



THE NEWS MAGAZINE FOR LIVE SOUND [Home](#) [Subscribe](#) [Newsroom](#) [Current Issue](#) [New Gear](#) [Wild](#)

PAST ISSUES Online

April 06

-- Change Issue -- ▾

Sound Sanctuary

Clap On, Clap Off

To Go Powered or Not to Go Powered?

by Richard Rutherford

I recently had a quite civil discussion regarding the benefits (or not) of powered vs. unpowered speakers. With the quality, dependability and light weight of amps these days, there are some definitely positive factors to consider when debating this issue. There is no way I could cover the whole debate here, so here are just a few things to think about:

Can You Fix It?

As an installer, we always consider field repair, troubleshooting and possible future upgrade.

I've always felt that it's so much easier to swap an amp—preferably a spare one already in the rack rather than one in the rear of a cluster way up in the air. I also find from experience that unless a client is well versed in audio, simple preliminary definition of a problem can be tough. Is it the tweeter diaphragm or the amp channel?

Having said that, with some of the new systems, amp monitoring and speaker protection processing is built in and so easy to review from the ground. When done right, especially in larger systems, troubleshooting is just a mouse click away, even while in our office! Some smaller systems (i.e., budgets) may not be able to opt for this latest technology, but quality equipment choices will keep this issue to a minimum.

Where's the Buzz?

There have been a couple instances where the long runs of shielded pair signal wire has grabbed plenty of interference from lighting ballasts and all sorts of other electrical nasties, whereas speaker cable may not. However, proper electrical sources, dedicated grounding and quality signal runs will eliminate this issue almost all the time. Always account for line loss when deciding on this point, especially with speaker cable.

What About the Processing?

Many powered speaker companies have amp and plenty of processing built in at the box. My suggestion is, if it didn't sound good during the demo, why did you buy it, then not expect to have to do lots of adjustments? I assume that major manufacturers know the threshold of their drivers, correct crossover points and the quality of their amps. Know your specs and choose the right speaker assembly for the room. I do think that in three-way cabinets, processing and well-matched power is especially critical, and most manufacturers do a pretty good job. This is definitely a plus when comparing the efforts it may take to configure outboard amps and processing!

Sometimes we just can't find a powered box for the job because we need a

Fr
In

Want
latest
in FRC

Click I
to req
online

Sh
In

Up
EP

Me

The
Fo

Click
F
FRONT

F
FRONT

particular dispersion pattern. In that case, well, we're building a rack.

Ka Boom Ka Boom?

Powered subs have always made the most sense, since accessibility for repair and ease of finding existing electrical is usually quite simple when placement is on the floor. Weight is only an issue if you have to move them or unload them off the truck by yourself! Since dedicated and well-matched amps are critical for subs anyway, this option is always good.

Global Warming?

Since most amps really like cooler ambient temperatures, I am always concerned about the fact that flown speakers with built-in amps are typically sitting in the hottest place in the room. A typical output device might run up towards 150° Celsius before failure, and if it's already 85° 25 feet up at the ceiling, this doesn't leave much of a heat threshold at one-third power. Some versions we have seen are using automated (and very quiet) fans to never let output modules surpass 100°. This make me feel a little better. Many manufacturers dismiss this issue even with passively-cooled amps, but I still think that an amp rack in a cold room is prone to run cleaner and longer. A well-placed AC vent could help a lot in some permanent installs. We'll review this issue again in 10 years.

It Just Looks Cool!

Sometimes, there are budget snags, and sometimes, tall racks full of stuff look really cool. There are some tricks and profitability factors for the contractor to build an outboard rack vs. powered speakers, but manufacturers of the powered boxes know this already. Quality per dollar is a pretty close match these days. (But racks full of stuff still look cool!) The one thing that may save a few dollars for the client is that there is no amp rack to build. In a tight schedule, this will save a wee bit of time, making that cool rack look pretty.

In Your Face?

Powered stage monitors can work fine, but sometimes it's tough to get a client to add dedicated power for them on a retrofit. Many pieces I've heard sound great, but if they are compromised with too little available power (to really let the amps do their job), you may be disappointed. Always make sure that your powered speakers have balance inputs. This will always help with those miscellaneous ground hums that are hard to trace, especially with all the cables that keyboard players and guitar players love to dangle. And please, if you are plugging in a powered speaker, never, ever use one of those evil little ground lift adapters.

Can I Hang That Heavy Thing?

Surprise, surprise, surprise Gomer. Several manufacturers (and I will name a few, like QSC, EAW, ISP and all the other threeletter acronyms.) happen to have some boxes that weigh the same or less in the powered vs. passive versions. Remember, those really good passive crossovers happen to have huge coils and solid mounting. Some of the amps have really great and really light power supply modules. Still, read the specs before you hang anything!

Spare Me, Will Ya?

Warranty repairs and spare parts can be an issue, but the relatively low cost of amp modules versus real amplifiers can make it almost cheap to have a couple spares around if you have a larger system in place. Almost every active speaker I've seen is set up to easily change an amp module without much experience (Like I said before, if you know what's wrong in the first place). A few screws, a couple color-coded wires and you're good as new.

Special thanks to all the manufacturers that have real data on their Web sites and to Buck and Shelley from ISP Technologies for passionate discussions on this subject.

Richard Rutherford is the owner of Rutherford Design, an audio, lighting and video contractor. He can be reached at rrutherford@fohonline.com.

[back to Past Issues Online](#)



[Home](#) | [Subscribe](#) | [Newsroom](#) | [Current Issue](#) | [Upload Site](#) | [Wild and Woolly Forums](#)
[Free Classifieds](#) | [Free Product Info](#) | [Media Kit](#) | [Showtime](#) | [Nightmare](#) | [In the Tr](#)
©3906 Timeless Communications