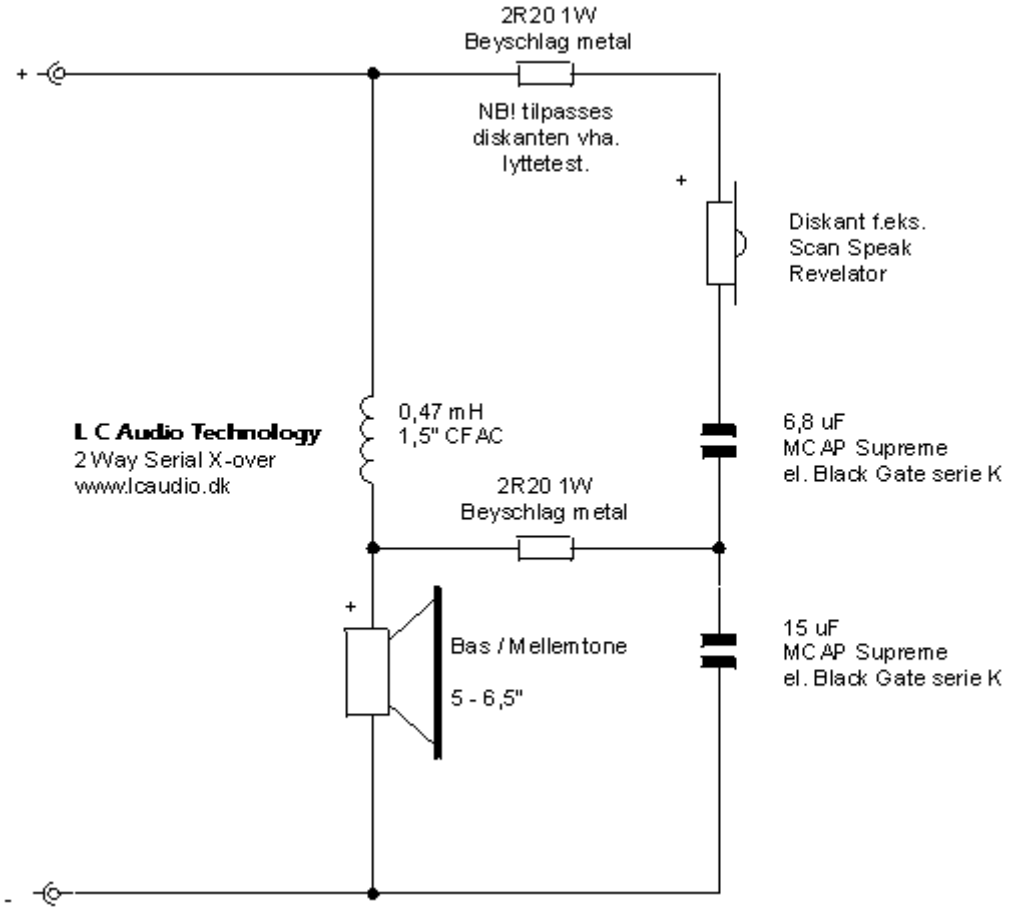
2 / 2.5-Way X-Over Network.

NOTE: We do not sell this x-over network as a product, this page is only a technical paper for Your inspiration. You may copy and use the circuit freely as you wish. We don't support this circuit and also we assume no responsibility for its operation. We don't guarantee it will work with any set of driver units.

This X-Over network is designed according to listening tests, and common technical sense. It is NOT meant to represent a perfect technical novelty, but it has some advantages over more traditional x-over layouts:

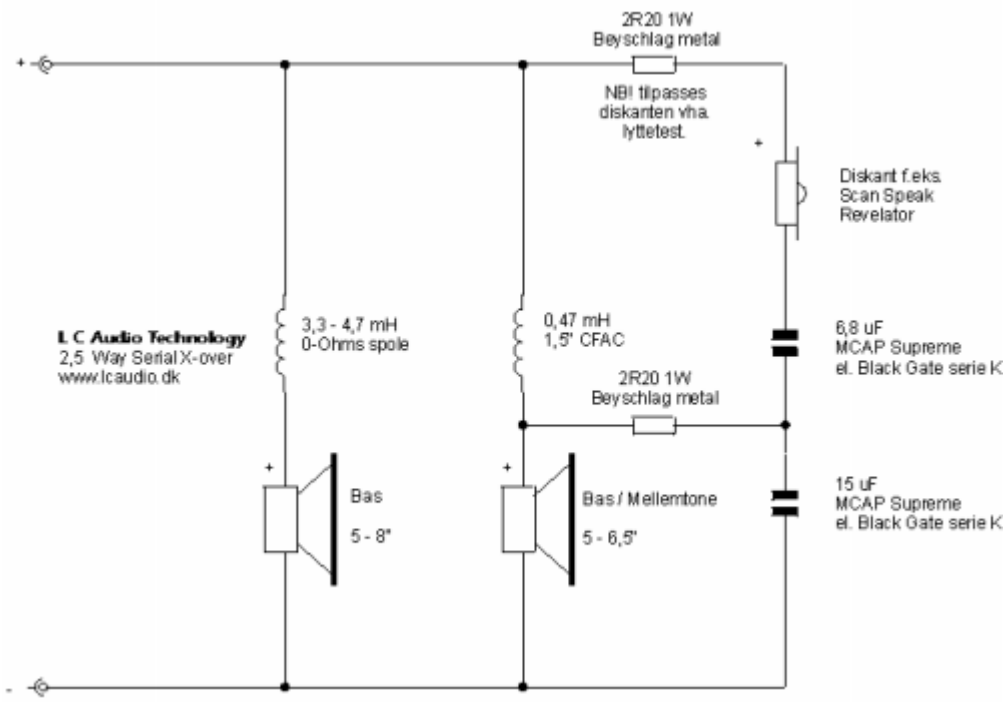
- It is phase linear in the x-over region.
- It allows perfect pulse reproduction from Bass / Midrange frequencies..
- It performs a firm and fast bass response, that 24dB filters come short of.
- It's cheap and easy to build.
- It plays Music!.

The filter has already been tested with a number of different units, and tests show that you may have to adjust the treble series resistor to fit its sensitivity to the bass/midrange unit. However this process is only subject to your own personal experiments, and preferences. We can not support You with a table of units, and usable component values. However it is easy and very simple to make the experiments to find the correct values.
We have not in any cases found it necessary to adjust the capacitor or inductor values. We don't recommend this x-over for use in PA speakers, because in this application, it would be more important to have the high load allowance of a 24 dB filter, than the perfect pulse response of this filter type.



Version for 2 way speakers.

The shown filters are simple to build, and will perform very well in most speakers. The 2.2 Ohm resistor in the middle forces the drivers to track phases in the x-over region, but still breaks the suction resonance of the 15 uF and 0,47 mH series coupling.



Version for 2.5 way speakers. Click for larger version!

Some Customer Feedback (Oct. 18th 2002).

Hi L C Audio,

I thought I would give some favourable feedback on your crossover design which I implemented on my speakers.

I built a pair of speakers back in the early 1990's but I was never really satisfied with the performance which I was convinced was attributable to the crossovers. When I came across your design I thought that this might be the answer, and it certainly was.

My tower speakers are approx 52 litres each with a pair of Scan Speak 18W-8542 plus Dynaudio D28A-F in D'Appolito configuration. I implemented your 2.5 way crossover with the lower 8542 speaker handling the low range via a 3.3mH inductor. I found the D28 was a bit too bright with 2R2 padder so I increased this to 3R3. I also connected a 6 ohm + 2uF zobel across the D28 which I am convinced has eliminated its tendency to stridency in the upper range.

I can now detect a more open and musical quality with much improved imaging and better soundstage using your crossover and I am very pleased with my speakers now. I thoroughly recommend your design as a basis to DIY speaker builders.

Rgds,

Ross Herbert Australia