



REM624 Assembly guide



Safety warning

The kits are main powered and use potentially lethal voltages. Under no circumstance should someone undertake the realisation of a kit unless he has full knowledge about safely handling main powered devices.

Please read the “DIY guide” before beginning.

Print or open the following documents :

- REM624 Schematics
- REM624 Components layout
- REM624 Parts list

Follow this guide from item number 1 till the end, in this order. The assembly order is based on components height, from low to high profile, in order to ease the soldering process : The component you are soldering is always taller than the previously assembled ones and it is pressing nicely against the work area foam.

Soldering

All the PCB holes are metallized. It means the connections between the top and bottom pads are already made. The parts must be soldered only from below (unless differently stated).

Use only small diameter solder, 0.5 or 0.7 mm, 1 mm maximum. Use the minimum possible amount of solder. Bad joints are almost always caused by too much solder.

If ever, because you have made a mistake, you need to remove a component, DO NOT TRY TO SAVE IT! Instead, cut the pins and remove them one by one. Because this PCB is made of 4 layers and there is a very high risk of breaking the connections between layers if you force a lead out.

Here are two excellent introduction to soldering videos:

<http://www.eevblog.com/2011/06/19/eevblog-180-soldering-tutorial-part-1-tools/>

<http://www.eevblog.com/2011/07/02/eevblog-183-soldering-tutorial-part-2/>

In case of error: component soldered in the wrong place

Do not try to save the component! This will very likely damage the PCB which cost 100 times more than most components.

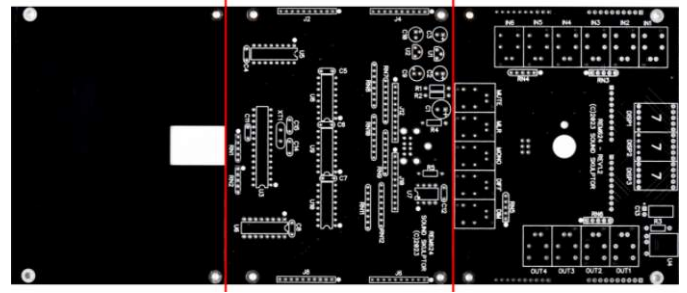
Except for transformers which are also expensive, cut the components pins with cutting pliers in order to be able to remove the pins one by one.

Then empty the holes with a de-soldering pump (this one works great : Jonard Industries DP-100).

REM624 Assembly guide – PCB 1 assembly

1. PCB split

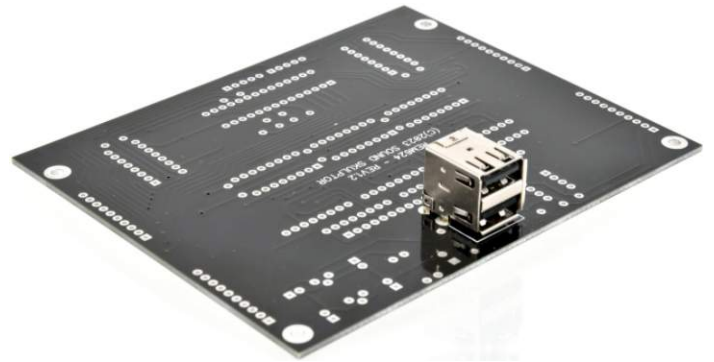
Split the PCB into 3 parts along the grooves.
Use extra thin sandpaper to polish all the rough sides



2. USB connector

Insert the dual USB connector J1 on the **back side** of PCB1.

All the other components will be soldered on the top side of the PCB.



3. Resistors

Add R1, R2, R4, R5

Warning : It is very important to check the resistors value with a DMM because the colour code can be ambiguous. For example 1K (brown-black-black-brown-brown) can be confused with 110R (brown-brown-black-black-brown).



4. IC Sockets

Insert and solder the IC sockets of U3 (28 pins) and U7 (8 pins).

Warning : Make sure to respect the socket direction, marked by a notch on the socket, corresponding to a dot on the PCB.



5. Soldered IC's

Insert and solder U5, U6, U8, U9, U10. It is necessary to bend the pins slightly inward before inserting.

Warning : Be very careful to insert the IC's in the correct direction which is identified by a notch on the IC and a dot on the PCB (there is no second chance).



6. Ceramic capacitors

Add C14 and C15.

Add C4, C5, C6, C7, C8, C11, C12.



7. Resistor networks

Add RN1, RN2.

Warning : RN1 and RN2 are polarized and must be mounted in the right direction identified by a dot on the resistor network and a dot on the PCB.

Add RN7 to RN12.

REM624 Assembly guide – PCB 1 assembly



8. Crystal

Add XT1. Leave a 1mm space between the crystal case and the PCB.



9. Regulators

Add U1 & U2.

Warning : The 2 regulators are different, do not confuse them. Pay attention to the direction of the regulator.



10. Connectors

Add J2, J4, J6, J8, J10, J12. Solder one pin, check verticality then solder the other pins.



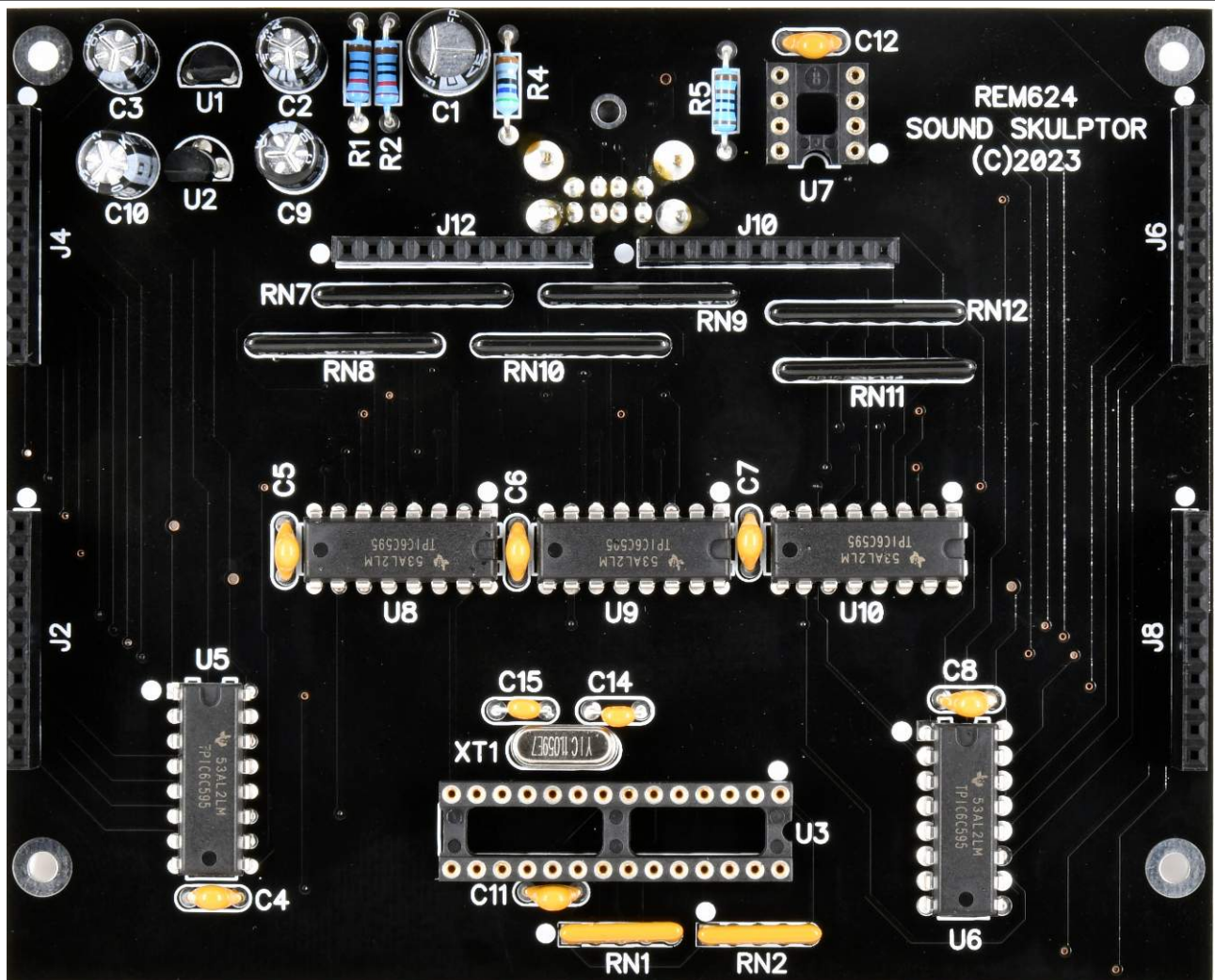
11. Electrolytic capacitors

Add C2, C3, C9, C10.

Add C1.

Solder one lead first, adjust verticality then solder the second lead.

Warning : The +lead must go into the +hole. Do not reverse (they may explode !)



REM624 Assembly guide – PCB 1 assembly

12. Visual check

Brush the solder side with a hard tooth brush to remove any remaining solder bits.

Make a full visual check. Any missing component on the board ? Any remaining component in the box ?

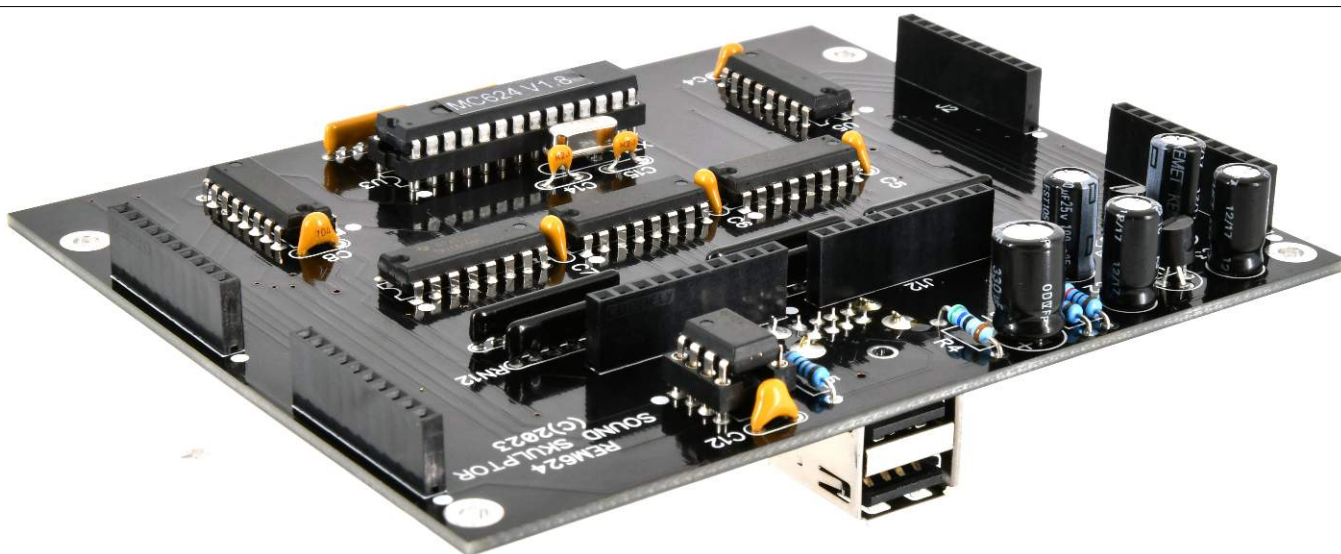
When everything looks correct, proceed with the PCB 2 assembly.



13. IC's

Insert U3 and U7 into their respective socket. It is necessary to bend the pins slightly inward before inserting.

Warning : Be very careful to insert the IC's in the correct direction which is identified by a notch on the IC and a dot on the PCB.



REM624 Assembly guide – PCB 2 assembly

1. Resistor



Add R3.

2. Resistor networks



Add RN3 to RNG.

Warning : RN3 to RNG are polarized and must be mounted in the right direction identified by a dot on the resistor network and a dot on the PCB.

3. Electrolytic capacitor



Insert C13 then bend it over to make it rest flat on the PCB. Solder.

4. U4



Insert U4 then bend it over to make it rest flat on the PCB, the curved side facing up. Solder.

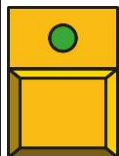
REM624 Assembly guide – PCB 2 assembly



5. Seven segment display

Insert and solder the three seven segment displays.

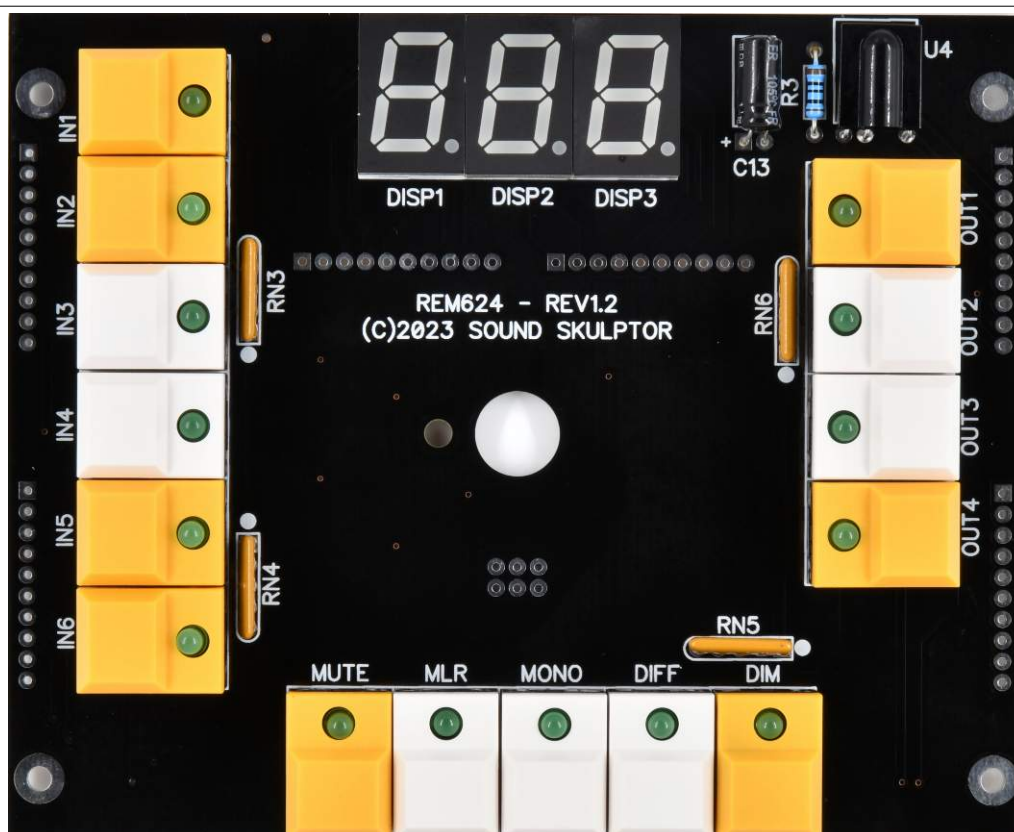
Warning : The digital dot is down. Do not reverse.



6. Key switches

Insert and solder the 15 key switches.

Warning : Make sure to sit the switches perfectly flat on the PCB.



7. Pin headers

The 10 pin headers must be soldered on the **back side** of the PCB.

Solder one pin first, check verticality, then solder the other pins.



8. Rotary encoder

Insert the rotary encoder from below PCB, fitting the 3 pins into the corresponding holes. Attach with lockwasher and nut. Solder the 3 pins.

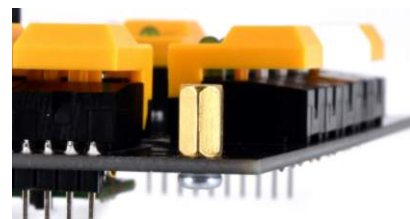


REM624 Assembly guide – PCB 2 assembly



9. Spacers

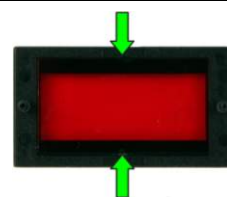
Attach four 8 mm spacers in the angles with four M2.5x5 mm pan head screws, inserted from the solder side.



REM624 Assembly guide – Final assembly

1. Display filter (1)

Remove the protecting film on both sides of the red filter and place it on the frame. Lock it in position with two very small drops of instant glue at the arrow positions on the picture.



2. Display filter (3)

Insert the filter frame into the front panel and lock it in place with 2 locking washers. You can secure the assembly with a little glue on the 2 locking washers.



3. Front panel and PCB assembly

Attach the front PCB to the front panel with four M2.5 x 6 mm countersunk black screws.

4. Back cover assembly

Insert four M2.5x10mm pan head screws into the back cover, from the side marked Sound Skulptor, insert four 2mm spacers and four Starlock washers.

Attach the back cover to PCB-1 with four M2.5 nuts.



5. PCB connection

Assemble the two PCB's together by carefully matching the 6 connectors. When the connectors are well matched, press slowly to make contact.

If you later need to de-assemble the two PCB's, use a flat tip screwdriver to make a lever between the plastic part of the top and bottom connectors and separate the connectors delicately.



REM624 Assembly guide – Final assembly

6. Box

Place the front panel on top of the wooden bow and attach with four black screws.

7. Knob

Attach the knob. It requires a 10mm socket wrench for tightening.



8. Congratulations !

You're done !