

Fohhn Linea Focus in situ



Community Pro Entasys speakers at St Mary's Catholic Church

LD Systems Maui 44 Powered Column PA

# Talking columns

Which of the slim, column array-type loudspeakers is best for my HOW? **Phil Ward** takes an in-depth look

**DESPITE BEING ONE OF THE** oldest loudspeaker formats in the industry, column arrays have enjoyed an astonishing renaissance over the past few years. The handful of market leaders just 10 years ago has been joined by competitors with names old and new, creating what is now a multi-tiered market of column array solutions to suit all budgets.

This must be due, in no small part, to the renewed interest in the format engendered by the success of the line arrays favoured by the top end of pro audio since the L-Acoustics V-Dosc system. The adoption of this architecture for FOH systems in high-level touring, showcase festivals and prestigious performance-venue installations seems to have kick-started research into how multiple-source sound reinforcement can be packaged and repackaged for different applications. The 'column' array, though hardly new with antecedents in the 1960s, is unique because it dovetails the transducer elements into a single cabinet – tall and thin to accommodate the many smaller, mid-high drivers. A sub is usually available as a base or extra module, but the real USP is the way that the individual beams from these drivers can be

'steered' – meaning the way they are adjusted, blended and directed according to the acoustic space in front of them.

Not all of the offerings featured here do this, but all use combinations that address difficult conditions.

In this feature we'll divide these tiers into three levels, as an approximation of what the market can expect for low, medium and large budgets. It should be noted that these loudspeakers have proved to be immensely popular with HOW applications for three main reasons: firstly, and most importantly, that very steerability, if offered, in highly complex and reverberant interiors; secondly, their power-to-size ratio that prevents over-excitement of reflective surfaces; and thirdly, the usefulness of such diminutive elements in aesthetically sensitive buildings.

## Inspiration

The most modest budgets may well be directed at one of these options: the LD Systems Maui 44 Powered Column PA, with its 44SE subwoofer extension; the well-established Bose L1 Compact Portable Line Array; JBL's new 'constant beamwidth' CBT series; and, shipping in the near future, the new 'iNSPIRE'



Sean Martin from Music Group

range developed by UK mainstay Turbosound.

'Although we refer to it as a "column" loudspeaker, the iNSPIRE Series was so named as it was inspired by our award-winning line array products,' confirms Sean Martin, AVP, business development at Music Group Research UK. 'We wanted to provide these scaled technologies to everyday performers too, while considering everything they have to encounter. It had to be cost effective, surprisingly lightweight, designed for maximum portability – yet retain Turbosound's signature sound. So iP1000's two columns fit neatly into

the included shoulder bag, allowing you to carry the base unit with one hand – and keep the other hand free to open the door. Simple things like that become important, as is setup which is fast and easy: just attach the columns to the base and connect your mic, or mixer feed, and power. We even take Bluetooth a step further, giving you total control of the iP1000 directly from your iPhone or iPad. It's an amazing feature at this price – letting you adjust all settings from either the listening area or the stage.'

A middle ground is occupied by brands that challenge the status quo with new price-performance ratios, introducing the advanced technologies of beam steering, for example, as well as wider digital control and monitoring, to market levels below the great pioneers of this technology – whom we shall meet later. The complexity and the methods of steering vary, but the principle is sound: point the beam away from troublesome quarters, and towards the ears of your distributed congregation.

From German manufacturer Fohhn Audio, the Linea Focus series offers four models of active, electronically steerable line arrays, ranging from the 1.2m LFI-120 to the flagship 4.5m



LFI-450 – ‘a speaker length rarely seen in this market,’ says Fohhn Audio’s executive director of sales and marketing, Uli Haug. The different lengths determine acoustic efficiency: each system is equipped with between eight and 32 4-inch neodymium speakers with multi-channel DSP amplifiers and separate DSP channels. Multiple systems can be networked together, monitored and controlled from a central location. ‘Linea Focus systems are found in HOWs all over the world,’ continues Mr



**Chris Barrow of Community**

‘Fohhn loudspeakers, amplifiers, audio DSPs and remote control elements are all part of a uniquely integrated system concept,’ adds Mr Haug. ‘For example, this enables Linea Focus models to be combined with Fohhn subwoofers for extended low frequency coverage. Or, for HOWs without specialist staff, we can provide remote control options like the FR-10 Net-Remote. This enables different Linea Focus presets to be selected as required.’

Fohhn’s solution is typical in that it takes visual aesthetics very seriously. The slim build and lightweight aluminium housing make for discreet installation – plus, adds Mr Haug, ‘We can provide the speakers in all standard RAL colours to fit interiors. The aim is that the loudspeakers should not interfere visually with the room – in fact the harder they are to spot, the better!’

## Perspective

Others in the mid-range avoid the beam steering solution, not least to keep costs down, and concentrate on passive systems that emphasise the value of getting the dispersion right in the first place.

Architecture buffs will recognise that the name of Community’s ‘EntaSys’ Column Line Source is an adaptation of the Greek term for the curvature of the columns on classical temples: they bend to compensate for perspectival

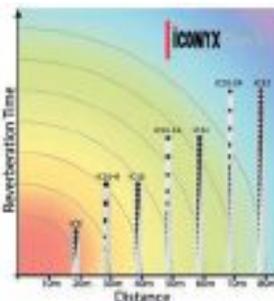


**HK Audio’s Andreas Mayerl**

distortion, just to please the eye. Chris Barrow, director of product marketing at Community Professional Loudspeakers, explains how his company’s entasis will please the ear.

‘People tend to think that you have to go “steered” to get the performance out of column arrays, but with EntaSys we’ve tried to prove that you can get the results from a passive, three-way solution at a fraction of the price. It’s also a true line source – all but the most expensive options are not, in fact. Either the driver spacing is too far apart, creating aliasing and lobing in the upper part of the speech band, or the steering grapples with too large a block. With EntaSys there are no driver-spacing issues and we’ve achieved line-array performance up to 16kHz.

‘Each segment is 600W at 12-ohms,



## IC distance vs reverb

so it’s a viable passive performance alternative. I would say around 80 per cent of the time you need the performance over the steering, and this a high-performance column. It has the ability to tilt, or you can stack them floor-to-ceiling – four or five high from a single amplifier channel. Of course, there is a LF extension so it’s very scalable in price and performance.’

HK Audio’s Elements range has taken the company further than it thought: Andreas Mayerl is international market manager at HK Audio. ‘Elements is used in a lot of churches where they have reverb and delay problems,’ he says. ‘It’s a completely passive solution that delivers very good sound over a long distance, with very precise

directivity and even SPL dispersion. The other thing that people like – especially in churches – is that Elements looks small and sounds big. It almost disappears! It’s also very easy to use straight out of the box, and requires much less knowledge than the top-of-the-range beam steering options.’

Elements is now being upgraded with filter settings for Lab.gruppen’s IPD amplifiers, creating complete installation packages with networking. ‘This is the next step,’ adds Mr Mayerl. ‘Originally, Elements was designed for musicians. But the market has told us it can do more, and they want it to...’

From here onwards, some kind of steering or adjustment is available with every solution. Bose Professional has recently launched the F1 Flexible Array, a more powerful option than previously available. General manager of Bose Professional, Akira Mochimaru,



**Akira Mochimaru of Bose Professional**

outlines the main difference. ‘L1 is for smaller ensembles, or soloists, especially acoustic – not the rock and roll type of performance. And it’s for a flat-floor venue with no tiered seating. F1 is more for bands or big-name DJs, and has flexible vertical coverage: one limitation of L1 is that it won’t reach the top of raked seating or, if it’s on a high stage, it will go over the first few rows. One advantage of F1 is that, according to the juxtaposition of audience and loudspeakers, you can optimise the pattern and get up to 6dB more SPL.’

For HOWs, then, the choice depends firstly upon the size of the worship ensemble and, secondly, the architecture: a traditional, flat nave would accommodate L1, while a modern, raked-auditorium church would benefit more from F1’s adjustable coverage pattern.

Skewing the curve slightly is FBT’s Vertus range, which may arguably fit in anywhere on your scale of requirements – as Kevin McNally, business development manager at FBT Audio, explains. ‘Vertus as a range goes from fixed beam to steerable: CLA, meaning Column Line Array; DLA



## The new Fohhn Linea Focus LX-60

Haug, ‘handling various applications from relaying services to providing reinforcement for concerts. So both speech intelligibility and music reproduction are prime considerations. Interior elements such as reflective stone, glass or marble surfaces, high ceilings and galleries can all lead to reductions in sound quality, but Linea Focus systems are specifically designed to deal with these factors. Technical advantages include the ability to make precise, real-time electronic adjustments to speaker beam characteristics – including the vertical dispersion angle and beam width – in 0.1-degree increments. This produces a highly directional beam that precisely targets specific congregational areas, minimising reflections and providing even coverage.’

Because all adjustments can be remotely controlled via laptop using a single piece of software – Fohhn Audio Soft – settings can be tailored to changing acoustic conditions without requiring mechanical adjustment of permanently installed systems. Fohhn has what it calls ‘Two Beam Technology’, enabling each Linea Focus system to generate two individual beams that can simultaneously target separate areas of a room, such as a main congregational area and a balcony.

with digital control; and MLA meaning Mixed-Control Line Array – digitally and mechanically adjustable. So we have a whole family covering all the requirements. The more established names in this field have done more work on their prediction and control software, but our results are comparable if you use EASE correctly: basically, don't predict using a model with a direct sound field in a non-reverberant room!

The other new kid on the old block is German manufacturer Pan Acoustics, where Pan Beam has become a product with fresh claims about DSP technology and internal electronics at a price point around 10 per cent to 15 per cent lower than the market leaders. 'Pan Beam is steerable, digitally controlled, multiple source with alarm functionality and Dante networking,' points out Jan Leerschool, head of international sales at Pan Acoustics. 'What's unique is the way we build the systems: each 50W amplifier dovetails behind each loudspeaker, giving you a very small layout that you just slide into the aluminium housing. All the electronics fit easily into the baffle and the grill, so our production is extremely efficient – a saving that we pass on to the customer. And it's all made in Germany, ensuring quality control.'

### Iconic intelligence

The top-of-the-range models have been hewn from years of research into the most difficult of acoustic responses, from tunnels to temples. This experience is obviously a bonus if your HOW is a vast, reverberant heritage building with labyrinthine architectural twists – but doesn't rule them out of any modern interior in need of reliable, accurate and subtle reinforcement.

In a much more crowded marketplace, the four remaining market leaders are busy distinguishing themselves anew. The Ateis Messenger Pro has many prestigious HOW successes, while, since being acquired



**FBT Vertus in Church of Purification**

by Harman, Intellivox is now a JBL Professional product with impeccable sound reinforcement credentials. The wide range of Intellivox Beam Shaping (DDS) loudspeaker arrays is adaptable for any space, with flat floors or inclines, using a more sophisticated solution: like James Bond's martinis, they are 'shapened', not 'steered'...

'Unlike beam steering, which is more like a simple point-and-shoot technology, beam shaping allows users to create a tailor made dispersion pattern that perfectly suits the shape of the audience plane while avoiding hard reflective surfaces,' explains Nick Screen, Intellivox sales director at JBL Professional. New control software called Rapid DDS, enables rapid beam shaping on standard PCs.

Tannoy's Q-Flex continues to demonstrate some core values. 'We've seen someone launching a new variation on this theme every few years, maybe with new driver layouts over a few generations of change,' says Graham Hendry, VP of application engineering and training at TC Group International. 'But basically the driver configuration of Q-Flex has never changed, because the physics was right in the first place. You can't change that: you need dense space in the drive units, and a column of a particular length to control the low frequencies. As far as we're concerned, that part of the form factor is set in stone.'

'We're still aiming for full-frequency steering. Others have tried variations to try and get to that point, but the one consistent factor in our products – despite many important upgrades – is a physical construction that cannot be tampered with.'

The feature set, though, has developed to keep up with the emerging prevalence of digital beam steering in both the performance market and the PA/VA market, Mr Hendry adds. 'The regulations have



**Renkus-Heinz' Rik Kirby**

increased,' he says, 'requiring things like redundancy and pilot tone detection, so all of that has been built into the product latterly. That makes it compliant for any market, anywhere.'

Finally, one of the most – for want of a better term – iconic models in this pantheon, the Iconyx Digitally Steerable Line Array by Renkus-Heinz has just reached its fifth generation: Gen 5, launched at InfoComm this summer. It rounds off our survey with a real glimpse into the future...

'Iconyx was one of the first column arrays to take the format into musical, performance applications from purely public address, like mass transit,' says

Rik Kirby, VP of sales and marketing at Renkus-Heinz. 'This took it into worship spaces, opera and theatre. That grew into IC Live, and we pioneered steerability and networking – CobraNet at first, controlled by our proprietary Rhaon software. Now we have three types: traditional Iconyx for speech and light music; IC Live for theatrical and worship spaces with more contemporary, higher output needs; and IC2, a fully steerable, medium-format line array.'

Gen 5 moves everything onto Rhaon II, a new software platform. 'There are new beam algorithms,' continues Mr Kirby, 'more accurate and much faster



**Pan Beam in Leicester Cathedral**



**Tannoy Q-Flex in Clonard Monastery Belfast**

to achieve, and our command and control is audio-transport independent: although it still uses the same cable, it will run on Dante and we can add different protocols as they emerge. Dante has taken over CobraNet as a standard.'

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**Graham Hendry from TC Group**