
Subject: Connecting Multiple Speakers to One Amp Channel

Posted by [granch](#) on Thu, 01 Nov 2007 04:06:43 GMT

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Consider the frequent situation of driving multiple speakers from one amp channel. Assume a typical amp with high power and low internal output impedance. How best to connect the speakers. For simplicity let's assume 4 speakers each of 8 ohm nominal impedance. There are 4 possible ways to connect them so they all receive equal power from the amp. 1. all in series, total impedance $4 \times 8 = 32$ ohms. 2. Series parallel: two pairs in parallel hooked in series. $4 + 4 = 8$ ohms. 3, two in series (16 ohms) in parallel with the other two in series. total impedance 8 ohms. 4. All 4 speakers in parallel, impedance 2 ohms. Theoretically, these 4 ways should sound different because the load each speaker sees looking back to the source is different in each case. They should differ in inverse order: #4 being best, #1 being worst. In case 4, each speaker sees the amp in parallel with all the other speakers. Since the amp is practically a constant voltage source, the speakers should not affect each other. In case 1, every speaker sees the other three in series with the amp as a source, so that the effect of each speaker can influence all the others and the damping effect of the amp is ineffective on any of them. The other two cases are in between in their mutual interfering (impedance-wise). SO the question is Does This REALLY Affect The Sound (other things being equal)? It should, but does it? I never see this mentioned. e.g. by the array speaker people. Since they are usually talking about baby amps with no feedback, their amps should have relatively high internal impedances. Effect should be different, but similar. How about it you experts? -Dick

Subject: Re: Connecting Multiple Speakers to One Amp Channel

Posted by [99bottles](#) on Thu, 01 Nov 2007 20:34:47 GMT

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If the amp is made to take low impedance loads, I'd connect in parallel. It will develop more power across the load that way. Otherwise, I'd connect series/parallel so I didn't stress the amp. Give me the extra overhead any day.

Subject: Re: Connecting Multiple Speakers to One Amp Channel

Posted by [granch](#) on Fri, 02 Nov 2007 01:56:00 GMT

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Thanks, 99. I agree, but all the series parallel arrangements are going to have the loads represented by the other speakers between each speaker and the source which ought to really mess up the sound I should think. They say that one advantage of triamping is to get the crossover networks out of the path from the amp to the speakers. This ought to be at least as bad. Assume amp designed for lo-Z loads. -Dick

Subject: Re: Connecting Multiple Speakers to One Amp Channel

Posted by [99bottles](#) on Fri, 02 Nov 2007 14:34:17 GMT

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I agree with you there. I wouldn't series/parallel dissimilar speakers for this reason. But I think if you're using the same kind of speaker, you have the same impedance curve so they'll line up without any weird phase reactions.
