Subject: Use of multi-meter for measure impedance of lines Question..
Posted by Elvis on Mon, 19 Mar 2007 13:37:25 GMT
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I asked this question on the PE board, but I want to verify it here with people who actually build line arrays.When I am done with the wiring for my mid range array, and also for my tweeter array, can I use a multi-meter to measure the impedance of the individual lines to verify that I'm within the appropriate impedance levels for my amps. I'm assuming that I will be using a separate amp for each line. And, when I use the tweeter check, I want to be sure that using it won't damage the tweeter portion of the array.Can those who know how arrays work and multi-meters please answer also?I want to know that I can check this before I start building it.Elvis

Subject: Indirect answer
Posted by Aaron D on Tue, 20 Mar 2007 00:11:09 GMT
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Impedence is dificult to measure w/ a meter. If you want to accomplish (almost) the same thing, measure the DCR of an individual driver and use that spec to determine the desired value of whatever your series/parallel total should be. If the measured value varies much from the predicted value then someting is wrong in your wiring.If you are just trying to get lucky and experiment w/ with different wiring variations w/o taking the time to calculate (or learning how to calculate) a practical wiring scheme then just make sure the DCR of you combo is above that of a sigle driver. This will not necessarily provide good performance but it will keep you from killing your equipment. Sorry if this portion of my answer seems off base but I have no idea how much experience you have w/ this kind of thing and I am trying to keep you out of trouble.Aaron D

Subject: direct answer
Posted by Marlboro on Tue, 20 Mar 2007 02:24:23 GMT
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AARON,I think that Elvis is asking whether after do all the wiring based on a wiring diagram that he can have a double check. If that is the case then sure he can. Using the Excel program, one can easily find out the correct diagram of how many "series groups" have to be wired in parallel. But I know from experience that when wiring 17 speakers or 30 speakers, even with colors on all of them, it can get confusing. I wish that I'd thought of digging out my multi-meter and checking to make sure the total impedance wasn't below something my amp could handle. I just checked it about 5 times and held my breath.Wiring in parallel has always been kind of weird to me anyhow.Marlboro

Subject: Re: direct answer
Posted by Wayne Parham on Wed, 21 Mar 2007 14:51:49 GMT
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Impedance from series wiring can be found easily with this formula:Rt = R1 + R2 + R3 ...Parallel wiring can be found with this formula:Rt = 1 / (1/R1 + 1/R2 + 1/R3 ...)Of course, this can only tell you the simple part of the impedance, and doesn't calculate the complex part. Impedance of a speaker is actually not a single value, but rather has peaks and dips. Actual impedance can be measured with a sine wave signal generator and an AC multimeter using a series resistor as a voltage divider. An easier way to do it is with a computerized measurement system like Speaker Workshop. That will measure impedance charts and much more.ZMAX - Maximum impedance, impedance at resonanceT/S Measurements

Subject: Re: direct answer to Wayne
Posted by Elvis on Wed, 21 Mar 2007 15:35:24 GMT
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My problem is not the figuring out of the appropriate combination of series and parallel wirings.I have an excel program that somebody sent me from PE Forum that tells me exactly what "groups of series speakers" have to be connected via parallel.My problem is that after I have wired it to the best of my meager non-anal ability that I may have inadvertently wired one of the black wires to the red side of the parallel lines, or that I wired two red ones together in the series line. I wanted to have a double check that I did it in an OK manner.Elvis

Subject: Re: direct answer to Wayne
Posted by Wayne Parham on Wed, 21 Mar 2007 16:54:19 GMT
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I see, or at least I think I do. You're saying you want to double-check your wiring, right? If so, I'm not sure I can recommend a short-cut. You can measure total impedance for a "sanity check" - If it's way off then you'll know something is wrong. For example, one would expect a series/parallel

But there is no substitution for checking point-to-point connections. Even if you measure impedance and find it's right, you won't know that polarity is right for each driver without a response chart. Best to check your wiring, point-to-point.

Subject: Re: direct answer to Wayne
Posted by Anonymous on Wed, 21 Mar 2007 18:46:49 GMT

Even though I've been doing wiring forever and I feel confidnent thefirst time around, I always triple check wiring by visual inspection. For an array, there is no margin for error. Take yourtime and check everything three times.