Subject: Constant Directivity Speakers Using DSP
Posted by AudioFred on Wed, 26 Oct 2011 23:19:26 GMT
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Lately I've been experimenting with a dbx Driverack PA+ loudspeaker management system. The PA+ is an amazing signal processor that retails for $500. Many audiophiles would sneer at the idea of introducing a $500 product into the signal path of a high end system, but I figure if a high end manufacturer every decided to sell it they would put the circuit board in a fancy silver case, sprinkle in some magic dust, and price it at $1,500 or more, so it's not out of place in my modest system.

http://www.parts-express.com/pe/showdetl.cfm?Partnumber=246-171

I finally got around to bypassing the crossovers in my Econowaves and hooking the drivers directly to the speaker terminals. My version of the Econowaves uses an Eminence Delta 12LF with a Selenium comprssion driver attached to a Parts Express 6"X12" waveguide. Each speaker is driven by its own two channel amp, with the PA+ inserted between the preamp and the amps. In this system the PA+ functions as electronic crossover and equalizer, and I'm also using the delay feature to time-align the woofers and tweeters.

I was concerned about the effect of this digital device in the system, but I found any disadvantages are offset by eliminating the cheap crossover parts I was using in the passive crossover. The treble especially is noticably clearer with the PA+ substituted for the passive crossover.

I set the crossovers for 1.6khz with a LR24 slope on both drivers. I'm using the equalizer to null a couple of room peaks in the midbass and also to add the treble boost needed for a CD horn. Works great!

The only issue I've found is that the tweeters with no L-Pad are so sensitive that they pick up an audible sustained "sssssss" sound from the amp. I would imagine at room filling volume levels I'm probably using less than one watt from a 125 watt amp.

In spite of the fact that the PA+ outputs are adjustable for driver sensitivity differences, I wonder if a fixed resistor L-Pad before the tweeter would be useful. If anybody has an opinion I would like to hear it.