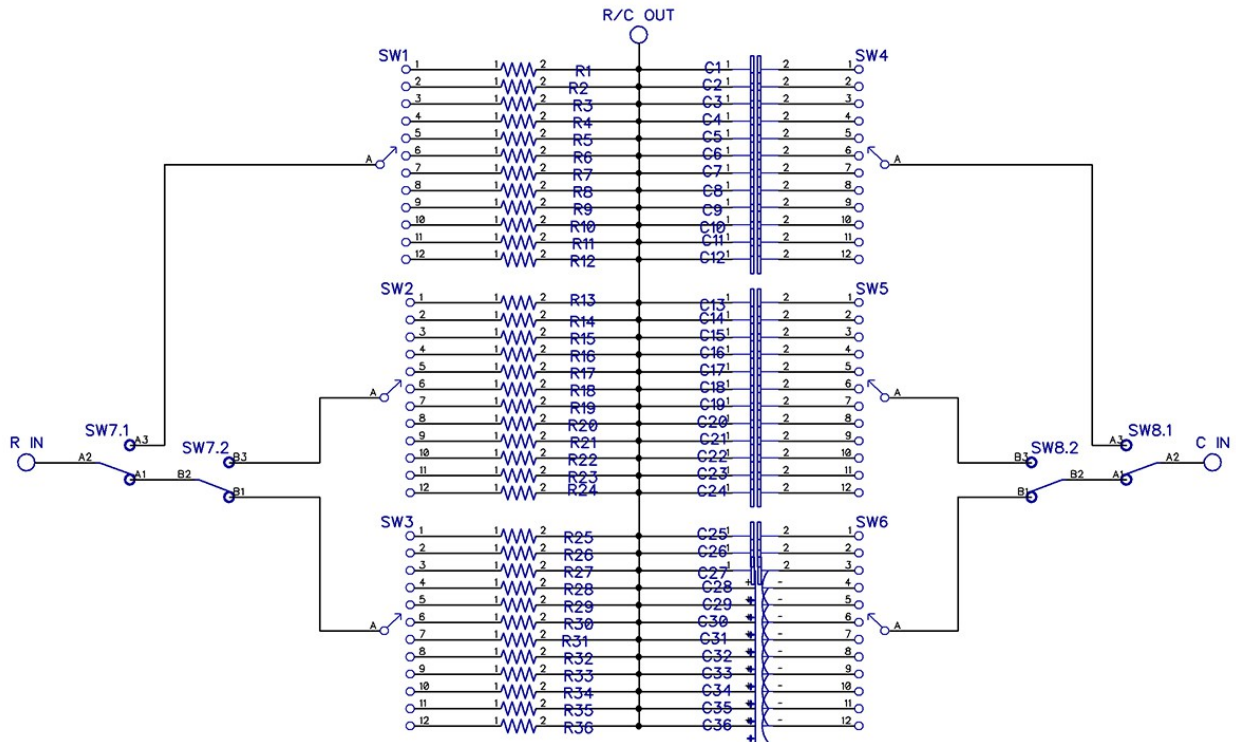
- Use at your own risk! This template is approximate.
- Make sure your printer isn't doing any scaling / is set to 100% print size.
- **Measure and confirm before drilling!**
- Read the build tips section highlighted in red before soldering pots and switches to the PCB.

## Faceplate



Here you have the graphic design for the faceplate that is used on the fully assembled Parasit Studio builds, in case you want to make your own print with etching, waterslide decals ect.

## Schematic



### Terms of use – please read

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