



## **Flex Array**

### **The Inside Story – the Designer’s Perspective**

#### *Active / passive switching:*

We have deliberately designed Flex Array’s active / passive switching to be essentially a one-time only configuration at the time of purchase, rather than an easy on-site quick-change. The reason for this is that when you buy a system you tend to set up racks specifically to go with that PA, therefore system security is protected from inadvertent frequency band mis-matches.

Equally when you sub hire, you hire with the racks.

In theory the consistent passive crossover design ought to allow mixing of biamp with triamp loudspeakers, but there are minor differences and we would not recommend it as the phase response is not exactly the same. It is also highly unlikely you would want do this.

#### *2-way versus 3-way:*

There is no doubt that due to several design criteria - passive alignment of mid and hf, the smooth crossover region, the use of EQ only on the input to ensure consistent group delay - the difference between active and passive is pretty damn minimal.

Some users will want the freedom to configure the box 3-way, and the general perception in the market is that 3-way will be better (this is why we ship it that way).

Now the traditional views as to why phase, delay, and dispersion all go out of the window as Turbosound (and only Turbosound) make a line array system where this has been done physically.

But we should be careful as there are two scenarios we need to compare in a real gig situation.

#### **Biamp vs triamp external amplification:**

So tri-amp should be beneficial for the following reasons:

- Cable lengths and the effect on damping factors
- Compensation for HF losses in the cable
- Amp size and therefore power supply pumping and amplifier redundancy
- Limiter coefficients in external controllers

One advantage of going for biamp is the price, which is of course an issue.

DP versus triamp 3-way

In this situation much of the above 2-way / 3-way discussion becomes irrelevant as they relate to external control and speaker cables – therefore if you like powered systems there should be nothing stopping your thespian decision: simply DP or not DP, that is the question.

Frankly if you live somewhere wet and cold and you do outdoor gigs, keep the amps on the ground. If you are an indoor company with the odd sunny summer gig (and perhaps some tarpaulin) then go DP, as there is no real performance loss and the box is smaller and more compact.

We put a huge amount of effort into ensuring this is the case, the point is to give your users the choice based on their practical limits and personal preferences without the end result suffering.

A note on frequency response:

It is smooth sounding and there is a very careful balance between polars and frequency response (hence the slightly bizarre x-over settings and EQ in x-over) now as you could small systems (say 1 to 8 units) the only thing you will lose is HF hence the 4 presets. This is the downside of making it “flexible”.

For larger systems you will gain some LF.