DBX DriveRack 260 Setup Guide

This thread is about how to setup and configure an active crossover and speaker processor solution for Martin-Logan’s. The unit we will focus on is the DBX DriveRack 260, widely recognized as an amazing value in pro-audio and DIY Audio circles.

I won’t go into too much detail about the DR 260, instead will point you the info on DBX’s site.

However, since our application is a bit non-standard, there are a couple of things I’ll say about the Drive Racks here in the context of a high-end audio setup.

What is a ‘speaker processor’?

In our context it is a device that provides all of the tools needed to be able to perform cross-over duties as well as correct, align and set up your speaker in your particular room. These tools are all in one box and generally have clean, computer based user interfaces to manage the many settings.

In years past, this would have been a collection of three or four boxes, all doing their work in the analog domain. Today, it’s all integrated in one box and all processing is done by powerful DSP’s.

For our purposes, we are interested in its ability to provide sophisticated crossover solutions. It can do two-way or three-way stereo. It can also do two-way stereo and a summed low-frequency output.

The crossover types and slopes are all selectable, with full support of high-order crossovers (up to 24db/Octave). This allows us to have some clean cutoff’s between woofer and panels if desired.

Additionally, these devices are sophisticated parametric equalizers, with EQ on both the inputs and for each individual output. This allows exact corrections for each driver in the system as well as overall tonal balance or room driven adjustments.

One of the most important tools is very granular time and phase controls. As time-aligning drivers within a speaker is critical, as is time and phase aligning speakers to each other.

Finally, it provides gain (volume) management on each input and output to ensure we have the correct volume balance across the speaker.
Here are some example conceptual configurations;

**2X4(2-band)**

**2-Way**

This is the typical 2-way crossover with a high pass filter sending high frequencies to the ESL and the low-pass sending bass to the woofer. This would be what you’d use for straight-up replacement of the factory passive two-way.
Three-Way Crossover

This is a mode used when you have twin subwoofers and a strictly 2-Ch system. It allows you to set delays, adjust phase and EQ for each of the subs independently.

For people doing full bass management and summing the outputs of all 5 channels, this is also the standard mode to use (or the 2x5 below). It does require an external mixer to sum the bass outputs of the 6 channels (L/C/R/Ls/Rs plus we need to add LFE) before feeding the sub.
**Three-way with Bass summing**

This is a 3-way crossover in which the low-frequencies are summed to mono and output one of the jacks ready to feed your subwoofer. Use this only if you are able to sum inputs on the sub (rare) or if it’s strictly a 2-CH source system.

The setup is similar to the 2-way, but the woofer crossover is a bandpass (typically 60 or 80Hz to 250hz), and we add a low-pass filter for the sub woofer.

This mode is used as a simplified version of the 2x6, in which at least the L/R sub outputs are summed in the DR-260 before sending to the sub mixer (or the sub in a 2.1 config).

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**Tools**

What you will need to successfully deploy a modern speaker processor is listed here. There are no shortcuts, so be prepared to acquire both the devices and the knowledge needed to best make use of them, although hopefully this guide will speed up the later.

Measuring software:

PC’s:
Acoustisoft R+D / ETF About $150 for base, $300 with all options.
http://www.acoustisoft.com/

http://www.siasoft.com/index.html

Room Eq Wizard - REW

Mac Software:

FuzzMeasure Pro 2, only $125
http://www.supermegaultragroovy.com/products/FuzzMeasure/

All of the above require a calibrated microphone and an appropriate sound system for your PC/Mac. Figure on spending anywhere from $200 to $1,000 for mic and preamp.

Here is a good discussion and recommendation guide for hardware (this applies to all the software listed above)
http://support.supermegaultragroovy.com/wiki/index.php/Hardware_Suggestions

**Level matching**

Next, these are pro-audio devices, and therefore have balanced audio ins at pro-audio levels. Either your pre-pro has balanced outs or you will need to gain and impedance match them.

Topic one will be how to hook up the DR to your existing system
A bullet-proof approach is to use a Jensen transformers ISO-Max DM2-2xx
http://www.jensentransformers.com/dm2xx.html

Typically, you would order the DM2-2RX (RCA in, XLR out).

Make sure you call them to ensure you get the right flavor of Consumer to Pro level model with the right input (RCA) and output (XLR) connectors. These are not cheap at around $190, but they are the best.

For more info than you’d ever want on Balanced line technology, see:
http://www.dself.dsl.pipex.com/ampins/balanced/balanced.htm

And this helpful note from Rane:
http://www.rane.com/note110.html
A lower cost and very effective (but only for woofers) is the active electronic line balanced system from ART, the CleanBox. [http://www.sweetwater.com/store/detail/CleanBox/](http://www.sweetwater.com/store/detail/CleanBox/)

But make sure you also apply this mod listed at HomeTheaterShack if you plan to use <30hz outputs from them (by default they filter <30Hz content, but there’s a simple mod on the link)

A bargain at $55, it not only converts from consumer to pro, it also includes gain control and will convert back to consumer in the same package, which is ideal if you amps either do not have gain control, or have line-level inputs.

Another option is: [http://www.aphex.com/124A.htm](http://www.aphex.com/124A.htm)

[Discuss Gain management into and out of the DR260 ]

**Physical Setup**

We will keep it simple for now and describe a straightforward 2-way crossover install to replace the passive crossover of a Monolith.

I picked the Monolith for two reasons, one I have a set and two, they have external crossovers that can be disconnected in minutes. I’ve posted threads about how to bypass internal crossovers on the [Martin Logan Owners Forum](http://www.sweetwater.com/store/detail/CleanBox/)

Step one is to make sure you have enough amps, you do have four channels of amplification, right?

Good, I’ll use two stereo amps as an example, first is a Sunfire stereo with balanced inputs and a solid 400 wpc into 4 Ohms of an ESL, so it will drive the panels. The other will be an Adcom GFA555 II, an old war-horse of a solid state amp with 200wpc we’ll use to drive the woofers with. The GFA only has unbalanced (RCA cinch) inputs and no gain controls.

Cabling is critical (and more complex) so careful planning is required. Which means make sure the cables match your equipments needs (and not just what I happen to list here).

Assuming we have a regular pre-amp put from a processor or 2ch preamp with unbalanced RCA cinch connectors, we know what we are starting with.
Next is the unbalanced to balanced converter, it will have RCA cinch inputs as well. So a male-male RCA cable per channel is required. You likely already have that as that’s what feed the amp from your pre-amp. Just use that.

The converter will have XLR balanced outputs, typically requiring an XLR-Female end for cable-end. The inputs the DriveRack are females, the cable end required is an XLR-Male. Order a pair of XLR-F / XLR-M cables of the appropriate length.

We’ve now fed the Drive rack with L/R balanced level signals.

To take the high frequency outputs of the DriveRack and feed the Sunfire, which also has balanced inputs, we’ll use XLR-F to XLR-M cables for each channel and be done with that.

To feed the low-frequency amp, we will need an adaptor, as we will be going from balanced to unbalanced. For the purposes of this sample, we’ll assume we used an ART CleanBox as our converter, as it has a nice feature that allows reconverting balanced to unbalanced. Although it’s quality (and bass roll-off below 30Hz, only make it appropriate for a woofer, not a panel or sub). For panels, use another Jensen.

Therefore we’ll need a total of four additional cables for this. First a Balanced XLR-F to XLR-M to feed the Art CleanBox, followed by standard male to male RCA’s to feed the GFA.