

## FORM AND FUNCTION

Where hi-tech innovations are often identified by the companies behind them, some areas of audio still produce heroes of design and innovation. Once such is Tony Andrews, the man behind Funktion-One

WHILE SOME MANUFACTURERS advertise their success with impressive or exotic headquarters, UK Speaker company Funktion-One prefers to stay out of the limelight in its backwater retreat of rural Surrey. This is not to suggest that the innovative developer is either secretive or demure however, as it is within these walls that senior partner Tony Andrews and his select design team continue to define and refine some of the most interesting loudspeaker technology around.

Having won trophies for building balsa wood and tissue aeroplanes as a boy, Mr Andrews moved on to loudspeakers as he grew up, discovering a passion for Audi cars and music along the way. Between his early years in equipment rental and his current involvement in Funktion-One, he shaped his professional reputation by establishing Turbosound. Together with John Newsham and others, he developed and engineered the products that made Turbosound one of the UK's great audio export success stories. With systems including TMS-3 and Flashlight, and patents galore, the company went from strength to strength until its ownership passed to AKG, Harman and beyond. Rather than adapt to the corporate life, Mr Andrews negotiated his way out of the contract, which allowed him to regroup with his original design team at their present rural workshop. There was a gestation period of several years between his exit from Turbosound and the first Funktion-One Resolution loudspeakers becoming commercially available: After licensing our Floodlight design, we went on a six-year R&D exploration', he says.

This highly creative time laid the groundwork for Funktion-One's product range on many fronts ranging from driver, waveguide and loading designs to flying systems and materials research. When it comes to speaker design, Mr Andrews is as passionate as they come. His pursuit for highest quality audio is all-consuming - he knows what a cabinet must sound like to satisfy an audience and musicians, and throughout the course of this interview was never moved to mention sales targets, plans to increase profits or widen distribution. Since submitting a paper on horn-loaded designs at the 1987 Nashville AES meeting, he has pursued spherical array designs to great critical success.



The Resolution family of loudspeakers not only delivers impressive sound quality to audiences around the world, but is remarkably light and small - just what the tour operator ordered. This has been achieved through innovative engineering methods and clarity of design.

The Beare Green headquarters may have tripled in size to accommodate extra warehousing and stock, but it still retains a laboratory workshop atmosphere that was its trademark when it was the Turbosound R&D facility. Funktion-One's design focus has been on the maximum conversion of amplifier energy into acoustic energy together with highest audio fidelity. Ever the non-conformist, it was Mr Andrews who decided to radically rearrange the standard operating bands of loudspeakers. One such example is the crossover from the bass enclosures to the 12-inch low-mid component at just over 100Hz to allow the typically ill-defined upper-bass and lower-mid regions to be handled by a dedicated driver. His approach to

reproducing mid range allows him to operate compression drivers in the more comfortable region above 6kHz where they can do least sonic damage. There are so many parameters and variables on offer within driver and enclosure design, and they all play a role in the ultimate result,' he explains. 'There is no perfect combination and no perfect loudspeaker, but there is an optimum balance, and that's what we strive to find.'

The iconic Resolution loudspeakers are a statement of intent to those operators who can afford what many regard as the best audio system the professional market has to offer. Whether installed in the plushiest nightclub venues or used live from international heavy metal to operatic productions, they have more than carved a niche in the market. When arrayed, the Resolution system generates a coherent wave almost devoid of inter-cabinet interference. Generally, such a system uses at least 30 per cent fewer enclosures than his earlier designs - which themselves set

Above: Korean pop star My Linn in Ho Chi Minh City with Funktion-One Resolution speaker system.

Left: Essential Funktions - John Newsham (left) and Tony Andrews.

the benchmark for size and efficiency. To top it off, the flying and tilting system allows swift deployment. A wheel-board completely protects the front of the cabinet and completes the packaging. Resolution has enabled a three-truck tour to turn into a two-truck tour, representing a significant cost-saving. 'Everything with Resolution is scalable,' says Mr Andrews, who has been a fierce critic of the line-array revolution. 'For instance, two stacks of four Resolution 5s will be more than adequate for a venue with a 2,000 capacity. However, if you are providing sound to the 43,000-capacity Tokyo Dome, then the same speakers can be used, you just use more of them. That's what a rental company needs - adaptability. One box that will do it all.'

Funktion-One's infiltration into the Far East was swift. Japanese distributor Funktion-One Japan, headed by Masaaki Azuma, previously used Turbosound through its rental company Try Audio and so has long been familiar with Andrews' work. While in London in December 2000 working for Slash, Azuma took the opportunity to visit Andrews. At the time I was considering buying a line array system although I was very unsure,' recalls Mr Azuma. 'However, upon hearing Funktion-One's loudspeakers and seeing at first hand how light, small and powerful these are, I knew I had found what I was looking for. The

Resolutions were the perfect solution and are the envy of the techno-trance, dance and club markets as the sonic quality is so clear - it is redefining the norm.'

Mr Andrews himself feels a strong affinity for the Japanese market: The Japanese are probably the most critical audience in the world and so to break into the market over here is very rewarding,' he says. 'If the Japanese are happy with your products then you know that they will meet with approval anywhere in the world.'

Funktion-One has managed to pull off a string of coups in Japan, including tours by Jamiroquai, the Chemical Brothers and Fatboy Slim, not to mention the yearly presence at Fuji Rock Festival. Following the first sound check of the tour in the Tokyo Dome, Jamiroquai's Jay Kay remarked that it was the best sound system he had ever heard.

Funktion-One has also established an office in Australia under the guidance of John O'Donnell, while Indonesian projects contractor Dempo Musik represents the company's interests in Indonesia, where it recently installed a Resolution system into the massive K7 nightclub in Jakarta. Clubs don't get much bigger than Kuala Lumpur's Zouk, and the cavernous nightclub has also adopted a Resolution system to good effect. The region is further consolidated with representation in China, Korea, the Philippines and Vietnam, where Funktion-One systems have been making significant in-roads in the club, rental and fixed installation markets as well as houses of worship.

Despite many years in design, Resolution's performance can still be compromised by poor acoustics and inexperienced operators, so Mr Andrews and Mr Newsham spend much of their time visiting installations to ensure that the facility managers and installers get the sound their venues deserve.

The speaker is merely the final link in the signal chain, and Mr Andrews has taken time away from his cabinets recently, including the new venture into stage monitors, to explore the Achilles heels that lurk in systems beyond the speaker inputs and grilles. The manufacturer's collaborations with fellow UK companies MC2 and XTA Electronics have allowed all three companies to prosper through a change of ideas and knowledge.

When a 19-year old amplifier designer by the name of Duncan Hamilton introduced himself to Funktion-One in 2003, Mr Andrews knew he had stumbled across a young star. This chance meeting spurred the subsequent development of the current active speaker designs. Active speaker systems were never going to be practical with the extra weight of conventional power supplies, but then switching power supplies came of age,' says Mr Andrews. 'I was impressed with the front-end kick and sustain of a prototype PWM amplifier and then we collaborated with BSS Audio and integrated pulse width modulation into the design of our speakers in the Millennium Dome. But it wasn't until Duncan Hamilton came along that I knew we were ready to take things further.'

Rather than adopt Mr Hamilton as a fellow Funktioneer, Mr



The **F1** team assembles for a picture at one of its many trade show appearances.

Andrews directed him towards Stourport and XTA Electronics, which was nearer to his hometown in the Midlands. It is here that he has been allowed to develop the A4 and A6 digital power amplifier modules under the guidance of Andrew Grayland.

Not only have the new modules given Funktion-One a further control in the signal chain, they also allow Audiocore networking. A further collaboration with Formula Sound has allowed Funktion-One to co-design the FF6000 DJ mixer, which has given both manufacturers much kudos by working together. 'We couldn't realise the full potential of our own speakers in the field until we were allowed to tweak other areas such as amplifiers and mixers,' Mr Andrews continues. 'We have enough to do with speaker development without looking for more work. However, having had a hand in these designs, we have created a huge leap forward in our pursuit of sonic excellence - so much so that I maintain that there

was no other mixer that satisfied our needs until the FF6000 came to the market.

Funktion-One is by no means a dictatorship, and Tony's wife Ann is keen to point out that none of the team possesses formal job titles or descriptions. David Bruml continues to develop further representation and distribution around the world: 'We seek a harmonious and knowledgeable user-base who understand the positive effects that excellent audio can have,' he says. 'Once someone has heard and appreciated Tony's designs, they rarely go back. We initially found like-minded people, to sell our speakers on the export market and as a result have developed many very strong relationships.'

His partner Emma Newton is kept busy ensuring that no hitches occur between incoming parts/supplies and the finished product being dispatched, while Toby Hunt maintains a hands-on approach with systems integrators

who specify their speakers in select and unique installations. When Mr Newsham isn't involved in some aspect of a loudspeaker, it's likely that he'll be on tour or at a festival working with the engineers to ensure that they get the most from their systems. A good example is when he oversaw that there was no excessive audio spill from the Royal Philharmonic Orchestra's performance outside the park area at the 2006 Kenwood Festival on London's Hampstead Heath. His assistance is varied and ranges from rock concerts and dance festivals to West End productions such as *Beauty & the Beast* and *Kiss Me Kate*, which used AX88 and Resolution 2 speakers.

Mr Andrews is keen to compare Funktion-One's work to that of a roof thatcher for very good reason. 'In a push-button world, there are very few creative people left possessing traditional skills. Back in the 1970s there were seven or eight different paper pulps available for cones, all named after letters of the Greek alphabet - now there are only two. Different materials give different sonic signatures, so this has reduced the number of variables. Changing parameters such as the cone, magnet and coil, will have more positive effect than any amount of digital signal processing and that's before you look at the enclosure and horn loading.'

Mr Andrews feels that the subsequent 30-odd years experience has served him well, although he doesn't profess to be anything other than an explorer in his chosen science: 'I'm not following any set rules or formulas in what we do or achieve here as they merely imprison you,' he says.

'Formulas have been derived from known givens, but I prefer to seek new avenues where the landscape hasn't been mapped out yet. I have learnt to trust my hearing and I can understand and appreciate where distortion has come from. We're neither an art nor a science - we're in the very interesting place in between. I can use the art side to understand what is needed emotionally, which is a blow for humanity against the machine and the science side to implement it technically. I love music and to provoke the right emotional response from what you're hearing you need the sound to move the person's mood. A speaker design may be perfect on paper, but it has to touch the soul.'

There is no blueprint, slogan or company motto within the purple walls of Funktion-One - just a camaraderie that continues to explore the parameters of loudspeaker design. Having catered for growing audiences with designs including the new F221 double 21-inch bass loudspeaker, it may surprise some that Funktion-One is now perfecting their own small loudspeakers. The company launched the F55 wide dispersion double 5-inch and F81 two-way, 8-inch 150W loudspeakers at Frankfurt Pro Light & Sound in March. But should anyone cast doubt on this expansion of the Funktion-One product line, non-believers would be best advised to listen to these new speakers as they again open up new avenues.

Funktion-One, UK: +44 1306712820  
 Funktion-One Japan:  
 +81 6 6636 1679  
[www.funktion-one.com](http://www.funktion-one.com)