Subject: LAB12
Posted by themilford on Sat, 08 Oct 2011 18:12:38 GMT
View Forum Message <> Reply to Message

I need a pair of subs for the studio I work at... and I have a line on a pair of Eminence Lab12 driver for below cost.

I know the ThreePi Sub uses a similar driver... can I use the stock LAB12 in this application.

Also, is this a passive sub? I would like to use an outboard amp like a Hafler P3000.

Subject: Re: LAB12
Posted by Wayne Parham on Sat, 08 Oct 2011 18:23:13 GMT
View Forum Message <> Reply to Message

Subject: Re: LAB12
Posted by themilford on Sat, 08 Oct 2011 18:30:19 GMT
View Forum Message <> Reply to Message

Thanks wayne... we won't be pushing them that hard anyway. It's a recording studio and the room has a nice neutral sound... so it' merely for extending the LF for our monitors (Genelec)

I'm going to be adding a pair of TwoPi bookshelf to the control room soon and wonder what the best way to tackle switching the frequency point on the subs would be. switching between a set of powered Genelec monitors NS-10s and the Two Pis. The NS-10s and TwoPis will be run on a Dynaco ST-70 and we have a Hafler P3000 to run the subs.

What do I do for a crossover?

Oh, and can I get plans?

THANKS!

Subject: Re: LAB12
Posted by skywave-rider on Sat, 08 Oct 2011 21:31:25 GMT
View Forum Message <> Reply to Message

I'll leave the x-o for Wayne to respond to, but we run a Genelec 7070 sub with Four Pi mains. The mains are not high passed, so I parallel the main CR out to the main monitor signal chain and the sub. For me, using a sub with alt. mon nearfields in pointless, because I want to hear the limited low end un-enhanced. When I want full range I use the mains. We have shitty NS10s for nearfields as well.

Using a Bryston 4B on mains.

If you want to arrange switching on sets of monitors, you might look into the Coleman stuff.
http://www.colemanaudio.com/swtchr.htm

Subject: Re: LAB12
Posted by themilford on Sat, 08 Oct 2011 21:55:30 GMT
View Forum Message <> Reply to Message

Thanks for the reply.

This will sound a bit immature but we want subs because the Genelecs have developed a bit of a buzz that goes away when we use the roll-off. I think one of the woofers is damaged... So until we get that fixed we'll use the TwoPis with the subs... but also since the head engineer is reliant on the Genelec monitors it would be nice to have the option of using them with the subs doing bass duty until we suss the problem or he becomes used to the PIs..

The NS10s are only there for clients that want them... we never use them otherwise.

but as you can imagine the roll-off point would be different with each set of speakers. how to deal with this? Do I need one of those little boxes with the knob to set the frequency and dB-slope? what's the most affordable option?

Subject: Re: LAB12
Posted by skywave-rider on Sat, 08 Oct 2011 22:07:21 GMT
View Forum Message <> Reply to Message

There are a lot of products that do this sort of thing now. See you at AES on the 22nd.

PS: Looks like your first priority is fixing your main.
I got away from Genelecs, never liked them. I used to own a pair. In the studio we have 1031s for surrounds. To each his own. I would promote 3 or 4 Pi monitors as mains, for a fraction of the price and better performance. I would call them the smart guy's Augspurger.

Subject: Re: LAB12
Posted by themilford on Sat, 08 Oct 2011 22:43:24 GMT
View Forum Message <> Reply to Message

I actually have an unbuilt ThreePi kits... I was going to use them for Keyboard monitoring/PA in our rehearsal room and for stage monitors for the synths when we tour/gig.

The TwoPis sound so nice... not sure how loud they go for monitoring... I figured we'd put them behind the desk against the back wall for an ear-level "psudo-soffit" application.

THe Genelecs aren't going anywhere The owner likes them too much. They need to be fixed but we are broke. I'm willing to help out and build shit for free but I won't sink money into anything that's not mine... when and if the studio devolves the subs would be mine... if I sunk that time and money into the Genelecs I would be giving my money away. I'm generous with my time but I don't have the capital to invest.

So, Back to crossover. how can I get a variable frequency and slope low-pass box? Stereo would be nice. Even if it had 3 "preset" switches that one could set up for three different speakers. Shouldn't this be a common item?

Subject: Re: LAB12
Posted by skywave-rider on Sun, 09 Oct 2011 00:07:50 GMT
View Forum Message <> Reply to Message

You could build one up passively.

Or you could go cheap active, such as: Use the LF portion of a Behringer CX3400. About $100.00.

It will sum L&R out with variable low band x-o starting at 44 Hz. You could use the crossover in that to send a filtered signal to the satellite monitors, or you could go the blending route, and split your mon out to both the main amp and the CX3400. Done.

There's probably a lot of other options out there if you want to use your Hafler and not buy a plate amp (with built in x-o.) However, the Behringer is cheap and their recent build quality is good.

PS: Build up those 3 Pi kits and put them in your own studio.

Subject: Re: LAB12
Posted by Wayne Parham on Sun, 09 Oct 2011 04:03:10 GMT

As for crossovers, there are a lot of options. The Behringer would work, as would the Rekkhorn sub crossover or the Pyle crossover. I wouldn't use the Pyle crossover unless it were modded though, so if you don't have time to fool with it, go another route. But if you upgrade it as shown in the link above, it's sneaky good sounding.

Definitely don't high-pass the mains; At least, don't high-pass them above the Helmholtz frequency. There's no harm limiting the out-of-band content, but we want woofer sound sources blended, so don't high-pass at 100Hz or anything like that. It's a good thing to do in prosound, and maybe the itsy-bitsy satellite speakers need it but none of mine do.

Just low-pass the subs. If they're to be setup as flanking subs (stereo, one sub per main, about 2 feet away in each dimension) - then low-pass on the high side, like 80Hz-100Hz second-order. If all you have is a fourth-order unit, let it run up to 120Hz or 150Hz. The subs should sound very muffled, but you should hear the deepest part of male voice coming out of it. We want that part to smooth the room modes at the high-end of the modal region. If they're more distant subs, then low-pass lower, around 50Hz-60Hz. The subs should be smoothly blended, and you should not be able to tell they're on.
Room modes, multisubs and flanking subs

Subject: Re: LAB12
Posted by themilford on Sun, 09 Oct 2011 13:33:44 GMT

Awesome! thanks for all the help. I think I'm getting my brain around this.

Would this work as a crossover?:
http://www.rolls.com/product.php?pid=SX45

Subject: Re: LAB12
Posted by Wayne Parham on Sun, 09 Oct 2011 13:55:36 GMT

Yes, I believe it would. Good find - I may bring one in to try it too.

Remember though - You don't want to high-pass the mains like you would in a prosound environment. Most times, in the prosound world, the speakers are used in a very large room where modes are not a problem. They're below the passband. But in our homes, rooms are much smaller and standing waves become a problem. That's what we want multiple sound sources in the 20-200Hz range.

Long story short - Use the low-pass section to drive the subwoofer amp, but send a full range signal to the mains.

Subject: Re: LAB12
Posted by themilford on Sun, 09 Oct 2011 15:16:13 GMT
View Forum Message <> Reply to Message

...Will do... Thanks Wayne.

However we will be using the roll-off feature on the Genelecs to "protect" the sorry woofers... There's a bunch of settings and I will choose the one that only rolls off just enough to omit the woofer buzz...

If I decide to go for only one sub for now will I be ok?

Subject: Re: LAB12
Posted by Wayne Parham on Sun, 09 Oct 2011 16:24:24 GMT
View Forum Message <> Reply to Message

Honestly, no. If you have one sub and the mains are high-passed to rolloff bass from them, you have only one bass sound source, which is a worst-case scenario. I mean, nothing will break but bass and lower midrange response will be lumpy.

Subject: Re: LAB12
Posted by themilford on Sun, 09 Oct 2011 17:14:43 GMT
View Forum Message <> Reply to Message

If it matters, the bass rolloff on the Genelecs is:

"Bass roll-off control operating in 2 dB steps from 0 to -8 dB @ 50hz"

I think the attenuation is all below 60hz maybe even lower with the "roll-off". I'll need to play around with it. there's also a "bass Tilt" control but I wouldn't be using that I don't think.

Here's the model:
http://www.genelec.com/1030a/specs/

Manual has the info on the tone switches.

Not sure we can fit two 20" cubes in the control room behind the desk... might be a tight squeeze.

Subject: Re: LAB12
Posted by themilford on Sun, 09 Oct 2011 17:22:31 GMT
View Forum Message <> Reply to Message

Just read the manual:

The -4 roll off and the -4 bass tilt are suggested to be engaged for near-field/desk set-up.

These would be engaged anyway... in a normal studio setup.

Not sure we had them set that way.

Subject: Re: LAB12
Posted by Marc321 on Mon, 10 Oct 2011 14:50:56 GMT
View Forum Message <> Reply to Message

Interesting. Even though I really like my Genelec 8050's (8" 2way). I plan on building some 4pi at some point. I'm trying to sell my Genelec's (2000.00 for the pair). Retail is approx. 5K. Maybe your boss might be interested? Then I can start my pi speakers!

Subject: Re: LAB12
Posted by themilford on Mon, 10 Oct 2011 15:34:52 GMT
View Forum Message <> Reply to Message

Hehe... Thanks but we're broke. The studio is barely scraping by.

That's the beautiful thing about Pi Speakers... if you have the means to build kits you can outfit your studio with world-class monitoring at a fraction of the industry price.

So, I built my TwoPIs a while ago and have been enjoying them at home... they are great. But they are a stand-in until I replace the woofers in my Audio Note Js... I have them I just need to install them.

I also have the components for the ThreePI loudspeakers on hand and just need to fabricate the cabinets.

I'm assuming with the smaller control room the TwoPIs will be a better match than the larger ThreePIs which will be more useful as hi-fi PA speakers in the "live" room for keyboard, playback and reamping

I'm sure the TwoPIs will play louder and more dynamic than the Genelec 1030A monitors. We have Hafler P3000 for now but eventually I have a Dynaco ST-70 to run the PIs and we'll use the Hafler on the sub(s) once that/they are built.

BTW: how low would I cross-over the 3PI-Sub with the TwoPIs. Probably a single sub for now until I can buy/build another.

Subject: Re: LAB12
Posted by Wayne Parham on Mon, 10 Oct 2011 17:52:29 GMT
View Forum Message <> Reply to Message

The crossover to the sub depends almost entirely on the distance from the main speaker(s). The further away, the lower crossover needs to be made. I think a good rule of thumb for indoors use

To know what frequency that is, use this simple formula, where x is distance between main speaker and sub: f = 376/x

no need to go any lower in low-pass frequency. Don't low-pass below 50Hz or 60Hz, even for distant subs.

For indoors use, what's more important than distance between mains and subs is distance to boundaries. If the mains are soffit mounted, baffle flush with the wall, then this distance is zero and that solves a lot of problems. But if it's not, then it's best if the distance from sub and listener is different than the distance between main speaker and listener. Ideally, this difference will be at least half the distance between the main speaker and the wall behind it. The goal is to stagger the frequencies where there is self-interference from boundaries.

Subject: Re: LAB12
Posted by themilford on Tue, 11 Oct 2011 16:11:11 GMT
View Forum Message <> Reply to Message

Algebra makes my head spin!

Thanks Wayne... I'll do some homework.

I'm having flashbacks to my readings on the Haas Effect.

Subject: Re: LAB12
Posted by Wayne Parham on Tue, 11 Oct 2011 17:58:19 GMT
View Forum Message <> Reply to Message

Also study the multisub concept for smoothing room modes:
Room modes, multisubs and flanking subs
High-Fidelity Uniform-Directivity Loudspeakers