

# The KMTech 2.1 LR 2-channel Active Crossover Filter.

Thank you for buying our 2.1 Linkwitz-Riley two-channel active crossover filter circuit board/kit. It should give you many years of listening enjoyment.

**You will need to following components to assemble this item:**

- 6 x OPA2134 or NE5532 op amps
- 5 x PCB mount phono socket (optional, you can solder the wires to the board if preferred).
- 5 x 8-way IC socket (optional, you can solder the ICs to the board if preferred).
- 1 x 3-way 5mm terminal block (optional, you can solder the power cables to the board if preferred).
- 2 x 1k resistor
- 2 x 100k resistor
- 3 x 100 ohm resistor
- 3 x 20k resistors (for LF mixer)
- 20 x 27k resistor (filter resistors, change these values to adjust crossover frequency).
- 20 X 33nF polyester film capacitors (filter capacitors, change these values to adjust crossover frequency)
- 2 X 47uF bypass electrolytic caps
- 6 x 100nF ceramic bypass caps

**If you intend to use a single-ended power supply, such as in a motor vehicle, you will also need the following components for the rail splitter sub-circuit:**

- 1 x 2-way 5mm terminal block
- 1 x 220uF capacitor
- 2 x 220k resistors
- 1 x BUF634 op-amp

If you purchased the kit you will already have these components.

- All resistors should be 1% metal film for gain and frequency response accuracy.
- Use these values of capacitor/resistor will give a crossover frequency of around 125Hz. This can be changed simply by changing the value of the eight capacitors.
- It is also recommended that all inputs & outputs use fully shielded cables that are as short as possible.

## Assembly Instructions

All component values are clearly marked on the circuit board.

1. All parts must be clean and free from dirt and grease.
2. Try to secure the work firmly.
3. "Tin" the iron tip with a small amount of solder. Do this immediately, with new tips being used for the first time.
4. Clean the tip of the hot soldering iron on a damp sponge.
5. Add a tiny amount of fresh solder to the cleansed tip.
6. Heat all parts of the joint with the iron for under a second or so.

7. Continue heating, then apply sufficient solder only, to form an adequate joint.
8. Remove and return the iron safely to its stand.
9. It only takes two or three seconds at most, to solder the average PCB joint.
10. Do not move parts until the solder has cooled.
11. ABOVE ALL, SAFETY FIRST!

**Important – this board should be installed into a secure dry enclosure.**

## POWER SUPPLY CONSIDERATIONS

### Dual Power Supply

You will need a dual dc power supply of 2 x 6V. It may be possible to use the same power supply that the pre-amp is using, providing the voltage is suitable. We sell an excellent quality power supply board that is perfectly suited for this.

### Single Power Supply

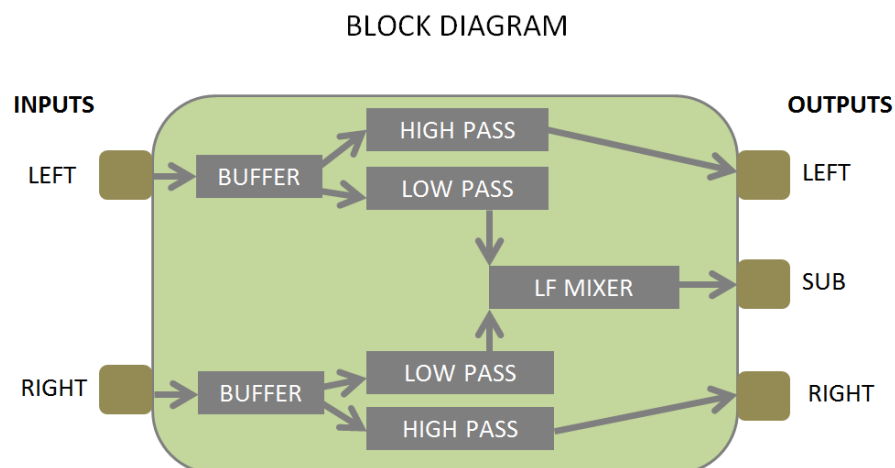
If you intend to use the filter in a motor vehicle, you will need to assemble the on-board BUF534-based rail-splitter sub-circuit. This will take the single 12V supply and spit it into two 6V supplies with a virtual ground.

### Usage.

This filter should be connected between the pre-amp (or audio source if you don't have a pre-amp), and the power amps. You will need two mono power amps (we have a very affordable LM3886 based amp on eBay), the output of one power amp can be connected directly to the high frequency speaker. The output of the other amp can be connected directly to the low frequency speaker. No passive crossover filters are necessary.

Only line-level audio signals should be connected to the input of the device or damage may occur.

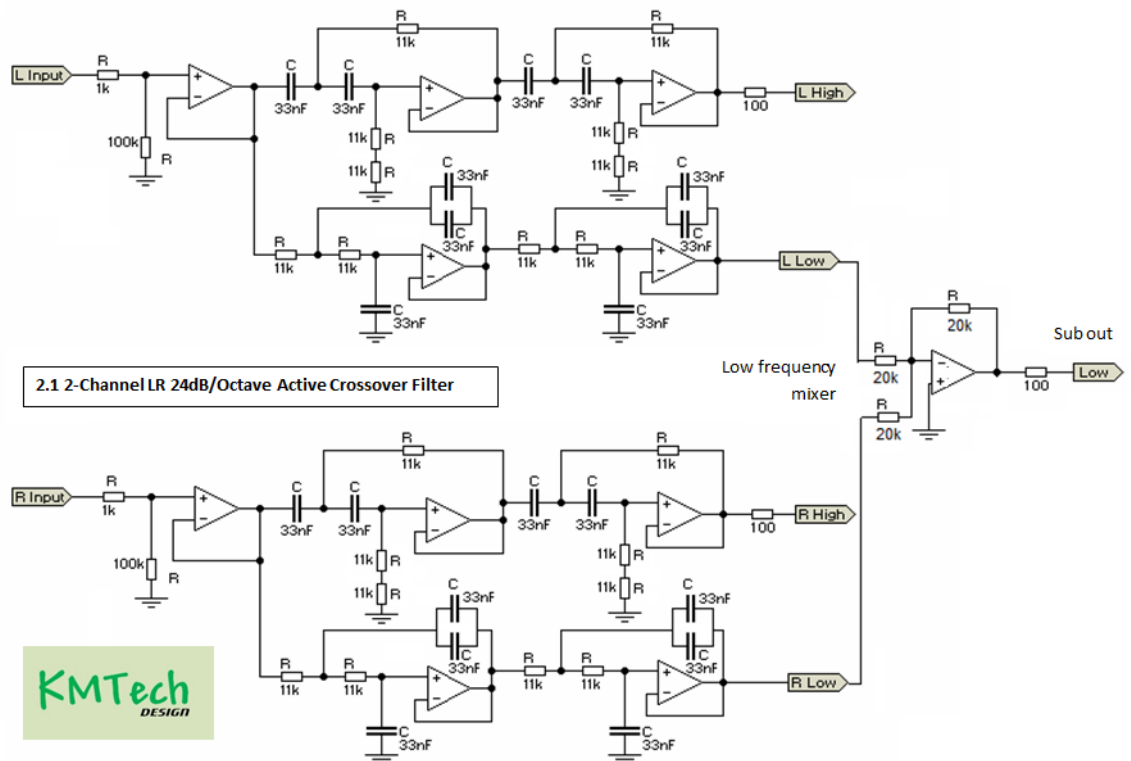
A block diagram of a complete channel is shown below.



ONLY SUITABLY QUALIFIED PERSONS SHOULD INSTALL THIS EQUIPMENT (RISK OF HAZARDOUS VOLTAGES AND CURRENTS).

**Circuit Schematic (Power connections not shown).**

Filter resistors are shown as 11k in this schematic, but are marked as 27k on the PCB..



If you have any questions about this product please contact us at [info@kmttech.co.uk](mailto:info@kmttech.co.uk).